Investigating fidelity of health behaviour change interventions in general practice

Claire Ann Taylor

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Investigating fidelity of health behaviour change interventions in general practice

by

Claire Ann Taylor

A thesis submitted in partial fulfilment of the University’s requirements for the Degree of Doctor of Philosophy

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<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of figures</td>
<td>iii</td>
</tr>
<tr>
<td>List of tables</td>
<td>iv</td>
</tr>
<tr>
<td>List of appendices</td>
<td>vi</td>
</tr>
<tr>
<td>Abbreviations, Glossary and Points of Clarification</td>
<td>viii</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>x</td>
</tr>
<tr>
<td>Abstract</td>
<td>xi</td>
</tr>
<tr>
<td>Chapter one:</td>
<td>1</td>
</tr>
<tr>
<td>Introductory overview</td>
<td></td>
</tr>
<tr>
<td>Chapter two:</td>
<td>5</td>
</tr>
<tr>
<td>Background</td>
<td></td>
</tr>
<tr>
<td>Behaviours related to health and health behaviour change interventions</td>
<td>6</td>
</tr>
<tr>
<td>Treatment fidelity</td>
<td>11</td>
</tr>
<tr>
<td>UK health policy context and general practice</td>
<td>26</td>
</tr>
<tr>
<td>Chapter three: Study one</td>
<td>33</td>
</tr>
<tr>
<td>Health behaviour change interventions: a meta-synthesis of views and experiences of primary care nurses</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>34</td>
</tr>
<tr>
<td>Methods</td>
<td>36</td>
</tr>
<tr>
<td>Results</td>
<td>43</td>
</tr>
<tr>
<td>Discussion</td>
<td>57</td>
</tr>
<tr>
<td>Chapter four:</td>
<td>65</td>
</tr>
<tr>
<td>Overview of the walking intervention research</td>
<td></td>
</tr>
<tr>
<td>Chapter five: Study two</td>
<td>73</td>
</tr>
<tr>
<td>Practice nurses’ and health care assistants’ experiences of helping patients to change their health behaviours: An Interpretative Phenomenological Analysis</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>74</td>
</tr>
<tr>
<td>Methods – study 2A</td>
<td>78</td>
</tr>
<tr>
<td>Results – study 2A</td>
<td>84</td>
</tr>
<tr>
<td>Discussion – study 2A</td>
<td>100</td>
</tr>
<tr>
<td>Chapter</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Introduction to study 2B</td>
<td>101</td>
</tr>
<tr>
<td>Methods – study 2B</td>
<td>103</td>
</tr>
<tr>
<td>Results – study 2B</td>
<td>105</td>
</tr>
<tr>
<td>Discussion – study 2B</td>
<td>119</td>
</tr>
<tr>
<td>Overall discussion</td>
<td>120</td>
</tr>
<tr>
<td><strong>Chapter six:</strong></td>
<td></td>
</tr>
<tr>
<td>Methods for Phase Three of the walking intervention research relevant to studies three, four and five of the present thesis</td>
<td>128</td>
</tr>
<tr>
<td><strong>Chapter seven: Study three</strong></td>
<td>135</td>
</tr>
<tr>
<td>Assessment of fidelity of the walking intervention delivered by practice nurses and health care assistants</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>136</td>
</tr>
<tr>
<td>Methods</td>
<td>140</td>
</tr>
<tr>
<td>Results</td>
<td>147</td>
</tr>
<tr>
<td>Discussion</td>
<td>168</td>
</tr>
<tr>
<td><strong>Chapter eight: Study four</strong></td>
<td>176</td>
</tr>
<tr>
<td>Practice nurses’ and health care assistants’ views and experiences of factors influencing their delivery of the walking intervention</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>177</td>
</tr>
<tr>
<td>Methods</td>
<td>180</td>
</tr>
<tr>
<td>Results</td>
<td>183</td>
</tr>
<tr>
<td>Discussion</td>
<td>199</td>
</tr>
<tr>
<td><strong>Chapter nine: Study five</strong></td>
<td>209</td>
</tr>
<tr>
<td>Patients’ understanding and experiences of the walking intervention</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>210</td>
</tr>
<tr>
<td>Methods</td>
<td>214</td>
</tr>
<tr>
<td>Results</td>
<td>221</td>
</tr>
<tr>
<td>Discussion</td>
<td>240</td>
</tr>
<tr>
<td><strong>Chapter ten:</strong></td>
<td>250</td>
</tr>
<tr>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td><strong>References</strong></td>
<td>282</td>
</tr>
<tr>
<td><strong>Appendices</strong></td>
<td>309</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 2.1</td>
<td>The 'black box' of behavioural interventions: the issue of treatment receipt</td>
<td>18</td>
</tr>
<tr>
<td>Figure 3.1</td>
<td>Flow chart outlining the number of articles retrieved, and included or excluded at each stage of the review process</td>
<td>43</td>
</tr>
<tr>
<td>Figure 3.2</td>
<td>Recommendations for development of strategies to support delivery of health behaviour change interventions by nurses in general practice</td>
<td>63</td>
</tr>
<tr>
<td>Figure 4.1</td>
<td>Flowchart showing study recruitment numbers, timing of intervention sessions and measurements</td>
<td>70</td>
</tr>
<tr>
<td>Figure 10.1</td>
<td>Recommendations for development of strategies to support delivery of HBC interventions by nurses in general practice, as presented following the synthesis of primary studies</td>
<td>274</td>
</tr>
<tr>
<td>Figure 10.2</td>
<td>Recommendations for development of strategies to support fidelity of delivery and receipt of HBC interventions by PNs/HCAs in general practice</td>
<td>278</td>
</tr>
</tbody>
</table>
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 3.1</td>
<td>Example of the development of the first and second order themes for two of the included studies</td>
<td>41</td>
</tr>
<tr>
<td>Table 3.2</td>
<td>Summary of characteristics of studies included in review</td>
<td>45</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>Overview of how the thesis studies link with the phases undertaken during the development and evaluation of the walking intervention</td>
<td>71</td>
</tr>
<tr>
<td>Table 5.1</td>
<td>Demographic characteristics of participants in study 2A</td>
<td>78</td>
</tr>
<tr>
<td>Table 6.1</td>
<td>Demographic characteristics of providers in Phase Three of the walking intervention research</td>
<td>129</td>
</tr>
<tr>
<td>Table 7.1</td>
<td>Specified sections, components and techniques for Session One of the walking intervention</td>
<td>143</td>
</tr>
<tr>
<td>Table 7.2</td>
<td>Specified sections, components and techniques for Session Two of the walking intervention</td>
<td>144</td>
</tr>
<tr>
<td>Table 7.3</td>
<td>Overall fidelity of delivery of components and techniques coded for Session One of the walking intervention</td>
<td>148</td>
</tr>
<tr>
<td>Table 7.4</td>
<td>Overall fidelity of delivery of components and techniques coded for Session Two of the walking intervention</td>
<td>149</td>
</tr>
<tr>
<td>Table 7.5</td>
<td>Frequency of competent delivery of 14 essential intervention techniques in Session One by each provider</td>
<td>153</td>
</tr>
<tr>
<td>Table 7.6</td>
<td>Frequency of competent delivery of 15 essential intervention techniques in Session Two by each provider</td>
<td>155</td>
</tr>
<tr>
<td>Table 7.7</td>
<td>Frequency of competent delivery of Session One components in the order specified, by provider</td>
<td>156</td>
</tr>
<tr>
<td>Table 7.8</td>
<td>Frequency of competent delivery of Session Two components in the order specified, by provider</td>
<td>158</td>
</tr>
</tbody>
</table>
Table 7.9  Suggested and actual time to deliver each intervention component in Session One

Table 7.10  Suggested and actual time to deliver each intervention component in Session Two

Table 7.11  Mean time and range for delivery of Session One by provider

Table 7.12  Mean time and range for delivery of Session Two by provider

Table 7.13  Delivery of the intervention according to the protocol by provider, and possible sources of variation for fidelity between providers

Table 7.14  Inclusion of behaviours in Session One that were not specified

Table 7.15  Inclusion of behaviours in Session Two that were not specified

Table 9.1  Demographic characteristics of participating patients

Table 9.2  Table used to recruit patients

Table 9.3  Process of data management and analysis

Table 10.1  Recommendations for strategies to enhance fidelity of HBC interventions in general practice
APPENDICES

Appendix one:
Overview of National Institutes of Health-Behavior Change Consortium (NIH-BCC) and treatment fidelity studies

Appendix two:
Original paper published from meta-synthesis

Appendix three:
Systematic review searches

Appendix four:
Table of first and second order themes developed in the meta-synthesis

Appendix five:
Overview of studies that explored health care providers’ experiences using Interpretative Phenomenological Analysis

Appendix six:
Ethical approval for Phase Two of the walking intervention research

Appendix seven:
Schedule for interviews undertaken with participants in study 2A

Appendix eight:
Table showing early stages of developing cross-case Interpretative Phenomenological Analysis in study 2A

Appendix nine:
Overview of longitudinal studies using Interpretative Phenomenological Analysis

Appendix ten:
Schedule for follow-up interviews undertaken with participants in study 2B

Appendix eleven:
Demographic data on general practices participating in Phase Three of the walking intervention research
Appendix twelve:
Ethical approval for Phase Three of the walking intervention research

Appendix thirteen:
Checklist used to assess provider competence

Appendix fourteen:
Walking intervention sessions delivered, recorded and coded per provider

Appendix fifteen:
Coding frames for walking intervention Sessions One and Two

Appendix sixteen:
Schedule for interviews undertaken with providers who delivered the walking intervention

Appendix seventeen:
Schedule for interviews undertaken with patients who received the walking intervention

Appendix eighteen:
Thematic framework developed during framework analysis

Appendix nineteen:
Thematic chart developed during framework analysis
ABBREVIATIONS, GLOSSARY AND POINTS OF CLARIFICATION

Abbreviations

CASP  Critical Appraisal Skills Programme
CRD  Centre for Reviews and Dissemination
DoH  Department of Health
GMS  General Medical Services
GP  General practitioner(s)
HBC  Health behaviour change
HCA(s)  Health care assistant(s)
HCP(s)  Health care provider(s)
IMD  Index of Multiple Deprivation
IPA  Interpretative Phenomenological Analysis
LTC(s)  Long-term condition(s)
MRC  Medical Research Council
NHS  National Health Service
NIH-BCC  National Institutes of Health-Behavior Change Consortium
NICE  National Institute of Health and Clinical Excellence
PN(s)  Practice nurse(s)
QOF  Quality and Outcome Framework
RCT  Randomised Controlled Trial

Glossary

Phase One – refers to Phase One of the walking intervention research
Phase Two – refers to Phase Two of the walking intervention research
Phase Three – refers to Phase Three of the walking intervention research (also termed an exploratory trial)
Phase Four – refers to Phase Four of the walking intervention research (also termed an explanatory trial)

Permanent products – are resources that are completed as part of a HBC intervention and can be used to assess whether techniques have been delivered and received during the intervention

Session One – refers to Session One of the walking intervention
Session Two – refers to Session Two of the walking Intervention

Study one – refers to study one of the present thesis
Study two - refers to study two of the present thesis
Study three - refers to study three of the present thesis
Study four - refers to study four of the present thesis
Study five - refers to study five of the present thesis
Points of clarification

General terms

Intervention techniques will be capitalised in the main body of the text (unless in a quote / extract from a participant).

Provider(s) – refers to the person who delivers a HBC intervention. In the present thesis provider will commonly refer to PNs/HCAs.

Various terms may be used to describe the person receiving a HBC intervention. In chapter two, where the broader treatment fidelity literature will be considered, the term ‘participant’ will be used to describe the recipient of a HBC intervention. ‘Patient’ will be used to describe an individual receiving an intervention within a health care setting and also where this is the term used to describe the person receiving the intervention in the publication reported.

As the studies in the present thesis focus on treatment fidelity in HBC interventions delivered in general practice settings the term ’patient’ will be used to describe the individual receiving the intervention.

Pseudonyms – all providers and patients included in the present research were assigned a pseudonym to help preserve anonymity.

Extracts/Quotes from participants

... refers to a pause that was present during the interview

[...] refers to a break inserted by the author in the extract

[ ] denotes where the author has inserted text for clarification
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ABSTRACT

The aims of this thesis are to investigate the factors influencing treatment fidelity of health behaviour change (HBC) interventions. The thesis will focus on HBC interventions delivered by practice nurses (PNs) and health care assistants (HCAs) to patients within general practice, although the findings will be explored within the context of the wider treatment fidelity literature.

The thesis comprises five studies, focused on exploring, enhancing and assessing fidelity of delivery and receipt of HBC interventions. Through developing an enhanced understanding of these areas of treatment fidelity, the thesis will also make recommendations for strategies to enhance and assess fidelity of delivery and receipt of future HBC interventions.

Study one is a meta-synthesis of qualitative studies that explored the views and experiences of nurses who had delivered HBC interventions with a focus on how this can inform future delivery of HBC interventions.

Study two is an Interpretative Phenomenological Analysis of PNs'/HCAs' experiences of helping patients to change their health behaviours within the context of their routine care, and before and after delivery of an intervention to facilitate increased walking.

Study three reports a quantitative assessment of delivery of intervention techniques to facilitate increased walking, as specified in an intervention protocol, by PNs/HCAs.

Study four explores PNs'/HCAs' views and experiences of the factors that influence their delivery of the walking intervention.

Study five investigates treatment receipt, by exploring patients' understanding of, and experiences of receiving the walking intervention.

The key findings from this research are that delivery and receipt of HBC interventions within general practice are influenced by a range of factors that include the providers' confidence and skills, the patients' expectations and/or engagement with the intervention and the general practice within which the intervention is delivered. A number of these factors are difficult to influence and so research teams need to develop a range of strategies to enhance delivery and receipt of HBC interventions. These may include appropriate preparation for providers to deliver the intervention, the provision of a simple intervention resource to support delivery of the intervention and the development of strategies to enhance patients' understanding of intervention techniques.
CHAPTER ONE

INTRODUCTORY OVERVIEW
Treatment fidelity can illuminate the extent to which studies provide a valid test of the theoretical basis of health behaviour change (HBC) interventions (Bellg et al. 2004 and Borrelli 2011). There has been increasing recognition of the importance of treatment fidelity in recent years, due in part to the publication of treatment fidelity recommendations by the National Institutes of Health-Behavior Change Consortium (NIH-BCC) (Bellg et al. 2004). Treatment fidelity is particularly important given the growing need for evidence based HBC interventions that may be delivered in order to improve public health.

General practice is recognised as a key setting for delivery of HBC interventions as most of the population has regular contact with general practice. Consequently there may be numerous opportunities available for undertaking HBC as part of routine care or to support the management of long-term conditions (Department of Health (DoH) 2002, DoH 2004a and DoH 2008). Practice nurses (PNs) and health care assistants (HCAs) are increasingly the providers of such interventions. Given this, developing understanding of mechanisms that may enhance treatment fidelity of HBC interventions delivered within the general practice setting and by PNs/HCAs is important. In addition, it is vital that those who receive HBC interventions understand the intervention so that they can implement the skills and strategies in order to change their health behaviours. However, there remains limited understanding of factors influencing, and mechanisms for enhancing, treatment fidelity specifically related to delivery and receipt of HBC interventions by PNs/HCAs to their patients within the general practice setting.

The thesis comprises five linked studies which will investigate delivery and receipt of HBC interventions delivered by PNs/HCAs within the general practice setting. Four studies are conducted alongside an associated Medical Research Council (MRC) funded study to develop and evaluate a walking intervention based in general practice (French et al. 2011), described in chapters four and six.

Study one (chapter three) is a systematic review and meta-synthesis of qualitative studies that explored the views and experiences of general practice nurses who had delivered HBC interventions. The study focussed on identifying factors that could enhance future delivery of HBC interventions.
Studies two to five were conducted in conjunction with the development and evaluation of an intervention to increase walking (French et al. 2011) in line with the MRC framework (Campbell et al. 2000 and Craig et al. 2008). Study two was conducted during Phase Two of the walking intervention research and studies three to five during Phase Three, which was a pilot exploratory trial of a definitive randomised controlled trial of the walking intervention (see chapter six).

Study two (chapter five) used Interpretative Phenomenological Analysis (IPA) to understand PNs’ and HCAs’ experiences of helping patients to change their health behaviours within the context of both routine care and as part of the developmental work conducted during Phase Two of the related walking intervention research. In the first part of the study, PNs were interviewed about their experiences of helping people change their health behaviours within the context of routine care. In the second part of the study, two PNs and one HCA were each interviewed twice, before training to deliver the walking intervention and following delivery of the intervention to patients.

Study three (chapter seven) assessed fidelity of delivery of the walking intervention delivered by PNs/HCAs to their patients within general practice. A quantitative assessment of provider adherence to the specified techniques defined in the intervention protocol was undertaken. Additionally, an assessment was undertaken of the time taken to deliver components of the intervention and other, non-specified behaviours.

Study four (chapter eight) explored the views and experiences of PNs and HCAs concerning the factors that influenced their delivery of the walking intervention. Semi-structured interviews were undertaken with the same PNs/HCAs who had delivered the walking intervention reported in study three and were analysed using thematic analysis.

Health behaviour change interventions rely on the recipient being able to understand, use and perform the information and skills delivered in the intervention. Study five (chapter nine) focuses on the patients who received the walking intervention to explore their understanding of, and experiences of, the
intervention. Semi-structured interviews were undertaken with a purposive sample of patients who received the walking intervention reported in study three. Data was analysed using framework analysis.

There are number of challenges facing PNs and HCAs when delivering HBC interventions and a range of potentially complex factors influencing patients’ receipt of behavioural interventions. By undertaking five studies which drew on a variety of data sources and methods of analysis there was considerable opportunity for triangulation of findings. The studies included a review of published studies and an in-depth exploration of PNs’ and HCAs’ experiences of helping patients to change their health behaviours (which also included detailed case studies of reactions to training and delivery of a HBC intervention). Studies three, four and five included a quantitative assessment of fidelity of delivery of the walking intervention by PNs and HCAs, a qualitative investigation of the experiences of the same providers concerning their delivery of the walking intervention and a further qualitative study of their patients’ experiences of receiving the walking intervention. Such triangulation is increasingly recognised as a valuable approach to enhancing knowledge and understanding as combining the findings of different studies can enable the development of a more complete picture and therefore enhance the credibility of the findings. This is particularly beneficial given the dearth of research concerning fidelity of delivery and receipt of behavioural interventions both within research studies and as part of routine care in general practice.
This chapter will overview the key issues that provide the background to the present research. These will be considered in three sections:

i) Behaviours related to health and health behaviour change interventions

ii) Treatment fidelity

iii) UK health policy context and general practice

A brief overview of the mixed-methods approach that will be used in the present thesis will follow the background to the research.

**BEHAVIOURS RELATED TO HEALTH AND HEALTH BEHAVIOUR CHANGE INTERVENTIONS**

**Importance of behaviours related to health**

Behaviours related to health, such as smoking, diet and physical activity, are widely recognised as being central to improving public health and reducing health inequalities (Mokdad et al. 2004, Ory, Jordan and Bazzarre 2002 and World Health Organization (WHO) 2006). The recognition, in the UK of the importance of behaviours related to health is evident in the number of health policy documents that refer to such behaviours and the need for improving public health through a range of efforts at different levels (Chief Medical Officers of England, Scotland, Wales, and Northern Ireland 2011, Department of Health (DoH) 2004a, DoH 2008, HM Government 2010, House of Lords 2011, National Institute for Health and Clinical Excellence (NICE) 2006a and NICE 2007).

The research presented in this thesis will focus on physical activity and to a lesser extent, healthy eating as the health related behaviours of interest. Adoption of physical activity and healthy eating is particularly important given the causal relationship between these behaviours and a range of health conditions including obesity, many cancers, diabetes and ischaemic heart disease (Chief Medical Officers of England, Scotland, Wales, and Northern Ireland 2011, DoH 2004a, Mokdad et al. 2004 and WHO 2010).
Physical activity
There are a number of UK recommendations for physical activity; one of the most recent recommends that:

Adults should aim to be active daily. Over a week, activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of 10 minutes or more – one way to approach this is to do 30 minutes on at least 5 days a week (Chief Medical Officers of England, Scotland, Wales, and Northern Ireland 2011: 7).¹

The recommendations of the Chief Medical Officers of England, Scotland, Wales, and Northern Ireland (2011) also acknowledge the role of vigorous activity and of combining moderate and vigorous intensity activity. The UK recommendations are consistent with the global recommendations for physical activity (WHO 2010).

However, there are a significant proportion of the UK population who do not meet current physical activity recommendations. Only 40% of men and 28% of women in England reported meeting the government’s previous recommendations for physical activity for adults (including older adults) (Chief Medical Officers of England, Scotland, Wales, and Northern Ireland 2011). Moreover, these self-reported activity levels contrast significantly with objectively assessed measures (using accelerometry) where only 6% of men and 4% of women achieved the previously recommended physical activity levels (The NHS Information Centre 2011a).

Healthy eating
There are a number of recommendations for healthy eating; one of the most recent is that:

Everyone should eat at least five portions of a variety of fruit and vegetables each day to reduce the risks of coronary heart disease and some cancers (The NHS Information Centre 2011a: 11).

¹ The research presented in this thesis will particularly focus on adults (defined as those between the ages of 18 and 65 years) and so recommendations for children and older adults are not included.
The NHS Information Centre (2011a: 43) report that, although a third of UK men and women are now eating the recommended ‘5-a-day’ of fruit and vegetables, that ‘household purchases of fruit and vegetables fell by 3.1% in 2009 and are now 8.5% lower than 2006’. Furthermore, although people are consuming less fat and added sugar than they were ten years previously, consumption of these products is still higher than recommended. In contrast, people are not consuming the recommended amounts of fibre or oily fish (The NHS Information Centre 2011a: 44).

Therefore whilst healthy eating behaviours, such as a high intake of fruit and vegetables have been linked to a reduced incidence of health conditions such as cardiovascular disease and cancer (Carter et al. 2010, Pomerleau, Lock and McKee 2006 and Van’t Veer et al. 2000), the majority of the UK population do not appear to be achieving the healthy eating recommendations.

**Health behaviour change interventions**

Given the developing evidence of morbidity and mortality that is directly attributable to physical inactivity or poor diet, and the statistics that show that the majority of the UK population are not meeting recommendations for healthy eating and/or physical activity, there remains a pressing need for understanding what interventions may facilitate behaviour change.

Health behaviour change (HBC) interventions may take many forms from policy changes, one-to-one education, mass media campaigns, development of technologies and provision of resources (House of Lords 2011 and NICE 2007). For the purpose of the research presented in this thesis, a HBC intervention is one where ‘the principal intention is to change people’s behaviour’ (House of Lords 2011: 9). Furthermore, that the intervention is delivered by a provider to a participant during one or more face to face sessions.

HBC interventions may be recommended or even incentivised for delivery as part of routine health care and have the potential to reach members of the general population which may have a number of positive effects on public health. This is illustrated through the development of smoking cessation services offered by
many practice nurses (PNs) and healthcare assistants (HCAs) within general practices, with resultant health benefits in terms of patients who have stopped smoking (NICE 2006b). Furthermore, the commitment to ring fencing public health budgets in the recently published public health strategy for England illustrates the importance of focussing on primary and secondary prevention to increase healthy life expectancy:

This White Paper outlines our commitment to protecting the population from serious health threats; helping people live longer, healthier and more fulfilling lives; and improving the health of the poorest, fastest (HM Government 2010: 4).

However, any changes at policy and practice level require the development of evidence of effective HBC interventions that produce the desired change in behaviour that may be sustained in the longer-term (Dusenbury et al. 2003, Glasgow 2009 and Måsse et al. 2011).

**Effectiveness and efficacy**

Without evidence of effectiveness, the likelihood of interventions being prioritised, whether at a national, local or practice level is limited, particularly given the already competing demands on health service budgets. With such pressure on treatment budgets, public health budgets have frequently been ‘squeezed’ (HM Government 2010: 26).

In order to develop public health policy and practice, policymakers utilise evidence concerning interventions that demonstrate efficacy within research studies. The efficacy of HBC interventions are commonly studied under highly controlled conditions, such as within randomised controlled trials (RCTs) where standardising and controlling variables is essential to increase validity (Campbell et al. 2000 and Craig et al. 2008); this is particularly important as many RCT’s of complex behaviour change interventions will comprise a number of active ingredients (Craig et al. 2008). Such studies may be characterised by a number of features, including the employment and intensive training of providers, study participants who are
selected according to well defined inclusion criteria and sufficient time available to providers to support delivery of the intervention.

The importance of attention to validity and reliability in HBC research is highlighted by the challenges described by NICE, when developing guidance for behaviour change (NICE 2007) based on published research:

Causal relations between interventions and their outcome were distal, and trying to show cause and effect from complex interventions in complex settings was difficult. Data about interventions was compromised as a result of poor planning of the interventions and the lack of specificity about intended outcomes. Behavioural models were selectively applied without reference to the evidence, and causal links between interventions and outcomes were often not articulated. There was confusion about the level at which interventions and outcomes operated, and an absence of systematic evaluation of interventions (House of Lords 2011: 94).

The translation of efficacious interventions to routine practice is challenging; consequently a number of authors recommend that the efficacy of behavioural interventions should be investigated under a range of conditions, from optimum, controlled circumstances, such as within an RCT to more typical, routine circumstances (Godfrey et al. 2007, Keith et al. 2010 and McKenzie et al. 2010). The potential value of this is highlighted by Nigg, Allegrante and Ory (2002: 676):

Despite considerable advances and increasing evidence supporting health behaviour interventions, few programs that have been demonstrated efficacious have been adopted in practice settings. Among the major reasons for the failure to adopt effective programs include the concern about the ability to generalise from non-representative efficacy studies, barriers to adoption under constraints of limited time and resources, and difficulties with consistency of implementation.

The translation of interventions from research studies into routine practice can be enhanced when policy makers, managers and/or providers have evidence
regarding what interventions may be most effective, for which groups and under what conditions (Estabrooks and Glasgow 2006, HM Government 2010, Mowbray et al. 2003 and Smith, Daunic and Taylor 2007). The development of the RE-AIM framework provided a tool that aimed to facilitate the process of translating research into practice by evaluating the Reach, Efficacy, Adoption, Implementation and Maintenance of interventions (Glasgow, Vogt and Boles 1999). However, Glasgow (2009) acknowledge that investigating implementation through assessing the number of participants to whom the intervention was delivered and the number of staff who delivered the programme, or the number of settings in which it was delivered is not sufficient to fully understand the process through which the intervention was delivered and thus the potential efficacy and/or effectiveness of the intervention.

TREATMENT FIDELITY

Introduction to treatment fidelity
Treatment fidelity refers to the ongoing ‘assessment, monitoring and enhancement of the reliability and internal validity of a study’ (Borrelli 2011: S52). Attention to treatment fidelity can therefore illuminate the extent to which studies provide a valid test of the theoretical basis and/or underlying principles of HBC interventions (Bellg et al. 2004 and Borrelli 2011).

Treatment fidelity is similar in many ways to manipulation checks, which have been undertaken in psychology studies for many years. Manipulation checks are usually embedded into the design of a study and are used to measure whether the manipulation of the independent variable had the anticipated effect on the dependent variable (Harris 2008).

Some of the earliest studies to develop and/or consider detailed strategies for enhancing and assessing treatment fidelity were undertaken in educational settings and predominantly in the United States (e.g. Detrich 1999, Haynes 1998 and Resnicow et al. 1998). Treatment fidelity has since been studied in a variety of interventions delivered in educational settings (e.g. Baranowski et al. 2000, Davis
et al. 2000, Dusenbury et al. 2003, Lane et al. 2004, Saunders et al. 2006, Smith, Daunic and Taylor 2007 and Zvoch 2009). Treatment fidelity has also been considered in intervention studies undertaken, for example in the fields of psychotherapy (e.g. Santacroce, Maccarelli and Grey 2004), counselling (e.g. Godfrey et al. 2007), second-hand smoking interventions for children (e.g. Johnson-Kozlow et al. 2008), prevention of behavioural, social, and/or academic maladjustment in children (e.g. Dane and Schneider 1998), prevention programmes aimed at children and adolescents concerning physical, social and mental health issues (e.g. Durlak and DuPre 2008), coping and communication support in cancer care (e.g. Radziewicz et al. 2009), drug and addictions research (e.g. Baer et al. 2007) and learning disability research (e.g. Gresham et al. 2000).

A number of authors have reviewed the extent to which treatment fidelity is reported in intervention research, from some of the earliest conceptualisations of fidelity (Dane and Schneider 1998, Lichstein, Riedel and Grieve 1994 and Moncher and Prinz 1991) to more recent reviews of fidelity (Borrelli et al. 2005, Dusenbury et al. 2003, Gearing et al. 2011, Johnson-Kozlow et al. 2008 and Mowbray et al. 2003). The importance of treatment fidelity in HBC interventions has received greater attention in the last few years, due, at least partly to the publication of the work in the United States of the National Institutes of Health-Behavior Change Consortium (NIH-BCC) (Bellg et al. 2004 and Borrelli et al. 2005). See appendix one for further details on the NIH-BCC and associated treatment fidelity studies.

The NIH-BCC recommendations were published after extensive developmental work, based on published literature and from the experiences of the development and assessment of fifteen NIH-BCC studies (Bellg et al. 2004 and Ory, Jordan and Bazzarre 2002). The NIH-BCC recommend attention to five areas of treatment fidelity, (i) design of the study, (ii) provider training, (iii) delivery of treatment, (iv) receipt of treatment and (v) enactment of treatment. These five areas will be considered in further detail later in this chapter. The five areas of treatment fidelity recommended by the NIH-BCC added to the previous conceptualisations of
treatment fidelity of Moncher and Prinz (1991) and Lichstein, Riedel and Grieve (1994) as they (i) included factors related to the design of studies, (ii) included factors related to training of providers, (iii) expanded on the areas of delivery, receipt and enactment and (iv) are of greater relevance to HBC research (Borrelli et al. 2005: 853).

The NIH-BCC proposes that a comprehensive fidelity plan should be developed at the study outset and maintained for the duration of the study. Furthermore, that attention should be paid to all dimensions of treatment fidelity in order to provide a complete picture of the mechanism of the intervention and the extent to which the intervention provides a valid test of its underpinning theory or underlying principles (Bellg et al. 2004 and Borrelli et al. 2005). However, both the NIH-BCC and other authors acknowledge that enhancing and assessing treatment fidelity can be challenging, time consuming and costly (Bellg et al. 2004, Borrelli 2011, Gearing et al. 2011, Resnick et al. 2005a, Schlosser 2002 and Smith, Daunic and Taylor 2007). For example treatment fidelity plans may need to be incorporated into study plans, grant applications and participant consent forms (Resnick et al. 2005b). Furthermore, the co-operation of intervention providers and participants may be necessary when collecting data and assessing fidelity will undoubtedly require extensive time by researchers.

**Fidelity to theory**


Attention to treatment fidelity can support theory testing. For example treatment fidelity related to study design necessitates that the components of the intervention reflect and can be mapped onto the underlying theory to facilitate understanding
as to why an intervention did or did not result in the desired behavioural outcomes. In turn, the specification of techniques can support the training of providers and delivery of the intervention, and also an assessment of fidelity of delivery (Hardeman et al. 2005) which is necessary to evaluate the efficacy of theory based interventions (Bellg et al. 2004, Borrelli 2011 and Michie et al. 2008). However, there remain relatively few studies that have studied fidelity to theories of behaviour change (Hardeman et al. 2008, Keller et al. 2009 and Michie et al. 2008).

**Fidelity to Protocols**

Protocols or manuals (hereafter protocol will be used) may be used by researchers or intervention developers to specify the intervention techniques to be delivered. Protocols that specify intervention techniques can also support assessments of the extent to which the specified techniques were delivered (Borrelli et al. 2005 and Luborsky and DeRubeis 1984). A clear description of each technique is essential to enable an assessment of the extent to which fidelity is achieved, and to make claims on the validity of an intervention (Bellg et al. 2004, Borrelli 2011, Gresham et al. 2000, Hardeman et al. 2008 and Moncher and Prinz 1991). Unfortunately the detailed description of intervention techniques is not common (Michie and Abraham 2008 and Michie et al. 2008).

Evidence points to both formative and summative benefits of the use of protocols. The development of a protocol is likely to facilitate greater attention by researchers to the theory and/or processes that underpin the design of the intervention. A protocol can directly enhance fidelity as it may facilitate the standardisation of training for providers which may, in turn provide a means of supporting delivery of the intervention in an accurate, consistent and precise way by all providers to all participants. This is particularly important where multiple providers deliver an intervention. Protocols may therefore minimise provider drift, which describes changes regarding delivery of interventions by providers over time (Borrelli 2011 and Peterson, Homer and Wonderlich 1982). Protocols may also support replication of interventions through the specification of techniques, thus serving to increase external validity (Hennessey and Rumrill 2003, Mowbray et al. 2003 and Resnick et al. 2005a).
Although protocols can significantly enhance delivery of behavioural interventions, the development and provision of a protocol is not sufficient to ensure fidelity of delivery as providers may interpret and deliver the specified techniques in differing ways (Moncher and Prinz 1991). Providers may omit techniques, add techniques, change the order of techniques or deliver an intervention that barely resembles that which was developed (Lichstein, Riedel and Grieve 1994 and Peterson, Homer and Wonderlich 1982). Such changes may result in positive, negative or have no effect at all on outcomes (Gresham et al. 2000 and Lichstein, Riedel and Grieve 1994).

**Overview of five areas of treatment fidelity recommended by the NIH-BCC**

**Study design**
Treatment fidelity related to study design concerns the extent to which a study can test its hypothesis concerning the underpinning theory from which it is developed and/or processes or components that constitute the intervention (Bellg et al. 2004: 445). Enhancing fidelity related to study design necessitates defining and specifying the intervention content and dose. Furthermore, it also relates to the development of strategies that plan for possible set-backs in implementation, such as provider attrition, and ensuring that participants receive only the intervention they are intended to receive.

**Training providers**
Fidelity related to training concerns the preparation of providers to deliver the intervention as intended. Providers should receive training to equip and then maintain their skills to ensure they deliver the intervention at an acceptable level of quality or consistency over the duration of the study. Ensuring treatment fidelity related to training may involve standardisation of training, certifying provider competence and provision of booster sessions (Bellg et al. 2004).

Bellg et al. (2004: 450) present a useful distinction between, ‘what is taught (treatment delivery), what is learned (treatment receipt) and what is actually used (treatment enactment)’. As the research presented in this thesis will focus on fidelity of delivery and treatment receipt of HBC interventions, a more detailed overview of these areas of treatment fidelity will be given.
Fidelity of delivery
Fidelity of delivery describes the extent to which HBC interventions are delivered with accuracy, precision and consistency for their duration (Bellg et al. 2004, Borrelli et al. 2005 and Hennessey and Rumrill 2003). As considered previously, a number of strategies may be utilised to enhance fidelity of delivery, such as specification of intervention techniques in a protocol.

HBC interventions have frequently been developed following extensive developmental work and numerous iterations (e.g. French et al. 2011), with considerable focus on the design of the intervention and measures to investigate efficacy. Therefore, it is paradoxical that studies that wish to explore the associations between the independent and dependent variables often do so without assessing what was actually delivered to the participant (Peterson, Homer and Wonderlich 1982). Assessments of fidelity of delivery are essential to interpret study outcomes (Borrelli 2011).

However, the validity and reliability of the fidelity assessments themselves, such as the procedures for data collection and analysis should also be considered to enhance the integrity of the fidelity assessment (Dusenbury et al. 2003, Phillips-Salimi et al. 2011 and Schlosser 2002). For example, whether objective assessment or self-reports will be used, the training that may be necessary to facilitate these assessments (i.e. standardised training for independent coders or training to facilitate self-reports by providers who may be uncertain about the names of intervention components), sampling issues such as the number of intervention sessions that will be observed and/or assessed for fidelity and whether these are sampled from across the entire delivery period.

A number of authors of interventions delivered in school settings have identified potential predictors of higher fidelity of delivery. These include interventions that are perceived by providers to be more straightforward, requiring less time and resources to implement (Detrich 1999, Dusenbury et al. 2003 and Lane et al. 2004). The reverse has also been found to be true, whereby complex interventions with many active ingredients may threaten fidelity of delivery (Dusenbury et al.

Whilst highly detailed protocols may be feasible in controlled research studies where numerous inputs are available to support delivery, such protocols may be difficult to adhere to and maintain in settings such as schools where competing demands and time constraints may be present (Dusenbury et al. 2003 and Gresham et al. 2000). Botvin et al. (1990) found that poor fidelity of delivery of a substance abuse programme by classroom teachers may have been due to the teachers not being convinced that the intervention was more effective than their usual way of working. The authors suggest that more intensive training may have been necessary to develop the skills and confidence of providers. Whilst training is reported to be essential to enhance fidelity of delivery of interventions (Rohrbach, Graham and Hansen 1993), it should not be assumed that all providers working in a particular context or associated with a particular professional group have the same skill level (Detrich 1999). Furthermore, training that draws on existing skills or that seeks to enhance skills necessary for delivery of the intervention but that may not be utilised within day to day practice will be essential (Rohrbach, Graham and Hansen 1993).

The influence of the setting on treatment fidelity has been considered in a number of studies undertaken in educational settings. Characteristics of such settings that have been found to influence delivery of interventions include the extent of perceived support for the intervention from the organisational lead and the extent to which the organisation is prepared to adopt new programs, the morale of the workforce, accommodation issues and availability of resources such as time and money (Detrich 1999, Dusenbury et al. 2003, Haynes 1998, Rohrbach, Graham and Hansen 1993 and Smith, Daunic and Taylor 2007).

Interventions that are more similar to those of the culture or context in which they are implemented and are more compatible or use similar strategies to those used in day to day practice by providers may be delivered with greater fidelity (Detrich 1999, Rohrbach, Graham and Hansen 1993 and Smith, Daunic and Taylor 2007).
Treatment receipt

Treatment receipt is one of two treatment fidelity strategies where the focus is shifted from the provider to the participant (the other being treatment enactment) (Bellg et al. 2004 and Borrelli 2011). Interventions that aim to change health behaviours rely on the participant being able to understand, use and perform the information, skills and strategies delivered during the intervention. Monitoring the degree to which participants understand the techniques delivered in an intervention aiming to facilitate HBC is important as it can help to illuminate the association between the techniques of the intervention and the behavioural outcomes. For example, interventions may be delivered as intended, but if the participant does not understand the intervention and/or cannot perform the skills and strategies of the intervention this will inevitably impact on their behavioural outcomes (Kovach 2009). Deficits in treatment enactment may be directly as a result of a deficit in treatment receipt; if the participant does not understand the skills and techniques of the intervention, it is unlikely they will enact them in their daily lives. Unless an intervention has no therapeutic value deficits in treatment receipt will always decrease outcomes (Lichstein, Riedel and Grieve 1994). Figure 2.1 illustrates this issue and provides an example of the potential ‘black box’ of behavioural interventions (Hulscher, Laurant and Grol 2003: 40).

Figure 2.1: The 'black box' of behavioural interventions: the issue of treatment receipt
A number of factors may influence treatment receipt (see figure 2.1). These influences may result from the intervention, the provider, the participant or the interaction between them. For example providers may deliver intervention techniques, but lack the communication skills necessary to deliver them in such a way that the participant understands what is expected of them or how to use the technique. In contrast participants may lack motivation or the skills necessary to comprehend the intervention, even if delivered by the most capable and appropriately trained providers.

To enhance treatment receipt strategies should be developed to monitor and improve the ability of all participants to understand and perform the skills and strategies of the intervention. Methods used to enhance treatment receipt are most often undertaken during delivery of the intervention and may involve strategies where the provider repeats information, or where participants are queried for their understanding of intervention techniques (Bellg et al. 2004 and Borrelli 2011).

Methods used to assess treatment receipt include asking the provider to assess the participant’s knowledge of the health information provided (Resnick et al. 2005a) or using providers or researchers to rate the extent to which participants were perceived to be engaged and/or receptive to the intervention (Resnicow et al. 1998). Other techniques to enhance and monitor receipt may involve the completion of intervention resources; for example asking participants to complete diaries (Sniehotta et al. 2006) or other self-monitoring logs/plans, which are reviewed by providers (Bellg et al. 2004, Resnick et al. 2005a and Resnick et al. 2005b). Such resources, which are commonly termed permanent products, are outputs of the intervention which, as a result of being completed for the purposes of the intervention, should not place an additional burden on the providers if used for assessment purposes by researchers (Gresham et al. 2000 and Lane et al. 2004).

**Enactment of treatment skills**

Treatment fidelity related to enactment involves strategies to enhance and assess the ability of participants to carry out the behavioural and/or cognitive strategies learnt during the intervention in appropriate real-life situations (Bellg et al. 2004).
The extent to which a participant enacts the skills and strategies of the intervention in their daily life may be influenced by a range of factors such as limitations in time, forgetting to enact their good intentions, uncertainty over the correct procedure, a lack of support from others or declining interest in the treatment (Lichstein 1988). Enactment is acknowledged as being the most challenging area of treatment fidelity, due to the complexity of differentiating between treatment receipt, treatment enactment and treatment efficacy (Bellg et al. 2004).

Importance of treatment fidelity in health behaviour change studies
The development of methodological strategies to enhance and assess treatment fidelity of interventions that aim to change behaviours related to health is important for a number of reasons that essentially relate to understanding how HBC interventions work (Bellg et al. 2004, Borrelli et al. 2005, Moncher and Prinz 1991 and Nigg, Allegrante and Ory 2002). Treatment fidelity can illuminate the extent to which studies provide a valid test of the theoretical basis and/or underlying principles of HBC interventions (Bellg et al. 2004 and Borrelli 2011). In order to investigate the mechanisms of behaviour change, HBC interventions must reflect the underlying principles or theory from which they are developed. Enhancing and assessing treatment fidelity can then increase confidence in the internal validity of intervention studies; or the extent to which the intervention provided a true test of the theory and goals that underpinned the research (Resnick et al. 2005a). As previously described, protocols can enhance fidelity of delivery of HBC interventions through the specification of techniques to be delivered to each recipient of the intervention. However, the specification of intervention techniques in a protocol must reflect the underlying principles or theory in order to provide an adequate test of the theory. For example, although fidelity to an intervention can be obtained, this may have poor fidelity to the underlying theory if the specified techniques do not reflect the underlying theory.

The aim of most behaviour change research is to establish the effects of the independent variable (i.e. the techniques or components that constitute the intervention) on the dependent variable (i.e. the behaviour). Interpretations of treatment outcomes should be illuminated with evidence for treatment fidelity, as it
cannot automatically be assumed that the independent variables resulted in change in the dependent variable (Bellg et al. 2004, Borrelli et al. 2005 and Schlosser 2002). Attending to treatment fidelity may be of particular importance if interventions have many active components, are delivered by multiple providers or across multiple settings, where uncontrolled variables may impact on outcomes (Baer et al. 2007, Borrelli 2011 and Zvoch 2009). For example extraneous factors, such as provider characteristics and the provider-participant relationship may impact on the intervention outcomes (Campbell 2011). In contrast, where non-significant results are found and there has been no assessment of fidelity, it should not automatically be assumed that the intervention is ineffective (known as a type III error); for example, in such cases providers may have omitted intervention techniques (Lane et al. 2004, Resnicow, Cross and Wynder 1993, Saunders et al. 2006 and Schlosser 2002). In the absence of an assessment of treatment fidelity, effective interventions may be rejected and ineffective interventions adopted (Bellg et al. 2004). This is likely to result in significant costs due to the on-going need to develop evidence of efficacious interventions (Borrelli 2011).

External validity concerns the extent to which interventions that have demonstrated efficacy for a particular group under particular conditions could be extended from the sample studied to other populations. These could be in different research contexts or when interventions are to be implemented as part of routine practice. Attention to treatment fidelity can support the interpretation of study findings and therefore confidence that the outcomes can be attributed to the underlying theory from which the intervention was developed. Furthermore, treatment fidelity can facilitate the successful replication of studies through the accurate and detailed documentation of treatment content and procedures (Borrelli 2011, Moncher and Prinz 1991 and Schlosser 2002).

Enhancing and assessing treatment fidelity is also important practically and ethically. Through monitoring treatment fidelity, identifying and correcting errors in delivery at an early stage of implementation can be achieved (Borrelli 2011). This serves to increase on-going implementation with high fidelity which can reduce resource costs to researchers and personal costs to participants. Evaluating fidelity can also help to determine information regarding dose effects (Resnick et
al. 2005a); for example participants may experience the intended behavioural outcomes in less intervention sessions than originally intended. This can enhance cost effectiveness, as treatment is delivered more efficiently, which may reduce participants' time and travel costs and which may reduce attrition from studies (Bellg et al. 2004, Borrelli 2011 and Moncher and Prinz 1991).

However, although studies are increasingly reporting strategies to enhance fidelity, the reporting of assessments of treatment fidelity in intervention research remains limited (Borrelli et al. 2005, Glasziou et al. 2010, Gresham et al. 2000 and Smith, Daunic and Taylor 2007). This demonstrates the importance of attending to and reporting strategies to both enhance and assess fidelity as it cannot be assumed that where studies have developed rigorous strategies to enhance fidelity that this has actually been achieved (Resnick et al. 2005a).

The lack of editorial requirements for reporting treatment fidelity may in part reflect a lack of perceived importance by some for the practice of treatment fidelity (Bellg et al. 2004 and Perepletchikova et al. 2009). A number of authors argue that attention to treatment fidelity should be given greater attention in publications, such that it becomes a standard component of reporting of behavioural research (Czajkowski 2011, Glasziou et al. 2010, Marteau et al. 2006, Mâsse et al. 2011, and Mayo-Wilson 2007). Furthermore, data on treatment fidelity can support the development of secondary research such as meta-analyses, through the provision of a detailed account of the intervention and study procedures (Carroll et al. 2007 and Glasziou et al. 2010).

**Critique of fidelity**

**Association between fidelity to theory/protocols and outcomes**

The reported degree of association between fidelity of delivery of an intervention according to specified techniques and study outcomes is mixed. A number of authors argue that improved implementation of an intervention results in improved outcomes. In a review of drug abuse prevention research in school settings, Dusenbury et al. (2003: 245) report a number of studies that have associated fidelity of implementation with improved student outcomes (e.g. Battistich et al.
Chapter two: Background

1996, Botvin et al. 1990, Haynes 1998, and Rohrbach, Graham and Hansen 1993). For example, Rohrbach, Graham and Hansen (1993) found that implementation of a substance abuse prevention programme by teachers was highly variable and generally low but that high levels of implementation of the program were associated with positive program outcomes. The inverse has also been found to be true, where poor fidelity of delivery has been associated with poor outcomes (Dusenbury et al. 2003 and Mowbray et al. 2003). This is further highlighted by Botvin et al. (1990) who report that when the data for teachers who had delivered a substance abuse prevention intervention with low implementation was excluded, positive effects for the programme were found. Borrelli (2011) also argues that changes in mediating variables that may be responsible for behavioural outcomes are also associated with higher levels of fidelity of implementation.

However, some argue that high fidelity may not always be associated with better outcomes (Dusenbury et al. 2003). Norcross (1999) reported that high levels of adherence to manuals in clinical psychology had a negative effect on the development of the provider-patient relationship and with positive outcomes. Ridgeley and Jerrell (1996) in a study of interventions for substance abuse treatment for severely mentally ill people, report a number of ‘delivery errors’. However, they consider whether variations from the intended implementation of interventions may be necessary in order to adapt an intervention or programme to its specific participants and/or setting. Adaptation of interventions by providers may occur for a variety of reasons including time constraints, insufficient opportunity for skill maintenance, limited availability of resources, organisational characteristics and culture or their perception that strict adherence to the intervention fails to meet local needs (Dusenbury et al. 2003). In such instances, documenting deviations from the protocol will be essential to evaluate what was actually delivered during the intervention (Lane et al. 2004).
Non-specific treatment effects

Non-specific treatment effects are any elements of an intervention that are not specified treatment components. Such effects may include characteristics of the provider, the inclusion of non-specified behaviours, the organisation/setting within which the intervention is delivered and the relationship between the provider and the patient (which may be referred to as the therapeutic alliance) (Campbell 2011, Godfrey et al. 2007 and Zvoch 2009). Characteristics of providers of interventions may directly increase or decrease the fidelity of delivery of the intervention; these may include their educational background, training, motivation, personal attributes and past experiences with similar interventions (Detrich 1999, Dusenbury et al. 2003, Lambert 1989, Lane et al. 2004 and Lichstein Riedel and Grieve 1994). Rohrbach, Graham and Hansen (1993) found that certain characteristics of teachers, such as those who were newer to the profession, more enthusiastic about the program and had more training and confidence in their abilities were associated with improved fidelity of delivery.

Bellg et al. (2004) and Borrelli (2011) recommend that non-specific effects should be monitored and/or assessed and if necessary strategies developed to minimise or control for provider differences. If there are differences in, for example providers’ personal communication styles then this may decrease confidence in associations between the intervention and outcomes, as the effects of these non-specific factors will not be known. However, non-specific effects such as the quality of the provider-participant relationship and provider variables such as warmth, empathy, credibility and knowledge are likely to be extremely difficult to monitor and/or control for. This is highlighted by Borrelli et al. (2005) who evaluated reporting of treatment fidelity in a wide range of HBC studies published between 1990 and 2000. Assessment of non-specific treatment effects was the treatment fidelity strategy that was reported in the lowest number (six percent) of journal articles compared to the other treatment fidelity strategies.

Some argue that strategies to control or minimise non-specific treatment effects can undermine the contribution of the provider in delivering interventions. For example in the field of psychotherapy and counselling, the issue of the importance
of the individual therapist as a potential active ingredient in the therapy process and outcome has been reported (Godfrey et al. 2007 and Lambert 1989). Furthermore, it is suggested that attempts to control for provider differences, such as through instructing providers to use detailed protocols or manuals may undermine the role of the provider (Lambert 1989 and Moncher and Prinz 1991).

Understanding the role of provider effects on participants and their behavioural outcomes may be of great importance when considering the potential effectiveness of research in non controlled situations, which is ultimately where many HBC interventions are delivered.

The recommendations for enhancing and assessing treatment fidelity by the NIH-BCC are presented as five areas. Leventhal and Friedman (2004) argue that, by separating the five areas of fidelity and particularly the areas of delivery and receipt, the potential interaction of the provider and participant may be lost. The extent to which non-specific effects should be monitored and/or controlled for is likely to depend upon the aims and research questions of individual studies. However, there are a number of factors that may minimise the degree to which non-specific effects may influence process and outcomes of intervention studies that do not necessitate attempts to control for providers' natural communication style. These may include, where possible using the same person to deliver the intervention, and where this is not possible, ensuring that providers are uniformly trained to deliver the intervention (Bellg et al. 2004 and Hennessey and Rumrill 2003).

**Standardisation and flexibility**

The extent to which the design of an intervention permits flexibility during delivery is likely to be a challenging issue facing intervention developers, researchers and policymakers and will be dependent upon a number of factors. One of these factors is likely to be whether the intervention is being delivered as part of an efficacy or effectiveness study. Attention to treatment fidelity is essential in order to interpret the efficacy of intervention research. Exploring acceptability to providers and patients, assessing feasibility and pilot testing interventions prior to assessing their efficacy under controlled conditions is recommended by the Medical
Research Council (MRC) (Campbell et al. 2000, Craig et al. 2008). Furthermore, high levels of acceptability within research contexts may enhance acceptability of interventions in dynamic, real-world settings and therefore increase external validity (Hennessey and Rumrill 2003).

Some authors argue that strict adherence to a protocol during efficacy studies may inhibit development of interventions that can be implemented in real world settings where competing demands are common (Dusenbury et al. 2003, Gresham 2009, Glasgow 2009 and Leventhal and Friedman 2004). It may be that some adaptations are necessary for delivery of interventions within routine practice, and may therefore be valuable modifications in effectiveness studies (Chesla 2008, Green and Glasgow 2006 and Gresham 2009). Where interventions specify essential and non essential techniques, this may permit a degree of modification of an intervention which may result in providers developing a greater sense of ownership of the intervention and serve to increase the likelihood of adoption and implementation of programmes into particular settings (Byrnes et al. 2010 and Smith, Daunic and Taylor 2007).

Nevertheless without a detailed assessment of what was actually delivered during an intervention and the use of this data in interpreting study outcomes, there can only be limited confidence in the validity and reliability of findings.

UK HEALTH POLICY CONTEXT AND GENERAL PRACTICE

UK health policy context
The potential for facilitating HBC within health care settings is widely accepted as they offer considerable opportunities for both reaching and supporting people with HBC (DoH 2004a, NICE 2007 and Wanless 2004). In particular, general practice has been identified as a key setting for delivery of HBC interventions due to the opportunities available for undertaking HBC as part of routine care or to support the management of long-term conditions (LTCs) (DoH 2002, DoH 2004a and DoH 2008). Furthermore, the majority of the population is registered with, and receives health care from this setting, making it an ideal setting for delivery of HBC interventions (DoH 2002 and DoH 2008).
However, whilst general practice is recognised as a key setting for delivery of HBC interventions, NICE (2006a) acknowledges the need for developing evidence around effective interventions to promote physical activity that can be delivered through general practice settings. Furthermore, a number of authors have considered the importance of closing the gap that exists between research and practice (Craig et al. 2008, Glasgow, Lichtenstein and Marcus 2003 and Glasgow et al. 2006), some of which are specific to HBC interventions delivered in the general practice setting (Cohen et al. 2011 and Eakin et al. 2004).

Practice nurses and health care assistants as providers of interventions
Until recent years, general practitioners (GPs) (also termed physicians) have delivered the majority of HBC interventions within general practice. In reviews of publications of physical activity interventions delivered in general practice, Tulloch, Fortier and Hogg (2006), Eakin, Glasgow and Riley (2000) and Simons-Morton et al. (1998) report that the vast majority of providers of interventions were physicians.

However, within UK general practice the developing role of PNs and more recently HCAs in facilitating HBC has been reported. Currently in general practice many PNs undertake a range of activities to help patients change their health behaviours or improve aspects of their lifestyle as part of their role in helping people lead healthier lives and managing LTCs (DoH 2002, DoH 2008, NHS Confederation 2003 and Prime Minister’s Commission on the Future of Nursing and Midwifery in England 2010). Where employed in general practice, HCAs may also take on health promoting roles (Dale and Vail 2010 and Vail et al. 2011). The rapid rise in HCAs working in general practice, largely through the late 2000’s has also resulted in further changes in the roles and responsibilities of the wider general practice workforce (Andrews and Vaughan 2007, Dale and Vail 2010 and Petrova et al. 2010). It should be noted that, as HCAs are not yet a regulated workforce, they often work under, or are mentored by the PN and consequently the role of individual HCAs may vary greatly (Petrova et al. 2010 and Prime Minister’s Commission on the Future of Nursing and Midwifery in England 2010).
A number of health care policies and frameworks support the developing role of these health care providers (HCPs) in undertaking HBC activities (DoH 2002 and HM Government 2010). Furthermore, support for the developing role of these HCPs has also been reported by their GP colleagues (Petrova et al. 2010) and by the HCPs themselves (Murchie et al. 2005, Sturt et al. 2008 and Vail et al. 2011).

However, a range of challenges and difficulties have been reported that relate to the routine delivery of HBC interventions by these providers, including time constraints, lack of available training and opportunities for skills development (Jansink et al. 2010, Lambe and Collins 2009, McGregor et al. 2008 and The Prime Minister’s Commission on the Future of Nursing and Midwifery in England 2010).

The Quality and Outcomes Framework
The introduction of the General Medical Service (GMS) Contract and associated Quality and Outcomes Framework (QOF) (DoH 2003) is reported to have had a significant influence on the work of general practice and the role of the practitioners working within it (Checkland and Harrison 2010 and Maisey et al. 2008). The QOF is essentially a ‘reward and incentive programme detailing GP practice achievement results’ (The NHS Information Centre 2011b). The QOF has four main domains; (i) clinical, (ii) organisational, (iii) patient care experience and (iv) additional services, such as screening. Each domain has a series of indicators against which practice achievements are scored.

The QOF has a large focus on the management of LTCs, but does include recent revisions that focus on primary prevention of cardiovascular disease for patients with hypertension through undertaking risk assessments and providing lifestyle advice on ‘physical activity, smoking cessation, safe alcohol consumption and healthy diet’ (The NHS Information Centre 2010: 35).

Recording the smoking status of patients with a range of conditions (i.e. coronary heart disease, stroke, hypertension, asthma and diabetes) is also incentivised; further scores are gained when such patients are given advice or referred to specialist services. However, the limited focus on behaviours related to health,
particularly physical activity and healthy eating in the QOF highlight the importance of developing the evidence base of efficacious HBC interventions that may be delivered routinely in general practice.

**Treatment fidelity in HBC interventions delivered in general practice by PNs/HCAs**

The extensive focus on treatment fidelity in educational settings illustrates the importance of considering the setting or context in which interventions will be delivered (Gresham 2009 and Schulte, Easton and Parker 2009). However, the NIH-BCC treatment fidelity strategies are neither context nor provider specific. There are few studies that have been undertaken in the field of health service research that have ‘systematically evaluated implementation fidelity’ (Hasson 2010: 1). Furthermore, although many HBC interventions have been delivered within general practice settings, detailed attention to treatment fidelity is rarely reported (Wilcox et al. 2010).

Breckon, Johnston and Hutchison (2008) undertook a systematic review of physical activity interventions delivered in a range of clinical and community settings where the level of treatment fidelity applied was explored. They found that in only around one third of the twenty-six included studies were the providers identified as members of the general practice team, and these were predominantly physicians. Furthermore, in only five of the identified studies was any reference to an assessment of the competence of the interventionist undertaken, and most of these were self-reported. There were no identified studies that attempted to assess fidelity of delivery of a physical activity intervention delivered by PNs and/or HCAs in general practice.

Many studies that have explored the efficacy of HBC interventions delivered within general practice or to general practice patients have used specially employed providers (e.g. Fortier et al. 2007, Haase et al. 2010, Hardcastle et al. 2008, Hardeman et al. 2008, Harting et al. 2004 and Perrin et al. 2006). The detailed assessments of fidelity of delivery of HBC interventions undertaken by Harting et al. (2004) and Hardeman et al. (2008) both used specially recruited and intensively trained providers. Employing providers may serve to enhance fidelity of
delivery by minimising other confounding factors, such as pressures of time and the challenges of delivering an intervention which may differ from the providers' usual way of working (Karhila et al. 2003). In addition, Bellg et al. (2004) acknowledge that a more pragmatic fidelity plan may be necessary where providers are delivering interventions alongside their usual work and so understanding factors that may influence delivery and receipt of interventions delivered in such circumstances is important.

There has been limited focus on treatment fidelity in efficacy studies of HBC interventions delivered within general practice and particularly where PNS/HCAs have delivered the HBC intervention alongside their usual work. The published studies that have investigated aspects of delivery of HBC interventions by PNs/HCAs to patients within general practice, and of treatment receipt by patients will be further considered in the studies presented in the thesis to which they are relevant.

The dearth of studies that have investigated treatment fidelity of HBC interventions in general practice may be as a result of the challenges of undertaking such studies (Bellg et al. 2004 and Resnick et al. 2005a). Buckwalter et al. (2009) describe a range of issues and difficulties when conducting intervention research in real world practice settings and highly unstable environments. Although not specifically categorising general practice as such an environment, a number of the issues presented in the article may impact on interventions delivered in general practice, such as the influence of external changes on the work undertaken or delivered. Such findings highlight the value of undertaking treatment fidelity studies with providers who usually work within general practice, and who deliver HBC interventions within general practice as this may have particular relevance to interventions delivered in real world conditions (Campbell 2011). Furthermore, such research may support the translation of evidence from efficacy trials into routine practice; which continues to be problematic (Marteau et al. 2006 and Whittemore 2009).

Therefore the present thesis aims to make a unique contribution to knowledge by investigating treatment fidelity of HBC interventions, delivered by PNs and HCAs
in general practice. Through undertaking a detailed investigation of delivery and receipt of HBC interventions, which as has been explored, are inter-related, the thesis aims to present strategies that can be used to enhance and assess treatment fidelity in future studies. The strategies may be used in both research studies but may also be applied to interventions delivered as part of routine care as such interventions are likely to be delivered by PNs and/or HCAs within general practice. Therefore the findings of the research presented in this thesis, as a result of being more representative of routine practice, may also support implementation of HBC interventions in routine practice (Campbell et al. 2000 and Nash et al. 2005).

**Rationale for mixed-methods**

Investigating treatment fidelity can be described as process data that can support the interpretation of study findings (Bellg et al. 2004, Borrelli 2011, Craig et al. 2008, Kearney and Simonelli 2006 and Spillane et al. 2007). Oakley et al. (2006: 413) explain that, ‘Process evaluations within trials explore the implementation, receipt, and setting of an intervention and help in the interpretation of the outcome results’.

The use of mixed methods approaches are increasingly recognised as important in process evaluations (Oakley et al. 2006) and when interpreting the findings of RCTs (Glenton, Lewin and Scheel 2011, Lewin, Glenton and Oxman 2009, Schumacher et al. 2005 and Verhoef, Casebeer and Hilsden 2002). The use of a mixed methods approach can enhance confidence in the findings of studies, which in turn can contribute to a ‘whole is greater than the sum of the parts’ level of understanding (Barbour 1999: 39).

Each of the five studies presented in the thesis employs different methods of data collection and/or analysis. Methods for individual studies were selected that were considered to be most appropriate to achieve the aims of the particular study. The strengths and weaknesses of methods for collection and analysis of data in each individual study will be considered in the relevant chapter.
The five individual studies are therefore intended to both individually and collectively illuminate and enhance understanding of issues concerning delivery and receipt of HBC interventions delivered by PNs and HCAs in general practice. Furthermore, the use of three different sources of data collected and analysed as part of the exploratory trial during phase three of the walking intervention research (see chapter four and French et al. 2011) will be used to facilitate a more complete understanding of the intervention process. This may, in turn, illuminate possible reasons for the efficacy (or lack of efficacy) of the walking intervention undertaken in the phase four explanatory trial (French et al. 2011).

The next chapter is a systematic review and meta-synthesis of qualitative studies that explored the views and experiences of nurses who had delivered HBC interventions within general practice (study one).
CHAPTER THREE: STUDY ONE

HEALTH BEHAVIOUR CHANGE INTERVENTIONS IN GENERAL PRACTICE:
A META-SYNTHESIS OF VIEWS AND EXPERIENCES OF GENERAL PRACTICE NURSES

An original paper published from this study is presented in appendix two.
INTRODUCTION

As described in the previous chapter, health behaviour change (HBC) interventions are increasingly being delivered by general practice nurses, as part of their developing role in the management of long-term conditions (LTCs) and helping people lead healthier lives. This trend is particularly evident in UK health policy (Department of Health (DoH) 2002 and The Prime Minister's Commission on the Future of Nursing and Midwifery in England 2010). In order to develop the evidence base for efficacious interventions, HBC interventions must be delivered as intended to ensure that studies provide a valid test of HBC interventions (Bellg et al. 2004 and Borrelli 2011). Despite this, there is little known about which strategies are most appropriate to enhance delivery of HBC interventions by nurses in general practice.

Qualitative studies can generate rich, deep and contextualised accounts that have significant potential for enhancing understanding, particularly in areas where there is a dearth of knowledge (Miles and Huberman 1994). The synthesis of qualitative studies can particularly enhance understanding concerning research questions relating to attitudes, experiences, acceptability and behaviours or questions that are not easily answered through experimental methods (Carlsen, Glenton and Pope 2007 and Dixon-Woods and Fitzpatrick 2001). Systematic reviews and syntheses of qualitative studies have been increasingly undertaken and published in the last twenty years and the credibility of such an approach to enhancing evidence, effectiveness and understanding has become more widely recognised (Centre for Reviews and Dissemination (CRD) 2009, Dixon-Woods and Fitzpatrick 2001, Dixon-Woods et al. 2006, Finfgeld 2003, Finlayson and Dixon 2008 and Mays, Pope and Popay 2005). It was determined that a systematic review and synthesis of primary qualitative studies of the experiences of nurses who had delivered HBC interventions in general practice would make a valuable contribution to the research literature as synthesising such studies could be used to inform strategies to enhance future delivery of HBC interventions by this group.

Systematic reviews involve the identification of primary quantitative or qualitative studies through a systematic literature search, assessment or appraisal of studies
meeting specified inclusion criteria and then the detailed analysis or synthesis of these studies (CRD 2009). Such a systematic approach to the development of evidence concerning a specific research question aims to minimise bias which may be a factor in individual primary studies and also in narrative reviews, due to the selection of studies and synthesis of data with no explicit process (Cook 1997 and National Institute of Health and Clinical Excellence (NICE) 2009). Systematic reviews of primary research can make a significant contribution to evidence based health care (Evidence for Policy and Practice Information and Co-ordinating Centre 2011, Higgins and Green 2011) and are frequently used to underpin health care policy and guidance (i.e. Chief Medical Officers of England, Scotland, Wales, and Northern Ireland 2011, HM Government 2010, House of Lords 2011 and NICE 2009).

Meta-synthesis is a method for synthesising primary qualitative studies and offers an inductive and interpretive approach to research synthesis (Thorne et al. 2004 and Walsh and Downe 2005). Meta-synthesis does not try to aggregate knowledge as in a meta-analysis. In meta-synthesis, studies are translated into one another, through the transfer of ideas and concepts across the different studies. This offers the potential for developing enhanced understanding as the findings of a synthesis may go beyond those of single primary studies.

The aim of this study was:

i. To systematically find and synthesise qualitative studies that elicited the views and experiences of nurses involved in the delivery of HBC interventions in general practice, with a focus on how this could enhance future delivery of HBC interventions.
METHODS

Systematic identification of literature

Scoping review

A scoping search of systematic reviews, syntheses or literature reviews of qualitative research was undertaken to determine that no existing review had previously explored the area of delivery of HBC interventions by nurses working in general practice. This scoping search also supported the development of the systematic literature search. The scoping search involved extensive searching of electronic databases and reference chaining, which involved reviewing the reference lists of relevant papers and checking forward citations of such studies. The author also worked in close collaboration with a University Librarian to further develop a search strategy across different electronic databases.

The search terms for identifying qualitative research specifically were developed in line with Shaw et al. (2004) and from further reading around developing optimal search strategies for locating qualitative studies (e.g. Grant 2004). Shaw et al. (2004) proposed three differing strategies for searching for qualitative studies (a broad based strategy, thesaurus and free-text term strategies). Following the conclusions of Shaw et al. (2004), it was decided that a broad based strategy would be used in the review, using the free-text terms, ‘qualitative’, ‘findings’ and ‘interview*’ and the thesaurus term ‘Interviews’. The broad-based strategy was selected as it had the highest recall (identification of potentially relevant records) of the three strategies evaluated, although the precision (actually relevant studies) of the strategy was poor.

The scoping search identified a number of studies that would be included in the review and a number of additional studies that, although not meeting the inclusion criteria did help to identify keyword and subject headings for the systematic search. Furthermore, studies that could support the development of methods for the study were retrieved.

included reviews, although relating to heath and healthcare were otherwise heterogeneous. However, those that synthesised primary studies relating to the views of nurses, including midwives and health visitors were obtained to inform the further development of the methods for the review.

The review by Dixon-Woods, Booth and Sutton (2007) included qualitative syntheses published up to and including 2004. Syntheses of qualitative primary studies (not all of which were systematic reviews) published after 2004 that had some relevance to the present research were obtained to further guide the development of the review (Campbell et al. 2003, Carlsen, Glenton and Pope 2007, Finfgeld-Connett 2008, Humphreys et al. 2007, Jones 2005 and Paterson and Thorne 2003).

The review and synthesis comprised three elements: the systematic identification of literature, critical appraisal of included studies and synthesis of studies.

Systematic search
A systematic search of electronic databases was undertaken using CINAHL, MEDLINE, PsycINFO, ASSIA and SCOPUS from date of inception to June 2009, using keywords and subject (thesaurus) headings. No date restrictions were applied. The search was undertaken in June 2009 and is presented in appendix three.

Duplicate references were deleted and all references were then screened according to the inclusion criteria. Initial assessment was undertaken by the author and then discussed with the wider review team where it was not clear whether the paper should be included.

To maximise identification of studies, reference lists and forward citation searches of all full text papers screened were searched manually. Authors of studies to be included in the synthesis were also contacted for suggestions of additional studies that may be included. All additional references obtained were screened according to inclusion criteria.
Inclusion criteria
Studies using qualitative methods to elicit nurses’ views and experiences of delivering HBC interventions, aiming to facilitate adoption of physical activity and/or healthy eating by adult patients (aged 16-65 years) within general practice. Studies were included if they utilised qualitative methods for the collection and analysis of data. This included qualitative studies as components of wider trials.

For studies utilising a mixed methods approach and where all other inclusion criteria were met, the review team met to determine if the qualitative results presented were deemed to be proportionately large enough to be included as a qualitative study. This was considered for each paper individually and was dependent upon a number of issues including what methods were employed, the proportion of qualitative results in relation to quantitative results presented and whether further qualitative findings were published in an additional paper of the same study.

Only papers that could be obtained in English Language were included as there were insufficient resources to pay for translation services.

Critical Appraisal of Studies
The appraisal of qualitative studies is a complex subject that has generated much debate (Dixon-Woods et al. 2006, Mays and Pope 2000, Walsh and Downe 2006 and Yardley 2000). It has been argued that the diversity of theoretical backgrounds and methodological approaches to both the collection and analysis of qualitative research means that the application of a single quality appraisal checklist across all qualitative studies risks undermining the creative and interpretive aspects for which qualitative research is valued (Braun and Clarke 2006, Dixon-Woods et al. 2004). However, appraisal is important as it can enhance understanding of the strengths and weaknesses of evidence, which should be taken into account during the process of synthesis. This can then increase confidence in the quality of the synthesis (CRD 2009).

A number of tools and checklists are available to support the process of assessing quality of qualitative studies (CRD 2009, Dixon-Woods et al. 2004, Greenhalgh...
and Taylor 1997, Kuper, Lingard and Levinson 2008, Public Health Resource Unit 2006 and Spencer et al. 2003). Following consideration of each of these tools, the Critical Appraisal Skills Programme (CASP) Tool for qualitative research (Public Health Resource Unit 2006) was selected to appraise the studies in the present research. The CASP tool was selected primarily because it was developed for appraisal of health related research and offered a suitably detailed approach to appraisal that could be achieved in the time available. Furthermore, the tool had been used previously in the appraisal of qualitative studies prior to synthesis, either in its original or an adapted form (e.g. Campbell et al. 2003, Carlsen, Glenton and Pope 2007 and Walter et al. 2004).

The CASP tool considers three broad issues concerning rigour, credibility and relevance, operationalised through ten questions regarding research design, recruitment strategy, data collection, researcher and participant relationship, ethical issues, data analysis, findings and value of the research.

Appraisal of included studies was undertaken independently by the author and Dr Shaw and then discussed during a meeting of these authors and Professor French. As appraisal of included studies relies on a subjective assessment by individual researchers, a discussion on the quality of each study was then undertaken. Agreement was reached on the overall quality of each study and how this would be considered in the synthesis. The results of this discussion were documented and drawn upon during synthesis.

**Meta-synthesis**

There are also a variety of methods for synthesising qualitative studies, some of which have traditionally been used for analysing primary studies but are being developed for the synthesis of studies (Dixon-Woods et al. 2005). The breadth of qualitative study types is recognised in the range of methods for synthesis, some of which are suited to synthesising certain types of primary studies, or for the type of synthesis that is to be undertaken (Dixon-Woods et al. 2005, Finfgeld 2003 and Finlayson and Dixon 2008). For example content analysis can facilitate the conversion of large numbers of qualitative studies into a more manageable quantitative form through the process of counting themes (Dixon-Woods et al. 2005).
2005). Other methods of synthesis, such as meta-ethnography (Noblit and Hare 1988) have been developed specifically for the synthesis of qualitative studies and strive to preserve the qualitative, interpretive nature of the included studies.

Dixon-Woods et al. (2005) present an overview of a range of methods that can be employed to synthesise qualitative studies. For the present study, each approach was considered in terms of its general advantages and disadvantages as a method for synthesising qualitative studies. Each approach was then considered in detail in relation to its appropriateness for synthesising studies in the review.

The meta-synthesis was informed by the techniques of meta-ethnography (Noblit and Hare 1988). This involved the translation of study findings into one another, through the development of first, second and third order themes across different studies (Britten et al. 2002 and Walter et al. 2004). The process of synthesising studies involved a process of induction and description to develop first and second order themes. Third order themes were then developed through an interpretive process to create an overarching framework that could help to answer the research question. This process is described in detail below:

**First order themes**
First order themes were identified through the extraction of original terms from each of the primary studies that could help to illuminate the factors that influenced nurses’ delivery of HBC interventions within general practice. This was undertaken for each study in chronological order and results were presented in a grid for each study. For relevant quotes/extracts taken verbatim from each study, text immediately preceding or following the quote/extract was extracted to help to preserve the context and thereby enhance understanding during later phases of the synthesis. A key was used for clarity whereby italicised text denoted quotes from the study participants and normal text denoted text from the author. The page numbers of extracts from the primary studies were also included.

**Second order themes**
The process of developing the second order themes commenced with the studies deemed to be of better quality (as determined through the appraisal process) and
then incorporated the other studies. To develop the second order themes, the author looked across the first order themes in each of the primary studies to identify where these themes could be grouped together across the studies. The development of second order themes involved an iterative process which also offered an opportunity for checking that all of the first order themes could be encompassed by one or more developing second order themes. This process is illustrated in table 3.1.

In some cases the actual themes used in some of the primary studies were adopted as they were felt to capture or represent the themes in the other studies, for example ‘infrastructure’ was a term used in Murchie et al. (2005). In other cases a new theme was developed that was felt to capture the themes in the primary studies more effectively.

Table 3.1: Example of the development of the first and second order themes for two of the included studies

<table>
<thead>
<tr>
<th>First order themes from each primary study</th>
<th>Second order themes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Corrigan <em>et al.</em> (2006)</strong></td>
<td><strong>Jansen <em>et al.</em> (2007)</strong></td>
</tr>
<tr>
<td>Staff criticised the behaviour change training for being too theoretical and not giving enough emphasis to the practicalities of implementing it (p. 7).</td>
<td><em>Before such a project is even organised it takes a lot of time deliberating and coming to agreements with your colleagues assigned to participate in this project on how the project should and could be organised internally</em> (Nurse, p. 4).</td>
</tr>
<tr>
<td>Some staff used the booklet in consultations as a prompt to remind them of relevant issues but others felt that it obstructed the flow of individual consultations (p. 8).</td>
<td><em>As the guideline provided gave the practice nurses the position to negotiate appropriate treatments with the GPs, it provided them with a more crucial role in organising this prevention programme</em> (p. 6).</td>
</tr>
</tbody>
</table>

1 Extracts presented are from study authors, unless stated otherwise.
Third order themes
Following the initial descriptive phase, an interpretive phase was undertaken. The second order themes were used as ‘building blocks’ (Walter et al. 2004: 587) to develop interpretations that may not have been explicit in the primary studies. The third order themes were developed through a process of interpretation from the patterns or themes that were evident when developing the second order themes. As all the included studies were about similar things and the findings largely corroborated each other, the analysis involved translating the studies into one another (Noblit and Hare 1988).

A checking process was undertaken to ensure that the interpretations were grounded in the primary studies being synthesised, thereby ensuring that the developing themes and interpretations remained true to the essence of the primary studies (Noblit and Hare 1988). This involved extensive use of the grid that detailed the first and second order themes, re-reading the studies and checking and discussing the findings with other members of the research team.
RESULTS

Systematic identification of literature
The search of electronic databases yielded 882 unique references. Nine studies were included in the synthesis (Adolfsson et al. 2004, Corrigan et al. 2006, Counterweight Project Team 2008, Jansen et al. 2007, Macintosh, Lacey and Tod, 2003, Murchie et al. 2005, Pill et al. 1999, Sturt et al. 2008 (two papers were included that describe a single study; these will be identified as Sturt 2008 and Sturt et al. 2008) and Wright, Wiles and Moher 2001). See figure 3.1.

Figure 3.1: Flow chart outlining the number of articles retrieved, and included or excluded at each stage of the review process

882 unique references identified from electronic search of five databases

831 papers excluded
659 rejected at title
172 rejected at abstract

51 full text papers screened

44 papers excluded at full text
Not a qualitative study: n=12
Insufficient description of/presentation of data collection, analysis or results to be included: n=4
Qualitative study but not nurses’ experiences of delivery of a HBC int: n=18
Full text not in English language/unobtainable: n=5
Intervention not delivered by nurses/does not state: n=2
Intervention not delivered in general practice: n=3

7 studies identified to be included

9 studies to be included

0 additional studies included following screening of reference lists, forward citation searches and contact with relevant authors

9 studies included

2 additional studies identified from forward citation searches of study protocol papers
Critical Appraisal of Studies
All nine studies were deemed to be of good quality in relation to the appropriateness of the research design, recruitment, researcher-participant relationship and ethical considerations. However, in some studies there was considered to be insufficient description of the data collection and analysis process and limited primary data to substantiate authors' conclusions. Following appraisal, although there was variation in the quality of the studies, it was agreed that all the studies could make a valuable contribution to understanding the research question and so would be included in the synthesis.

Characteristics of included studies
Key contextual data and characteristics of each study were extracted. The interventions were delivered as part of primary prevention programmes for patients at risk of cardiovascular disease or as part of secondary prevention interventions for patients with type II diabetes, obesity or established heart disease. All included studies were of nurses' views and experiences of delivering HBC interventions within general practice. In some of the studies, although the nurse delivered the intervention, the views of a practice GP and/or patients were also elicited to explore their perceptions of the nurse-led intervention and its implementation within general practice. Table 3.2 summarises the characteristics of the included studies.

Table 3.2: Summary of characteristics of studies included in review
Included study | Overview of study | Country | Participants who delivered intervention | Behaviour/s targeted | Participants involved in, and methods used in qualitative study
--- | --- | --- | --- | --- | ---
Adolfsson et al. (2004) | Secondary prevention of Type II diabetes | Sweden | Nurses n=11 Physicians n=5 | Various health behaviours for, i.e. weight loss | Focus groups, nurses n=11, Physicians n=5. Constant comparative method
Corrigan et al. (2006) | Secondary prevention of Coronary Heart Disease (CHD) | Ireland | Practice Nurses (PNs) n=4 General Practitioners (GPs) n=4 | Diet; Exercise; Smoking | Interviews, PNs n=3, GPs n=4, Practice Managers n=3.² Thematic analysis
Counter-weight Project Team (2008) | Weight management programme for obese/overweight patients | United Kingdom | PNs in 65 practices | Physical activity; Healthy eating | Interviews, PNs, n=15, GPs n=7.²³ Analysis involved identifying/ coding key themes/issues
Jansen et al. (2007) | Prevention of Cardio-Vascular Disease in high-risk patients | Netherlands | PNs n=7 | Diet; Smoking; Lifestyle changes | Interviews, PNs n=5.³ Thematic analysis
Macintosh, Lacey and Tod (2003) | Secondary prevention of CHD | England | PNs in 11 intervention practices | Diet; Exercise; Smoking | Interviews, PNs n=14, GPs n=4 (int. and control practices). Constant comparison analysis
Murchie et al. (2005) | Secondary prevention of CHD | Scotland | Nurses n=17 | Exercise; Diet; Smoking | Interviews, nurses n=17, GPs n=19. Thematic analysis
Pill et al. (1999) | Secondary prevention of Type II diabetes | Wales | PNs n=18 | Various health behaviours, i.e. physical activity; healthy eating | Documented discussions between research nurse and PNs n=18, group meetings, telephone de-brief, PNs n=17.
Sturt et al. (2008) | Secondary prevention of Type II diabetes | England | PNs n=23 | Exercise; Nutrition; Smoking | Focus group, PNs n=11. Thematic analysis
Wright, Wiles and Moher (2001) | Secondary prevention of Ischaemic Heart Disease | England | PNs n=7 | Exercise; Diet; Smoking | Group Interview, PNs n=7.² Thematic analysis

² Additionally, the views of patients were also obtained.
³ Additionally, views of other members of the project/programme team were obtained.
Interventions utilised a structured approach to guide delivery. This included the use of resources including a protocol, manual, consultation template, intervention programme/guideline, agenda setting chart, patient empowerment counselling model, patient consultation protocol/checklist and patient information booklet. Other mechanisms used to support and encourage delivery of the intervention included documentation of the content of consultations by the nurse.

All studies supported delivery of the intervention through training and/or supervision that was undertaken by the nurses prior to, or during delivery of the intervention. Assessing adherence to the structured approach was undertaken in some of the studies. This included assessments of audio-recorded consultations and review of nurse completed pro-formas.

**Synthesis**

The second order themes developed were: procedures for the intervention/study, preparation for delivery of the intervention, delivery of the intervention, nurse role/responsibility, patient role/responsibility, external factors impacting on general practices, infrastructure of individual general practices, and direct and indirect outcomes of the intervention. A table summarising the first and second order themes is presented in appendix four.

Four third order themes were developed, which will be described in turn:

A. Engagement of nurses
B. Clarification of roles and responsibilities
C. Engagement of the general practices
D. Communication of aims and outcomes.

**A. Engagement of nurses**

The engagement of nurses will be explored with regards to two factors; those factors that nurses value and feel rewarded by, and those factors that nurses need and/or want to be in place to support them.
Factors that nurses value and are rewarded by

Nurses generally reported being keen to be involved with, and deliver, HBC interventions and described a number of factors that they valued and felt rewarded by. Nurses particularly valued the opportunity for engaging with patients when delivering HBC interventions, which included the provision of increased time to spend with their patients and the provision of on-going support that the intervention enabled them to give their patients:

Nurses were particularly positive about increased time with patients, permitting enhanced relationships with resultant benefits for both patients and professionals. This development of skills and the enhanced level of continuity were clearly perceived as positive factors (Murchie et al. 2005: 525).

Nurses also described valuing their enhanced ability to equip their patients with skills to take more responsibility for themselves and the satisfaction this gave them, ‘that's the benefit of it...that frustration has gone - that sort of pressure that you're not achieving anything and actually now they can do it for themselves’ (Nurse cited in Sturt 2008: 377).

The enhancement of knowledge and skills to support the development of the nursing role was acknowledged as positive, particularly in terms of the nurses’ increased responsibility for patient care within general practice, 'It is rewarding that patients are actually looking to us for support and we can offer it because we have had the training’ (Nurse cited in Macintosh, Lacey and Tod 2003: 466).

Factors necessary to support nurses and maintain their engagement

Nurses also reported a number of factors that were necessary to support them throughout delivery of the intervention in order to maintain their engagement. The studies reported training to be essential to equip nurses with the necessary skills and knowledge to establish and deliver interventions, particularly if the approach was new for the nurses, ‘Old or new, the physicians and nurses still needed more training before they could say that they really mastered the empowerment approach’ (Adolfsson et al. 2004: 322).
Nurses emphasised that a key component of training should be developing and practising skills to enable them to deliver the intervention, and that skills development was of greater importance than training that focussed on theory:

Staff criticized the behaviour change training for being too theoretical and not giving enough emphasis to the practicalities of implementing it. They recommended that opportunities to watch a consultation and to practice what they had learned in 'role-play' should be included (Corrigan et al. 2006: 7).

Following training, nurses may need support and/or supervision to enhance their skills to deliver the intervention in practice, particularly during the early stages of delivery when skills and confidence may be developing:

The physicians and nurses thought it would have been easier to become a facilitator if they had received support from a supervisor for the workshop directly after or in connection with the first EGE [empowerment group education] session (Adolfsson et al. 2004: 322).

The communication skills necessary for delivery of certain HBC interventions may be new to many nurses, and may prove to be difficult to maintain once back in the practice situation:

And then I ended up asking yes and no questions as opposed to open questions...and then you sort of go back and try and think why do they keep saying yes or no when that's not what I'm asking them (Nurse cited in Sturt 2008: 380).

Therefore on-going training and support was important to maintain or increase nurses' skills, confidence and engagement and their ability to deliver the intervention as intended throughout the period of delivery:

The trial facilitators reported that the facilitator training met their needs, and they felt confident on completion. They acknowledged that they had difficulty in recalling theory surrounding unfamiliar elements of care delivery, such as
telephone support calls or consultation techniques, once they were back in the practice situation (Sturt 2008: 380).

The consequences of not maintaining new skills was a potential return to former ways of working and consequently not delivering the intervention as it was intended:

Initial enthusiasm for the intervention designed to modify professional behaviour was followed by a self-reported failure to maintain the change in consulting style, despite the fact that the nurses demonstrated some competence in putting the intervention into practice (Pill et al. 1999: 1497).

Equipping nurses to deliver the intervention was more complex than just delivering training focussed on knowledge and skills acquisition concerning the intervention itself. To be able to establish the intervention within general practice, training on the pragmatics of setting up interventions and having support to do so was regarded by nurses as necessary. The nurses in the Jansen et al. (2007: 4) study described the challenges associated with having to establish and co-ordinate the requirements of the intervention and study within the general practice, as well as deliver the HBC intervention to the patients, 'It is assumed that practice nurses can apply the knowledge they learned during their education in an instant, organisational skills that is'.

Furthermore, some of the nurses reported that they valued the use of a structured approach such as a protocol or guideline to support them when establishing and delivering HBC interventions. Difficulties in implementation in one study actually resulted in the development of a guideline to support delivery of the intervention by nurses:

The guideline described the procedural steps of the intervention’s performance. It was written as a sequential procedure [...] the guideline stated the elements of the prevention programme that had to be organised (Jansen et al. 2007: 5).
It would seem then, that supporting nurses to deliver both the HBC intervention and attend to the pragmatic issues necessary if they are required to establish the intervention within the general practice may necessitate attention when designing and providing training for delivery of the intervention. This would enable appropriate inputs and strategies to be developed to support and engage the nurses to deliver the intervention.

B. Clarification of roles and responsibilities

The developing role of nurses concerning delivery of HBC interventions within general practice also involved a changing dynamic in the roles, relationships and responsibilities of nurses, GPs and patients. Nurses seemed to value their developing role, but reported a need for the continued support of GPs. This was particularly evident when delivering HBC interventions as part of secondary prevention, where the management of existing medical conditions may be a factor, ‘Having the confidence to check things out with the practice GPs and having good working relationships with them were very important’ (Wright, Wiles and Moher 2001: 186); ‘It's great as long as you have the back-up of a GP’ (Nurse cited in Macintosh, Lacey and Tod 2003: 466).

Jansen et al. (2007: 6) reported that the development of a guideline for the QUATTRO intervention was instrumental in supporting the developing role of the nurse, as the guideline, ‘did give the practice nurse the position they needed to negotiate the appropriateness of treatments with the GPs’.

Many HBC interventions are based on a patient-centred approach, where the role of the nurse is facilitative, empowering or supportive and not that of an expert. The patient-centred approach was new to many nurses and also new to many of their patients:

The physicians and nurses felt it was easy to fall back into the traditional approach. They were used to individual counselling where they gave advice and recommendations. The patients were also used to being treated in such a way (Adolfsson et al. 2004: 321).
The patient-centred approach changed the dynamics of the nurses’ usual consultations and had implications for the role they assumed and the degree of comfort they experienced when delivering the intervention:

The role had changed from being the expert who gave advice and recommendations to becoming a facilitator who considered the patients needs. The physicians and nurses felt secure in the role of the expert and felt they knew what was best for the patients (Adolfsson et al. 2004: 322).

The patient-centred approach may pose challenges for the nurses but was also reported to pose challenges for patients, who may not, for a variety of reasons usually take an active role in changing their health behaviours. Facilitating patients to engage with certain HBC techniques was not always easy, ‘Patients found it difficult to identify specific goals in relation to lifestyle behaviours’ (Corrigan et al. 2006: 7). Factors affecting the patient’s ability to engage with the intervention may influence the nurses’ role in delivering it, and may also impact on the nurses’ ongoing engagement with delivering the intervention.

Nurses faced numerous challenges in terms of their role and relationship with the patient when passing over responsibility for HBC to the patient. This was particularly evident where this impacted on the management of a long-term condition (LTC) for which the nurse usually assumed responsibility, as shown in the following extract where the intervention was delivered to patients with diabetes:

By asking nurses to really involve the patients in decisions about their own condition we forced them to reconsider the issue of the extent of their own professional responsibility, the nature of their relationship with their patients, and the balance they were striking between the technical, caring and educational aspects of their work (Pill et al. 1999: 1498).

Furthermore, delivering patient-centred interventions as intended, that usually place emphasis on patient responsibility, may be challenging when delivered within the context of managing LTCs, for which the nurse was traditionally responsible:
Nurses felt they were now able to structure the education components of their consultations, but also warn that there is a danger of passing the whole responsibility to the person with diabetes along with the Diabetes Manual resources, and there may be some need to assess a person’s readiness for this (Sturt 2008: 378).

Such challenges of adapting to changing roles and responsibilities were evident in many of the studies and had the potential to directly influence nurses’ delivery of the intervention. Wright, Wiles and Moher (2001: 184) considered why nurses may have experienced difficulties in acknowledging and/or responding to issues raised by their patients, which was an important part of the intervention:

...this may have resulted from a lack of skills or ability to undertake this task, or a lack of confidence or knowledge about the particular issues they [nurses] were asked to explore with patients.

Therefore, in order to support nurses to adapt to and embrace their developing role, strategies may need to be developed to support the changing roles of the nurses. This may include clarifying the extent of the roles and responsibilities of nurses, GPs and patients in the intervention.

C. Engagement of general practices

As the general practice context has a direct influence on the nurse, engaging the wider general practice team may enhance delivery of the intervention by the nurse. In the Counterweight study (Counterweight Project Team 2008), the engagement of the wider practice team at an early stage of involvement was central to the subsequent implementation of the weight management programme:

All staff are encouraged to be involved in the decision on whether to implement the programme. A member of the practice team is also identified as a lead for programme implementation to help promote ownership and ongoing engagement of the whole practice team (Counterweight Project Team 2008: i84).
The active engagement of the wider practice is essential to ensure nurses are given the appropriate time in which to set up and establish the intervention:

Before such a project is even organised it takes a lot of time deliberating and coming to agreements with your colleagues assigned to participate in this project on how the project should and could be organised internally (Nurse cited in Jansen et al. 2007: 4).

During delivery of interventions, time constraints may adversely influence the feasibility of the intervention. This may be particularly evident in interventions that necessitate a patient-centred approach which often require more time for nurses to engage with patients than their usual consultations:

I don't think I have had the opportunity to use it in perhaps the way it was meant to be because of the time limitation [...] It doesn't always give me the opportunity to discuss as much as I would like to and get the patients participating in the way you have suggested (Nurse cited in Pill et al. 1999: 1497).

Wright, Wiles and Moher (2001: 183) also considered the implication of time pressures in terms of the extent to which they may have influenced nurses’ exploring patient cues when delivering the intervention, ‘Time may have also been a factor. Nurses may have been reluctant to explore concerns with some patients because this might have unacceptably extended the length of the appointment’.

Delivery of the intervention by the nurse may directly impact on the work of other healthcare providers within the practice and so engaging the wider practice team may be essential, ‘Time must be taken from other parts of their schedule which required understanding from the other providers at the family practices’ (Adolfsson et al. 2004: 322). Therefore communicating information about the intervention with the wider practice team is likely to be important to ensure they understand the intervention and the role of the nurse in delivering it, ‘It is important to share this with the whole family practice, this way of working [...] to get a better understanding of what we are doing’ (Nurse cited in Adolfsson et al. 2004: 321).
Engaging the practice may be facilitated if interventions provide opportunities and/or benefits such as training and education for the practice team, ‘Several GPs and nurses viewed establishing clinics as a ‘team building’ exercise. Additionally, implementing and running clinics motivated and educated the practice team’ (Murchie et al. 2005: 526).

Engaging the practice may therefore both directly and indirectly facilitate the nurse to deliver the intervention. Both the nurse and the practice within which they work may engage with interventions to a greater extent if the interventions are evaluated as having positive health outcomes for patients or other positive process or outcome benefits such as training for staff.

D. Communication of aims and outcomes

The communication of aims and anticipated outcomes of HBC interventions may engage nurses and practices prior to, during and after delivering the intervention, ‘The credibility of the programme, its support mechanism and materials were important in engaging practices’ interest initially’ (Counterweight Project Team 2008: i81). Communicating realistic expectations when initially engaging practices is also important, as unrealistic expectations may result in disappointment if such outcomes are not realised, which may, in turn affect the process of delivery of interventions by nurses:

Clinicians’ expectations of weight management outcomes are often over ambitious; this frequently leads to disappointment in terms of what is achievable, affordable or medically valuable (Counterweight Project Team 2008: i84).

Several benefits of participating in HBC interventions were described in the studies such as enhancing the skills of nurses through training and supporting development of the nurses’ role; these were considered in theme A.

Involvement in interventions, particularly those that differed from usual practice provided the opportunity to reflect and possibly change on-going practice, ‘It was encouraging that some nurses felt able to use the intervention to reflect on their
practice and felt it had been a personally helpful experience’ (Pill et al. 1999: 1498).

The development of nurses’ skills through their actual delivery of the intervention was also highly regarded and important for the development of the nurses’ role. This, in turn had a number of positive knock-on and on-going benefits, ‘Nurses reported that delivering the intervention had positively impacted on their job satisfaction, as they felt confident to help people to self-care’ (Sturt et al. 2008: 728).

The development of transferable skills may be a particularly beneficial outcome of involvement in interventions. Sturt (2008) reported that several nurses described using the techniques involved in delivery of an intervention for diabetic patients, with patients with other LTCs:

These developing skills were found to be useful for people with other chronic conditions, and they [nurses] were positive about the value and feasibility of the programme for use in primary care (Sturt et al. 2008: 729).

The potential for nurses to continue to use the skills developed through delivery of the intervention therefore could extend to facilitating their HBC interventions within routine interventions in the general practice:

I have discovered that I have begun to use the approach automatically more in my daily work. I use it, so it must be useful, because I use it without thinking about it (Nurse cited in Adolfsson et al. 2004: 322).

The potential for the development of transferable skills acquired when delivering interventions could be used to engage nurses during the early stages of delivery when increased time and efforts may be necessary to establish the intervention. Such benefits should therefore be communicated to the nurse and practice to enhance their engagement with the intervention.
Further benefits to the practice could also be communicated and may include the potential to improve practice organisational systems, ‘Opportunity to update patients’ records with a summary of diagnoses, tests, investigations and medication’ (Wright, Wiles and Moher 2001: 184). Nurses also described the value of delivering interventions that can support the achievement of general practice targets such as National Service Frameworks or the General Medical Service (GMS) contract, ‘I found it was sort of beneficial with all chronic disease…it’s meeting the (new GMS) contract quite well’ (Nurse cited in Sturt 2008: 380). Mechanisms for communicating feedback on data and outcomes were described as a useful way in which to engage nurses, ‘It is quite exciting when you can pull off data, and compare data and see you are improving. That’s quite motivating’ (Project Nurse cited in Macintosh, Lacey and Tod 2003: 467).

Communicating such benefits or potential outcomes may then be a useful way in which to engage nurses, practices and patients and which can in turn enhance and support delivery of the intervention, as described by the Counterweight Project Team (2008: i83), ‘Monitoring outcomes and creating a supportive environment for change are key facilitators to the ongoing engagement of patients and practices alike’.
DISCUSSION

Summary of principal findings
The synthesis resulted in the development of four inter-linking third order themes suggesting factors that need to be actively considered in order to support delivery of HBC interventions by general practice nurses:

Engagement of nurses
In most cases nurses will not only deliver the intervention but will also be the coordinating axis of the intervention within the practice and so their engagement is paramount.

Clarification of roles and responsibilities
Health behaviour change interventions often involve a changing dynamic in the role and responsibility of nurses, GPs and patients in general practice and so clarifying and supporting these developing roles is important.

Engagement of the general practice
The general practice has a direct influence on the nurse delivering the intervention; therefore engaging the wider practice team may support delivery of the intervention.

Communication of aims and outcomes
General practices and nurses with an understanding of the aims and potential outcomes and/or benefits of participating in an intervention/study may be more engaged with the intervention and in turn, may demonstrate greater commitment to, and ownership of the intervention or programme.

Strengths and limitations
Although a number of strategies were developed to maximise the identification of literature through the systematic review, searching for qualitative studies was challenging. In line with previous studies, it is suggested that, for the continued development and acceptance of synthesises of qualitative studies, a greater investment in indexing qualitative studies in electronic databases is needed (Dixon-Woods et al. 2006 and Shaw et al. 2004). Researchers may need to employ additional strategies to maximise identification of studies, as was undertaken in the present study (Walsh and Downe 2005).
As seven of the nine included studies were undertaken in the United Kingdom, the extent to which the themes are applicable beyond this context is unclear. For example, one of the included studies (Corrigan et al. 2006) took place in Northern Ireland and the Republic of Ireland and showed that the two different healthcare systems impacted on delivery of the intervention. This is likely to be of relevance as one of the principal findings of the present study was the importance of the general practice context on delivery of HBC interventions.

A number of strategies were undertaken to enhance the quality of the research. This included appraisal of the primary studies by two independent researchers (one of whom was the author), use of a recognised form of synthesis and detailed reporting of the process undertaken (Dixon-Woods et al. 2004, Finlayson and Dixon 2008 and Walsh and Downe 2005). The use of the CASP tool to appraise the primary studies proved to be beneficial in heightening the author to aspects of quality in the studies and in particular highlighting strengths and weaknesses of studies which would be considered when synthesising the studies. Although there was some variation in quality of studies, the worth of the studies was established during the process of synthesis (Dixon-Woods et al. 2006, Noblit and Hare 1988 and Public Health Resource Unit 2006); had studies been excluded following appraisal, this may have limited the insights obtained.

Synthesising the primary studies in this review facilitated the development of a deeper understanding of the factors that can enhance delivery of HBC interventions by nurses in general practice. The development of a conceptual framework, whilst remaining true to the findings of primary studies, is one of the advantages of synthesising qualitative studies, as it can offer insight that may not be achieved through the conclusions of the single studies.

**Relation to other studies**
The treatment fidelity recommendations proposed by experts such as the NIH-BCC (Bellg et al. 2004) do not detail treatment fidelity strategies that are context or provider specific, yet this study points to both the context and providers as being highly influential on delivery of HBC interventions. The extent of inter-linking between the third order themes in the current review demonstrates the complexity
of issues impacting on general practice nurses as they deliver HBC interventions to patients.

Aspects of the findings of the synthesis are partly corroborated by other studies. The issue of the challenges of changing roles and responsibilities between nurses, their healthcare provider colleagues and their patients has been considered in a number of studies in various health care settings (Jones 2005 and Varcoe, Rodney and McCormick 2003). Furthermore, the healthcare context has been found to be an important determinant of healthcare roles and relationships and may be influenced by priorities and service demands at particular points in time (Finfgeld-Connett 2008 and Humphreys et al. 2007).

The issue of roles, relationships and responsibilities of healthcare providers and patients has also been found to be a significant determinant of physicians’ adherence to guidelines. Carlsen, Glenton and Pope (2007) undertook a meta-synthesis of qualitative studies to explore GPs’ attitudes towards clinical practice guidelines and found that the type of guideline influenced how the intervention was received and implemented. Prescriptive guidelines encouraged use of interventions or behaviours and resulted in challenges for the GPs in terms of adapting the recommendations ‘to the circumstances of the individual patient and to the practical constraints of the consultation’ (Carlsen, Glenton and Pope 2007: 974). Proscriptive guidelines were categorised as those discouraging particular interventions or behaviours or where GPs were being asked to reduce or end existing activities. These guidelines posed dilemmas for the GPs in terms of their role as both a gatekeeper and patient advocate, and the potential impact of the necessary rationing on the doctor-patient relationship.

The present study focussed on nurses delivering HBC interventions that particularly focussed on encouraging healthy behaviours and therefore could be categorised as prescriptive. The findings of the present study and that of Carlsen, Glenton and Pope (2007) share some common themes in relation to the challenges of delivering interventions as recommended whilst attempting to meet the needs of both the individual patient and the constraints of the consultation. For many of the nurses and patients, the approach to delivery of the HBC intervention
was new, therefore maintaining skills to deliver the intervention was difficult, particularly because training was necessarily short and time was limited.

The impact of the general practice context on the nurses’ delivery of HBC interventions was evident in the present study. Issues that were particularly pertinent were those of juggling the demands of competing priorities with the requirements of delivery of HBC interventions, determining levels of responsibility in conjunction with practice GPs, engaging the wider practice team and the impact of time constraints. The context has also been found to be a key predictor of fidelity of delivery of interventions delivered in educational settings (Detrich 1999, Dusenbury et al. 2003, Haynes 1998, Rohrbach, Graham and Hansen 1993 and Smith, Daunic and Taylor 2007).

**Implications of the study**

The findings of the current review suggest that in order to facilitate the successful delivery of HBC interventions by nurses in general practice, mechanisms need to be actively developed to support engagement of nurses and the practices in which they work, clarify roles and responsibilities and effectively communicate aims and outcomes. The study therefore builds on the treatment fidelity strategies of the NIH-BCC, by being specific to nurses working in general practice. These findings can be used to inform strategies for researchers and policymakers or other healthcare providers to support delivery of HBC interventions in general practice.

**Nurses** are frequently the co-ordinating axis of interventions and so their engagement is vital. Nurses may face numerous challenges when delivering HBC interventions and these may influence their ability to deliver the intended intervention. Challenges can include limited opportunities for development of new skills, working with challenging patients, patients with LTCs or patients whose existing conditions are poorly managed, lack of experience of using a structured approach to HBC or because of time pressures. Therefore the development of strategies to actively engage nurses is essential.

Nurses value and are rewarded by the benefits experienced by the patients they work with and also the development of the nursing role. Skill development through
participation in training and actual delivery of interventions can increase confidence and job satisfaction, particularly where skills developed for a specific intervention can be utilised with other patients. Nurses value the use of a structured approach to support them with delivery, but they may need support in adapting to this approach to patient care. Such support concerns both delivery of the HBC intervention and pragmatic issues such as setting up and establishing the intervention within the general practice. In order to engage them in delivering interventions, nurses should be appropriately trained and supported, before and during delivery. This may include practising delivery of the intervention components within the time that will be available in the practice. Enhancing delivery of interventions could be achieved through engaging or consulting nurses and, where appropriate the wider practice team in the development of the intervention and the training they would require to deliver it (Detrich 1999).

The findings of the current review suggest that enhancing delivery of HBC interventions by nurses could also be enhanced through the clarification of, and support for, the developing roles and responsibilities of all those involved in the intervention. This is particularly important as HBC interventions in many cases adopt a patient-centred approach (Mead and Bower 2002) which may involve a shift in the roles of provider(s) and patient(s). With this approach, providers do not assume responsibility for the behaviour change even though they are delivering the HBC intervention. Instead they actively engage the patient in identifying issues of relevance for them and in taking responsibility for changing their health behaviours. Patients should be advised that involvement in a HBC intervention will necessitate their active contribution and commitment to the process.

The general practice has a direct influence on nurses delivering interventions and so its active engagement is crucial. Engagement of general practices may be enhanced if the aims and likely outcomes of interventions are more effectively communicated by research teams and/or policymakers/managers. This can support nurses and enhance ownership of the intervention by the practice. In order to engage both providers and the wider general practice in the delivery of HBC interventions, they may need to be convinced that interventions work. However, it is equally important that realistic expectations of the outcomes of interventions are
communicated. Communicating outcomes as a means of enhancing treatment fidelity has been documented in intervention research in school settings and in learning disability research. Interventions perceived to be more effective may be implemented with greater fidelity than those seen to be less effective (Dusenbury et al. 2003 and Gresham et al. 2000).

Communicating benefits such as the development of transferable skills by nurses for use with other patients, equipping patients to take greater responsibility for behaviour change or developing practice systems such as opportunities for updating patients' records can also support practice engagement. These benefits may be experienced by patients, by nurses or at a wider practice level both during and following the intervention. However, previous studies suggest that engagement of an organisation does not automatically predict engagement of the provider of the intervention (Rohrbach, Graham and Hansen 1993). This emphasises the importance of engaging both the provider and the organisation in which they are working.

At a national/policy level, the delivery of HBC interventions within routine general practice necessitates delivery of interventions within research studies as intended in order to accurately interpret the reliability and validity of such interventions. The development of the evidence base around efficacious smoking cessation interventions supported the integration of smoking cessation services within routine general practice (NICE 2006b), with resultant public health benefits. Smoking cessation services within general practice are provided through a comprehensive structure involving training, support, financial reimbursement and resources. The provision of many of these were identified in the current review as factors that could contribute to engaging nurses and the wider practice team and thus enhance delivery of interventions as intended.

However, for the delivery of public health interventions, which frequently involves HBC, 'despite the committed efforts of [the public health workforce], there are systematic barriers to the successful delivery of a “fully engaged” scenario' (Wanless 2004: 39). There is a particular dearth of evidence around effective interventions to promote physical activity that can be delivered through general
practice settings (NICE 2006a). Developing the evidence base concerning which physical activity and healthy eating interventions demonstrate the greatest potential for effectiveness may result in national policy actively supporting the delivery of such HBC interventions in general practice. However, this will necessitate attention to treatment fidelity in HBC interventions delivered in research studies.

The current systematic review and meta-synthesis increases knowledge concerning factors that can support delivery of interventions by a significant group of the public health workforce; nurses working within general practice. It is evident that the influences on nurses' delivery of interventions are complex. Figure 3.2 outlines factors that can be considered in order to enhance delivery of HBC interventions, based on the findings of this review. These findings are in accordance with evidence from the study of treatment fidelity in education settings (Detrich 1999 and Dusenbury et al. 2003) which show delivery of interventions are highly influenced by context.

**Figure 3.2: Recommendations for development of strategies to support delivery of health behaviour change interventions by nurses in general practice**
The largest section of the triangle denotes macro factors such as the context which may exert the largest influence on providers delivering interventions but may also be the most difficult to change. The smaller areas of the triangle are where the greatest level of support may be developed to support design, training and delivery of interventions, but are the areas that may have less influence on actual delivery of the intervention.

**Unanswered questions and future research**

In order to further develop understanding of factors that can support delivery of HBC interventions, more primary studies with a specific focus on treatment fidelity are needed. Future qualitative studies could specifically explore and report the experiences of health care providers on adhering to protocols when delivering HBC interventions. Exploration of the views of nurses on their experiences of helping people to change their health behaviours could also provide insight into the impact this may have on adherence to HBC interventions. This also merits further study according to context as the role and autonomy of nurses may differ within different healthcare systems.

Developing strategies to enhance treatment fidelity is necessary to increase the internal validity of studies evaluating behavioural interventions (Bellg et al. 2004). However, future studies should also aim to quantify fidelity of delivery in HBC research and how this impacts on study outcomes (Hardeman et al. 2008). Combining qualitative and quantitative methods during process evaluations of HBC interventions could enhance monitoring and assessments of treatment fidelity and therefore support the interpretation of the efficacy of such interventions (Mays, Pope and Popay 2005 and Thomas et al. 2004).

The present study utilised published primary studies to enhance understanding of the factors that may support delivery of HBC interventions by nurses in general practice. Studies two to five of this thesis complemented a series of associated research studies concerned with the development of a brief walking intervention that was delivered in general practice by PNs and HCAs (see French et al. 2011). The next chapter will provide an overview of these associated research studies, thereby forming an introduction to the subsequent studies in the present thesis.
CHAPTER FOUR

OVERVIEW OF THE WALKING INTERVENTION RESEARCH
This thesis complements associated research studies that developed and evaluated a brief walking intervention that was delivered in general practice by practice nurses (PNs) and health care assistants (HCAs) (see French et al. 2011). In this chapter an overview will be provided of (i) research that informed the development of the walking intervention prior to the current research, (ii) the current research studies, including the development of the walking intervention, and (iii) the way in which the present thesis links with the development and evaluation of the walking intervention research (summarised in table 4.1).

Overview of published and on-going research to inform the current research

Brisk walking, as an example of moderate intensity activity, has been shown to increase fitness and reduce body weight in previously sedentary adults (Murphy et al. 2007). Furthermore, walking has been found to be both acceptable and accessible to populations who are the least physically active (Morris and Hardman 1997). A review of interventions to promote walking found evidence demonstrating benefits of such interventions, particularly those 'tailored to people's needs, targeted at the most sedentary or at those most motivated to change, and delivered at the level of the individual or households or through groups' (Ogilvie et al. 2007: 9). However, the heterogeneity of the included interventions, the target populations and the settings in which the interventions were delivered makes identification of the most effective interventions to promote walking difficult.

The current walking intervention research builds on published and ongoing research undertaken by French and colleagues (Darker et al. 2007, Darker, Larkin and French 2007, Darker et al. 2010, Eves et al. 2007, French et al. 2011 and Scott et al. 2007). This research led to the development of a 10-15 minute walking intervention that comprised motivational and volitional strategies (Darker et al. 2010). The motivational strategies aimed to increase self-efficacy, which is an individual's confidence or belief in their ability to perform a certain task or succeed in a particular situation. The volitional strategies aimed to support the translation of good intentions into behaviour change through the development of Supportive Plans and Action Plans (Sniehotta et al. 2006). A waiting list controlled trial undertaken with 130 adult volunteers resulted in a mean increase of 87 minutes per week of walking, which was maintained for at least six weeks post-intervention.
(Darker et al. 2010). The intervention has been further developed, following a systematic review and meta-analysis, to comprise techniques associated with increases in self-efficacy, such as structured feedback, and to remove techniques found to be unhelpful such as coping plans (Ashford, Edmunds and French 2010 and Williams and French 2011).

**Current research to develop and evaluate the walking intervention**

The current research was undertaken to further develop the walking intervention to be routinely delivered in general practice settings by PNs/HCAs to patients who could benefit from increasing their walking. The eligible patients included in the research were those who:

- a) were aged between 16 and 65 years old
- b) had long-term conditions (e.g. diabetes, asthma), were overweight or obese, or would otherwise benefit from increased walking
- c) but were not awaiting investigation/treatment or being investigated/treated by secondary care specialists for the condition
- d) were sedentary, i.e. that they were not meeting the then recommend level of 30 minutes a day at least five times per week (DoH 2004b)
- e) were able to speak English
- f) did not have learning difficulties or mental health problems that would prevent active engagement with the intervention sessions
- g) wished to participate, and actively took up the offer to do so.

In line with the Medical Research Council (MRC) Framework for developing and evaluating complex interventions (Campbell et al. 2000 and Craig et al. 2008), the development and refinement of the walking intervention and trial procedures was undertaken during the first three phases of the walking intervention research. During Phase Four the efficacy of the intervention was evaluated through an explanatory trial.

**Phase One: Acceptability to general practice patients**

The first phase of the research involved a Research Nurse delivering the intervention to ten general practice patients to explore acceptability of the
intervention to them. The intervention described previously was refined iteratively as follows; firstly the research nurse delivered the intervention to a patient. Each patient was then interviewed by a member of the research team to explore their views of the intervention. Intervention sessions and interviews were audio-recorded, transcribed and then analysed by the research team. During, and as a result of this phase, the intervention was refined to enhance patient comprehension of worksheets and to increase the number of intervention sessions that patients would receive.

**Phase Two: Acceptability to intervention providers (PNs/HCAs)**
The second phase of the research also followed an iterative process to enhance the intervention and the training for the providers. Two PNs and one HCA were trained to deliver the intervention. Immediately after their training and following their delivery of the intervention to up to four of their patients, providers were interviewed about their experiences. Intervention sessions and provider interviews were audio-recorded and analysed by the research team. Furthermore, half of the patients who received the intervention were interviewed by a member of the research team immediately after they had received the intervention to explore their views of the intervention. As a result of Phase Two, the most significant revisions to the intervention and the intervention research were that resources used to support delivery during the intervention sessions were simplified, provider training was enhanced, and a follow-up intervention session was included.

**Phase Three: Exploratory trial**
The third phase was an exploratory (pilot) trial to optimise the delivery and further refine the intervention, study procedures and measures for the definitive explanatory trial. Ten providers were trained to deliver the intervention and eight of these delivered the intervention to up to fifteen of their patients. Additionally, two providers were recruited and trained to deliver an 'information provision plus pedometer' control intervention to fifteen patients.

**Phase Four: Explanatory trial**
Phase Four was a fully powered, cluster randomised controlled trial to evaluate the efficacy of the walking intervention (French et al. 2011). Phase Four of the
research was undertaken in general practices across Coventry, Warwickshire, Worcestershire and Herefordshire. Twenty providers were recruited, who were each randomised to deliver either the walking intervention, or the 'information provision plus pedometer' control intervention to 20 patients. All providers received training appropriate to the study arm to which they had been assigned. Figure 4.1 shows the study recruitment numbers, timing of intervention sessions and measurements for the Phase Four explanatory trial.
Figure 4.1: Flowchart showing study recruitment numbers, timing of intervention sessions and measurements (cited in French et al. 2011: 7).

N=20 PN/HCAs randomised by practice

**Self-regulation Intervention**
PN/HCA n = 10

Identification and invitation of 20 eligible patients per practice (Total patients n = 200)

Baseline: informed consent and baseline questionnaire completed

**t1 measures:**
Full TPB questionnaire
Demographics
EQ5D

Information provision session, with instructions on using pedometer

Assessment of duration of walking (pedometer)

One week
First Intervention session

Two weeks
Second Intervention session

**t2 measures:**
Short TPB questionnaire
Assessment of duration of walking (pedometer)

Four weeks
Follow up Intervention session

**t3 measures:**
(6 weeks post t2 measures)
Short TPB questionnaire
Assessment of duration of walking (pedometer)

**t4 measures:**
(6 months post t2 measures)
Full TPB questionnaire
EQ5D
Assessment of duration of walking (pedometer)

**Information Provision control**
PN/HCA n= 10

Identification and invitation of 20 eligible patients per practice (Total patients n = 200)

Baseline: informed consent and baseline questionnaire completed

**t1 measures:**
Full TPB questionnaire
Demographics
EQ5D

Information provision session, with instructions on using pedometer

Assessment of duration of walking (pedometer)

Two weeks
First Intervention session

**t2 measures:**
Short TPB questionnaire
Assessment of duration of walking (pedometer)

Four weeks
Follow up Intervention session

**t3 measures:**
(6 weeks post t2 measures)
Short TPB questionnaire
Assessment of duration of walking (pedometer)

**t4 measures:**
(6 months post t2 measures)
Full TPB questionnaire
EQ5D
Assessment of duration of walking (pedometer)
Overview of the way in which the present thesis links with the development and evaluation of the walking intervention research

Table 4.1: Overview of how the thesis studies link with the phases undertaken during the development and evaluation of the walking intervention

<table>
<thead>
<tr>
<th>Phases of the walking intervention research</th>
<th>Thesis Studies: Investigating fidelity of HBC interventions in general practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase One: Acceptability of intervention to patients</td>
<td>No associated studies</td>
</tr>
<tr>
<td>Phase Two: Acceptability of intervention to providers</td>
<td>Study 2: Interpretative Phenomenological Analysis of experiences of PNs/HCAs of helping people to change their health behaviours</td>
</tr>
<tr>
<td>Phase Three: Exploratory trial</td>
<td>Study 3: Assessment of fidelity of delivery of the walking intervention by providers Study 4: Experiences of providers concerning delivery of the walking intervention Study 5: Exploration of patients' understanding and experiences of receiving the walking intervention</td>
</tr>
<tr>
<td>Phase Four: Explanatory trial</td>
<td>No associated studies</td>
</tr>
</tbody>
</table>

Study one in the present thesis (the systematic review and meta-synthesis of qualitative studies) was undertaken at the same time as Phase One of the walking intervention research, but does not link to the development of the walking intervention research. Study two linked to Phase Two of the walking intervention research and all methods including ethical approval and study procedures will be outlined in the next chapter. Data for studies three, four and five of the thesis were collected in association with Phase Three of the walking intervention research. For this reason and to avoid duplication, the methods that are common to these three studies will be overviewed in Chapter Six rather than repeated for all studies.
Chapter five presents study two of the research; an Interpretative Phenomenological Analysis (IPA) of PNs' and HCAs' experiences of helping patients to change their health behaviours within the context of both routine care and as part of the developmental work conducted during Phase Two of the related walking intervention research.
CHAPTER FIVE: STUDY TWO

PRACTICE NURSES’ AND HEALTH CARE ASSISTANTS’ EXPERIENCES OF HELPING PATIENTS TO CHANGE THEIR HEALTH BEHAVIOURS: AN INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS
INTRODUCTION

To facilitate delivery of health behaviour change (HBC) interventions as intended by practice nurses (PNs) and health care assistants (HCAs), it is important to understand and learn from their experiences of undertaking such work. Such understanding may serve to optimise acceptability and engagement with delivery of such interventions and thereby enhance the fidelity of delivery of future HBC interventions (Bellg et al. 2004). Chapter three reviewed studies exploring the experiences of nurses who had delivered a HBC intervention as part of a research study within general practice. This review resulted in the development of a number of strategies that may support nurses to deliver HBC interventions in future studies.

Delivery of an intervention aiming to support HBC within the context of a research study is likely to differ from delivery of an intervention within routine care as research studies are likely to have offered inputs, i.e. training and support that may not be available in the context of routine care. Therefore it is also important to develop understanding of the experiences of PNs/HCAs when delivering HBC as part of routine care. Some qualitative studies have explored the views and perspectives of health care providers (HCPs) concerning their routine work to support HBC with patients in general practice (i.e. Jansink et al. 2010 and Lambe and Collins 2009). However, these studies predominantly report barriers to delivering HBC interventions and offer little insight into the experience of undertaking such work or the impact of the barriers on the HCPs.

There are few studies reporting the views and experiences of HCAs working in general practice. This is likely to be due to the fact that the role of the HCA is relatively new in general practice and some practices do not currently employ HCAs. Furthermore, of the published studies identified, the exploration of views and experiences of HCAs covers various aspects of work rather than specifically focussing on HBC (e.g. Vail et al. 2011). As the role of HCAs was developing rapidly at the time of undertaking of this study it was decided that including the experiences of a HCA would make a valuable contribution to understanding.
**Approach to the study**

Interpretative Phenomenological Analysis (IPA) is an approach to qualitative research that is particularly suited to exploring an experience, event or phenomena that has particular significance for the individual (Smith, Flowers and Larkin 2009). IPA adopts a core set of principles, in that it is idiographic, phenomenological, and interpretative. Each of these will be briefly considered:

**Idiography**
IPA is idiographic, as it is committed to the thorough examination of a particular case. In other words, the IPA researcher will attempt to understand the experience or meaning of a phenomenon, event or situation for an individual person (Smith, Flowers and Larkin 2009).

**Phenomenology**
Phenomenology is concerned with exploring the particular qualities and/or features of an experience for the person describing it. Such an experience will be personal to the individual but inextricably linked to, and influenced by a range of factors including the context within which it takes place, relationships, language and culture (Smith, Flowers and Larkin 2009). Furthermore, the experience is likely to have been of particular significance for the individual and thus may have resulted in substantial thought or reflection. The phenomenological approach requires that, at the point of data collection, the participant is encouraged to recall, reflect and describe both the experience and the significance that this has for them (Smith, Flowers and Larkin 2009).

**Hermeneutics**
IPA is informed by hermeneutics, the theory of interpretation. Human beings are sense-making creatures and any account or description of an experience may reflect an individual's attempts to make sense of these experiences. IPA recognises that a researcher's access to a participant's experience initially depends on what participants say about it. An interpretative analysis involves the researcher's attempts to make sense of the account given by the participant in order to better understand the experience (Smith, Flowers and Larkin 2009).
Therefore the process of analysis in IPA attempts to make explicit, that which may be implicit at the time of data generation (Smith, Flowers and Larkin 2009).

Smith, Flowers and Larkin (2009: 37) explain how the phenomenological and interpretative aspects of IPA are linked, ‘Without the phenomenology, there would be nothing to interpret; without the hermeneutics the phenomenon would not be seen’.

As an approach to qualitative research, IPA studies are usually characterised by a number of key features, including the methods for study design, procedures and analysis that support the development of a rich and detailed account of participants’ experiences (Smith, Flowers and Larkin 2009). The methods used in the present study were also developed by undertaking an overview of the methodologies of the most relevant IPA studies on the IPA website (Birkbeck: University of London 2011) that explored the perspectives of HCPs and practitioners. A brief overview of these studies is presented in appendix five.

The use of IPA in this study was intended to generate rich data, through exploring issues of importance to the PNs/HCAs, encouraging them to consider, reflect and describe their experiences of helping patients to change their health behaviours, and encouraging them to explore the meaning of these experiences. In addition, the process of analysis of the participants’ accounts would enable a deep understanding of their experiences (Reid, Flowers and Larkin 2005).

Smith (2011: 26) identified a 'noticeable gap in the IPA health psychology literature' relating to preventive health behaviour and health promotion and therefore encourages researchers to undertake studies that may enhance understanding in this area. To the best of the author's knowledge, exploring PNs’ and/or HCAs’ experiences of helping patients to change their health behaviours using IPA had not previously been undertaken.
The aims of the present research were:

i. To explore PNs’ and HCAs’ experiences and understanding of their work to help patients to change their health behaviours within general practice

ii. To use the findings of the study to develop understanding of factors that could support delivery of HBC interventions by this group.

To undertake a detailed exploration of the experiences of participants when helping patients to change their health behaviours within general practice, the present research comprised two linked sub-studies. These explored participants’ experiences within the context of routine work to change health behaviours and as part of a HBC research study:

i. Study 2A reports on a cross-sectional study to explore PNs’ experiences of helping patients to change their health behaviours as part of their routine work within general practice

ii. Study 2B reports a longitudinal study to explore the experiences of PNs and a HCA before and following their involvement in training and delivery of the walking intervention as part of Phase Two of the associated walking intervention research. Two of the PNs who participated in study 2A are also included in study 2B; hence the linked sub-studies are reported as one overall study.
METHODS - STUDY 2A: CROSS-SECTIONAL STUDY

Design
Study 2A was a cross-sectional study of the experiences of PNs of helping patients to change their health behaviours as part of their routine work within general practice.

Participants
Participants were seven PNs working in general practices in NHS Coventry (n=5) or NHS Warwickshire (n=2). All were white British, female and aged between 39 and 64 years (mean was 49 years, SD=9.96). Participants had been working in their present role for between 2 and 24 years (mean was 6 years, SD=7.69). See table 5.1.

Table 5.1: Demographic characteristics of participants in study 2A

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Demographic characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anna</td>
<td>50 years old. PN for 17 years in a large, urban practice. Previous nursing experience.</td>
</tr>
<tr>
<td>Jenny</td>
<td>39 years old. PN for 2 years in a large, urban practice. Previous midwifery experience.</td>
</tr>
<tr>
<td>Valerie</td>
<td>60 years old. PN for 6 years in a large, urban practice. Previously a District Nurse.</td>
</tr>
<tr>
<td>Jane</td>
<td>39 years old. PN for 4½ years, prior to that as a District Nurse and nurse in hospitals.</td>
</tr>
<tr>
<td></td>
<td>Based in a small, rural practice.</td>
</tr>
<tr>
<td>Margaret</td>
<td>64 years old. PN for 24 years in a large urban practice.</td>
</tr>
<tr>
<td>Caroline</td>
<td>42 years old. Specialist PN with a responsibility for the management of Long-Term Conditions</td>
</tr>
<tr>
<td></td>
<td>(LTCs) in a small, rural practice for 6 years. Previously PN for 12 years. Delivers smoking</td>
</tr>
<tr>
<td></td>
<td>cessation services.</td>
</tr>
<tr>
<td>Mary</td>
<td>49 years old. PN in a large, urban practice for 10 years. Keen interest in management of</td>
</tr>
<tr>
<td></td>
<td>LTCs. Previously nursing in hospitals.</td>
</tr>
</tbody>
</table>

Interviews lasted between 27 minutes and 68 minutes, the mean was 49 minutes (SD=13.21).
Procedure
Ethical approval was granted by the Black Country Local Research Ethics Committee (Ref: 09/H1202/13). A copy of the ethics approval is presented in appendix six.

Recruitment
The recruitment process for the current study was undertaken alongside Phase Two of the associated walking intervention research (see chapter four and French et al. 2011). By recruiting alongside the associated study, it was expected that participating PNs would be those with a particular interest in supporting HBC and therefore would be more likely to have considered their experiences of delivering such work. This was important because IPA typically studies the insights or experiences of a small, homogenous group of people regarding a particular experience or phenomenon (Brocki and Wearden 2006 and Smith, Flowers and Larkin 2009).

All participants received a written Participant Information Sheet and signed a consent form. Further verbal information regarding the study and ethical considerations were also given when arranging the interview with each participant and immediately prior to the interview.

Setting up data collection
Interviews were arranged by telephone. All participants opted to be interviewed at their general practice surgery, around lunch-time. For all participants the author offered to purchase lunch as a token of appreciation for being interviewed. All participants accepted this offer, which they reported as being much valued.

Data collection
All interviews were undertaken face-to-face by the author during July and August 2009. Interviews were audio-recorded with the verbal and written permission of participants.

Prior to analysis, all interviews were transcribed verbatim. Transcripts detailed particularly important non-verbal communication such as extended pauses and
laughter. As part of the early stage of analysis the transcript was re-read whilst listening to the audio-recording in order to undertake a final check of the accuracy of the transcript whilst providing an opportunity for becoming familiar with the participant's account.

**Interview schedule**

Semi-structured interviews were used to generate data, as these are well placed for collecting 'rich data' which is necessary for the detailed analysis undertaken in IPA (Smith, Flowers and Larkin 2009: 66). An interview schedule was developed that utilised open-ended questions and probes to enable the participants to speak freely about their experiences and to develop ideas of importance to them that could be followed up by the author (Smith, Flowers and Larkin 2009). This schedule was refined using an iterative process, with discussion undertaken with members of the research team and piloting with two Research Nurses (one of whom also works as a nurse in general practice).

The areas explored through the interview with participants included an overview of their role, experiences of delivering HBC, content of their HBC interventions, aspects of HBC work perceived to be particularly positive/beneficial and negative/challenging and their perceived preparedness to deliver HBC. The interview schedule is presented as appendix seven.

During the early interviews, a number of salient issues raised by the participants were considered to be of particular interest. As IPA emphasised the importance of the participants as active agents in the research process, the experiences that the author felt merited further exploration in later interviews were included in the schedule. In this sense, the schedule developed iteratively.

**Data analysis**

Although there is no prescribed or single definitive way in which to undertake IPA, Smith, Flowers and Larkin (2009) do provide a guide to analysis, which was used in the present study.
Analysis of individual participant transcripts

Analysis was initially undertaken for each participant's transcript independently. The process of analysis began with initial reading of the transcript as a means of becoming familiar with the data. Exploratory comments were noted on the transcript that included words and phrases extracted directly from the text and/or author's notes based directly on what was said by participants. Attention was paid to the participant's use of descriptive, linguistic or conceptual comments.

Emergent themes were then developed that aimed to capture the meaning of both what the participant had said and the author's interpretation of this. A word document was created for each participant that detailed each of the emergent themes with extracts from the text copied directly from the transcript under the appropriate theme heading. Where data were extracted directly from the transcript, the line and page number were included in the new document to facilitate the author moving between the transcript and development of the emergent themes and also to enhance the transparency of the analysis process.

Emergent themes that could be clustered, connected or grouped together were then re-arranged to form super-ordinate themes for each participant. This was undertaken in a variety of ways, including exploring patterns of similarities or differences between the emergent themes; being based on the salience or prevalence of particular emergent themes and exploring the connections and patterns between the emergent themes over the course of the interview. At this stage some of the emergent themes were discarded as they were felt to be of insufficient salience or prevalence, or to not cluster in any way with the other emergent themes. Throughout this process the author continued to go back to the original transcript to ensure the interpretations remained rooted in the primary data.

In order to minimise the influence of earlier transcripts when analysing later ones the author left a few days between the analysis of each transcript. This helped the author to focus on the phenomenological, interpretative and idiographic aspects of each participant's account. For each transcript, the same approach was undertaken as has just been described.
Moving from analysis of single cases to analysis across the sample

During this stage of analysis, although IPA remains concerned with a focus on the individual, the author moved to analysis that would explore the topic from the perspective of the larger group of participants (n=7). As previously described, during the analysis of each PNs' account the author had attempted to bracket off the analysis of other participants, to maximise the focus on the individual. As a result, in most cases themes generated for individual participants did not share the same names or content as those of other participants. In order to support cross-case analysis, a table was created to support the development of patterns of meaning across the participants. The table had a column for each participant with a row that detailed the super-ordinate themes developed for each participant and then a series of rows that detailed the emergent themes that were particularly prevalent or salient across the participants. This is shown in appendix eight.

The super-ordinate themes for each participant were given priority during the developing cross case analysis, as these were the themes that were the most potent for each participant. Nevertheless, the process of developing the super-ordinate themes across the sample involved moving between the table presented in appendix eight and the document of emergent and super-ordinate themes for each participant to check the extent to which the newly developing themes were shared across participants. The original transcripts were also reviewed, which provided an opportunity to re-analyse the transcripts of the individual participants from a new perspective; that of developing analysis across the entire sample. The cross-case analysis was further developed following guidance from Smith, Flowers and Larkin (2009) who suggest consideration of the (i) connections across the cases?; (ii) how a theme in one case may help illuminate a different case? and (iii) the themes that are the most potent?

Three new super-ordinate themes were developed that were considered to best connect the most potent experiences of the participants. Additionally, one of the super-ordinate themes comprised two sub-themes, which highlighted the convergence and divergence between the experiences of the participants that influenced the way in which they approached their work to support HBC, thus embracing the idiographic nature of IPA. Supporting extracts from the participants'
transcripts were included to support the developing cross-case, interpretative account.

The process of analysis continued when writing up the results of the study. The author was able to develop each super-ordinate theme through further interpretations.
RESULTS - STUDY 2A

Three super-ordinate themes were generated.

A. 'Half a job': the impact of external influences and perceived constraints
B. Nurses’ approach to, and role in, health behaviour change
C. 'You can lead the horse to water, you can’t make them drink': The issue of choice and responsibility

A. 'Half a job': the impact of external influences and perceived constraints
All of the nurses illustrated how health behaviours are an integral part of, and of great importance to their patients' health and well-being, ‘cos it's all interconnected' (Anna, 123); ‘it’s all related to something, some condition' (Margaret, 47) and ‘it’s the thing that underpins everything really’ (Jenny, 216). Furthermore, the nurses both acknowledged the importance of HBC and their role in promoting and/or supporting the adoption of healthy behaviours, ‘If you can try and stop people from smoking, get them eating healthily, you are going to reduce in the long-term possible illnesses that they will come across like diabetes, stroke, heart conditions’ (Jane, 263).

However, although in varying degrees, six of the seven nurses intimated that, in some way national policy and/or local priorities undermined the importance of HBC and/or restricted or challenged their role in supporting their patients with HBC, ‘We are often driven by the external forces that say okay this is the goal and you have to implement certain things. It's like QOF [Quality and Outcomes Framework], these are the standards, therefore this has to be done’ (Valerie, 363). The nurses appeared to experience a tension as a result of the importance they placed on HBC, in contrast to their perception of the lack of importance assigned to this work in the context of many other competing priorities.

Mary, Anna, Margaret and Jenny appeared to be particularly frustrated at the impact of the restrictions they experienced in relation to their role in undertaking HBC and their perception of the impact this had on the patients. It was these
nurses who appeared to perceive a more intense sense of lost opportunities concerning their work to facilitate HBC, referring to their work as ‘ticking boxes’ (Jenny, 152, 269; Mary, 252) or achieving ‘points’ (Margaret, 108; Anna, 118; Mary, 248, 255). The use of such terms suggested that they viewed aspects of their work in a mechanistic, repetitive way.

Mary, Anna and Margaret appeared to be particularly frustrated at having to introduce the issue of behaviours related to health to their patients (such as smoking and drinking alcohol) as a part of the monitoring activities they were tasked with undertaking. The nurses regarded these behaviours as being highly personal to the patient and thus potentially sensitive and difficult issues to introduce. Furthermore, having broached the subject, as a result of organisational procedures the nurses were, in many cases then unable to support their patients with the HBC process; instead they had to refer them to external services. Anna described her role in this process as one where ‘the nagging sort of comes and we flash our little card at them and say “go and see the NHS people”, that’s sort of an automatic thing really’ (142). Anna's use of 'nagging' implied that she was not altogether comfortable, both in terms of what she did and how she may be perceived by the patient.

Margaret seemed to share Anna's sense of discomfort, but implied a heightened level of unease at the impact of her intervention on her patient:

But I do find it very awkward sometimes when somebody comes to me about something which is totally unrelated, and some people find it a little bit off putting, if you say “oh by the way do you smoke, or do you still smoke?” Especially if they have come with a problem, which, you know, is quite important to them, sort of out of the blue, even if you try and make excuses about you need it for the computer records and things like that, it's a little bit out of place (111).

Margaret appeared to be faced with conflicting agendas, concerning what she perceived was appropriate and acceptable to both herself and her patient within the consultation, in contrast to what she perceived she had to do to fulfil her
responsibility to the organisation. This was particularly salient as the incongruence between the two appeared to undermine the nurse-patient relationship, which may account for why Margaret, in an attempt to maintain her relationship with her patient, felt compelled to make excuses about the intervention.

Mary, Anna and Margaret had all worked in general practice for ten or more years and all seemed to have experienced a decrease in their professional autonomy as a result of the emphasis on meeting the requirements of QOF and other priorities. This is illustrated by Anna:

Because it’s part of QOF points as well, so yes you have to do that every time you see a patient come in [...] whereas before you know, you might do that out of choice yourself [...] but it wasn’t a necessity but now it is, it is what you have to do (118).

Mary's reflections on her past work evoked a particularly strong sense of loss concerning the way she was presently working:

[Of screening for diabetes and depression] I would give them like a questionnaire to fill out, which is all well and good. But if you had more time, and they answered yes to, you know, “are you depressed?”, or “do you think diabetes is getting you down?” You would probably have a chat about it. But then you can’t choose, well I have got to get this questionnaire filled out and if they have answered yes to any of this then I have got to tell them to go and see the doctor. There they have to fill out another questionnaire. Years ago, wouldn’t have done it like that. We would have just had a chat and said right, “how can I help?” (280).

Mary presented the intervention as somewhat procedural, overly complex and one in which neither provider nor patient is fully engaged or has an active part. On consideration of Mary's entire interview, her experience appeared to be centred on her sense of being unable to fulfil her professional responsibility to her patients; when referring patients she used phrases such as ‘passing the buck’ (385) and ‘offloading them’ [patients] (285) which illuminated her unease at not supporting
her patients herself. Mary implied that even given the time constraints, the work that was prioritised was not necessarily that which she perceived should be, or which she would choose to prioritise:

Not enough time, definitely not enough time. So sometimes you think well I am not being as effective as I could be because I'm doing...not things that I shouldn’t be doing, but there's more emphasis on things that aren't perhaps quite so important (269).

The implication is that if the nurses feel they are not as effective as they have the potential to be, due in part to a lack of available resources and/or training to equip them to undertake this work, then this could well affect their sense of satisfaction in their work and also their motivation to undertake further HBC interventions:

‘Cos I feel like, I do kinda like do half a job at the moment do you know what I mean, I feel like it would be more effective if I had a little bit more knowledge and a bit more time to give them (264). [...] I mean I can give them the basics but I haven’t got the sort of the training techniques to go into more detail (Jenny, 279).

Most of the nurses had participated in a range of training to support their work in achieving QOF targets. However, very little of their training focussed on HBC specifically:

We do get bits and pieces through the post, but really no, the onus is on us to keep ourselves up to date [...] but there’s never anything on lifestyle intervention, it's always immunisations and smears and things, I think, you know it's felt we should all know it anyway (Jenny, 341).

Jenny seemed to be disheartened about the lack of status she felt HBC was given within general practice; which appeared to be as a result of numerous obstacles, including her own perceived lack of knowledge and other more situational barriers such as lack of time and training. The result of a lack of training was that nurses felt poorly equipped or in some cases unable to support their patients with HBC:
Well smoking is a very difficult thing to, for us to deal with if they haven’t come to us specifically to, because we pass them on if they want to. [...] So we can’t do any more with that and it’s not our field at the moment because we are not trained to do it (Margaret, 127).

Valerie and Jane acknowledged the influence of the context and external influences on their role but were pragmatic in terms of how these factors impacted on their delivery of HBC:

To the degree that we have the time to do it, because I think that’s a big issue, I guess to the degree that we do it, I think we are well placed and generally reasonably well educated to do it (Valerie, 295).

However, the scenario experienced by Caroline was entirely different. In the following extract she referred to her role in delivering smoking cessation interventions:

Well that’s partly because we get paid for it [laughs]. There is a sort of, because there’s a quite a big smoking cessation push in Warwickshire I think they pay us for those that quit, and for those that maintain quitting you get a small sort of fee, and there’s statistics that go into the national stuff. So we have to fill in the returns as well, so makes us do it (159).

Although she joked about the payment, it was evident that, as a result of the financial incentives which served to prioritise the work, there were also direct knock-on effects in terms of training and additional resources, such as allocation of time, provided to support nurses in undertaking this work. Based on the findings of Jenny, it is possible that such inputs may increase the nurses’ perceived status of both the importance of the behaviour change and the value of their role in facilitating it.
B. Nurses’ approach to, and role in, health behaviour change

Generally, the approach that the nurses took to delivering HBC interventions appeared to be driven by focussing on the needs of the patient, such that a patient perceived to be lacking in knowledge was given information and patients who were perceived to be lacking in motivation were offered support and encouragement. However, there were a large number of factors that stemmed from the nurse's beliefs and experience, rather than the patient that also seemed to influence their approach. The experiences of the information-giving nurses will form the first sub-theme, 'An information-giving approach'. The experiences of the more patient-centred nurses will form the second sub-theme, 'A patient-centred approach'.

An information-giving approach

Three of the nurses provided information to their patients in an attempt to demonstrate the links between health behaviours and health outcomes and in turn the importance of HBC. For example, Jane appeared to adopt a very straightforward approach to her HBC interventions where, for each condition a patient presented with, there was an appropriate informational response to be given by the HCP, 'if this...then this...':

If they are feeling like they are getting a bit stiff and then, you could probably suggest swimming because that’s good, the water will support the body weight which is excellent (80). [...] if they are asthmatic, and you know, they are really short of breath, you are not going to suggest a 12 mile hike, but you know, just gentle exercise that will improve their daily life (84) [...] just suggest that if they have got a sedentary job, that they do use stairs instead of lifts and things (88).

Jane, Mary and Anna depicted the act of giving and receiving, ‘I just feel that I can just talk to people and just say “well this is my skills and my knowledge and I’m passing them on to you” ’ (Anna, 200). The nurses’ perception appeared to be that upon receipt of information, the patient should then act upon it, with the resulting outcome being a change in health behaviour, ‘Once you have given them the ideas and some of the pointers, they should be able to do it themselves really’ (Jane, 122).
Whilst all the nurses appeared to be attempting to address the information needs of their patients, Anna's information-giving intervention appeared to be closely associated with her perception that her role was one in which, as a professional she should convey her experience, skill and knowledge to the patient as a means of reinforcing the informational message she communicated:

> Just trying to re-educate the patient [...] just again putting all the positive sides to why I think they will benefit from my advice [...] so I think that's our skill, actually to get over to the patient why they should be doing that (182).

Anna’s perception of the role she wished to portray appeared to be congruous with the way she perceived her patients viewed her, namely as an expert:

> Because you can tell when they walk in you get an idea, I mean you can tell a smoker from, you know straight away “are you still smoking?” and they look at you and say “how do you know I smoke?” and “I actually do know because I can tell by looking at you”, you know or the red faced men with the big red nose and big gut you know “how much do you drink?” (151).

In keeping with the role of expert and professional, the information-giving nurses implied that they controlled the content of their interventions:

> It's all very well saying, “oh we are going to do this”, and “we are going to do that” and you know, push patients to do this. But I think time is probably a hindrance because sometimes we just haven't got time to do what we want to do properly (Anna, 418).

Anna evoked an air of confidence and assurance in her role in the intervention. She made no reference to the contributions of the patient and the only factor that hindered her control regarding the content of the intervention was time.

The information-giving nurses also appeared to have an expectation that patients should comply with the advice and information they had been given. The patient is
portrayed as a passive recipient of the information and knowledge imparted by the nurse:

I mean quite a few diabetics are very well controlled, you know, and you think they are almost not diabetic, but that’s probably because they are quite sensible. They have been told, and taken on board what we tell them, so yeah, that is positive (Mary, 327).

However, unlike Anna, Mary's reliance on an information-giving approach appeared to be more as a result of the pressures of the general practice context in which she worked than of her perception that this approach to HBC was effective or helpful for the patients. When Mary reminisced about her past way of working, which appeared to have involved a greater degree of support and focus on the patients’ needs, she implied that the way in which she currently worked was essentially the best she could do given the time constraints she worked within:

But if you had more time [...] you would probably have a chat about it. Years ago, wouldn’t have done it like that. We would have just had a chat and said right, “how can I help?” And you know, “what exactly is getting you down?” [...] If you had more time I would probably have a half hour chat with them (280).

Mary therefore seemed saddened by an approach which she appeared to feel compelled to adopt, rather than one with which she was comfortable and confident to deliver. However, although Mary did not appear to feel entirely at ease with this approach, it did seem that, like Anna, she considered that, in order for the information she provided to result in HBC, she must adopt an authoritarian approach. There seemed to be similarities between Jane, Mary and Anna in that the information-giving approach was as much about the source or provider of the information as the information itself.

Jane also appeared to perceive that her information-giving interventions should be congruent with her own perceived credibility and status as the provider of information. However, where Anna conveyed expertise to her patients, Jane
perceived an apparent mismatch between what she wished to portray to her patient and the way in which she actually perceived herself and felt her patients may view her:

But sometimes I feel a bit naughty you know giving these healthy eating advice things and they can see a Crunchie bar in my drawer or something. Which is why you can’t really preach at people if you’re not like that yourself (169).

Jane questioned the extent to which, as a result of her lack of experience and knowledge about healthy behaviours or HBC, she could effectively deliver HBC interventions. Therefore by personally engaging in healthy behaviours she may have a greater ability to convince her patients of the value of HBC and also be perceived as having the necessary expertise to give the advice and information that underpinned her interventions:

I suppose really, you should be doing it [walking] yourself...so I will need to get my trainers on at some point and have a bit of a trot. Just so I can say, as it’s no good saying to people, “oh yes get a good pair of shoes or whatever, have a nice walk”, if you don’t know what it’s like when you’re walking. [...] And you can say to them, “make sure you slow down a bit, stretch well before you start”, you know it’s common sense really, but I suppose really I should err I should try and walk a bit more myself because I would look a bit stupid telling them all this if I didn’t walk. [...] but I think it helps if you know a bit of what they might be doing if you do it yourself (621).

While all of these nurses referred to 'giving' knowledge through imparting information, none of them made reference to additional skills or techniques that they were using to facilitate HBC, or were attempting to equip the patient with, such that they may be in a stronger position to change their health behaviours. This may be because these nurses perceived strong associations between the giving of information and the patient being able to make health behaviour changes. However, this approach may be influenced by the fact that the nurses perceived
that imparting information was an appropriate role for them to deliver and one that their patients expected them to fulfil, ‘it’s just trying to educate people’ (Jane, 291).

A patient-centred approach

In contrast to the nurses just discussed, Margaret, Jenny, Valerie and Caroline, apparently did not perceive that information was sufficient to bring about or maintain HBC. Jenny and Margaret reflected on the value of imparting information to bridge a deficit in knowledge, alongside the provision of encouragement and support for the individual patient, ‘it’s just, it’s trying to empathise with them really and encourage them, not be too you know “you should do this, you shouldn't do that”’ (Jenny, 385); ‘it is usually a lot of information that you bombard them with, and they do need a bit of support sort of until they hopefully adjust their dietary style’ (Margaret, 12).

Valerie and Caroline however, placed far greater emphasis on support and motivation than on the provision of information, ‘It's part of that whole sort of counselling feedback, more than just saying “This is what you've gotta do, go and do it”’ (Valerie, 224). Valerie professed that patients were often very knowledgeable, ‘I'm sure you're fully aware of the reasons why [the patient should stop smoking], because most people are nowadays’ (423). Caroline shared Valerie’s perspective that patients rarely lack knowledge:

A lot of people who are overweight are absolute experts at what they need to eat, they just don’t eat it, you know, [laughs] but they have a lot more knowledge than I do [...] know absolutely what it is they need to be doing they just don’t do it. It’s about getting people motivated and going to actually do what they often know (25).

Caroline therefore assigned the role of expert to the patient; she then adopted a role that she perceived, not to be of any lesser value than that of an expert, but one that was necessary and fitted with the patient's needs, ‘Trying to sort of work out where they are and where you can fit in’ (344).
It seemed that Caroline’s ability to react and respond to the patient's needs was partly influenced by a combination of factors that were associated with her assigned responsibility for supporting patients with LTCs. As a result of the importance of HBC as part of this work, she appeared to be able to prioritise this work and also approach it with a significant degree of autonomy. Caroline acknowledged that time was a scarce commodity in general practice, and that having time was a luxury that she felt fortunate to have, and that supported her patient-centred interventions:

A lot of practice nurses they’ve got 10 minutes but we can have up to half an hour to see patients with chronic disease and so if they’ve got issues then you can spend a good 20 to 30 minutes talking to them [...] we’re very lucky here that we’ve actually got that, so that’s a real positive for our patients and for ourselves (457).

Valerie also hinted at the need for time when undertaking patient-centred interventions, but faced more organisational constraints which appeared to partly influence her interventions, ‘It's the time factor, how long can you sit and actually draw, listen and draw stuff out of a patient to really get to the bottom of things’ (130).

Caroline had also attended a number of training courses with a focus on HBC to support her in her role, which may have equipped her with skills and also enhanced her confidence to adjust to the needs of each of her patients. Although Caroline seemed to have higher expectations of the need for patients' efforts and contributions to the HBC process than the other nurses, she also seemed to be more empathetic to the challenges facing patients concerning HBC, particularly their need for on-going motivation, support and encouragement. Taken together, these factors illuminated why she appeared to approach HBC as a partnership; requiring commitment and contributions from both patient and HCP:

They’ve recognised they’re overweight and they want to do something and you’ve got to try and enhance that and say “right okay, you’re ready, I’m
ready, let’s try and do something together” and give them small goals to try and achieve (59).

Caroline and Valerie also viewed an aspect of their role in supporting the maintenance of lifestyle changes, ‘it gives them a place of accountability and look at what they’re doing, where they’re succeeding and they’re not and trying to encourage them to take, just small steady steps (Valerie, 17). These nurses adopted a facilitative and supportive role as they perceived this is what would most benefit the patient to maintain their HBC:

I think by actually having to come back and see you and report a little bit like the weight loss as well, it’s a motivation for people. [...] people seem to quite like that, having the sort of support and being told “you have done right, you have lost weight and you have continued to stop smoking, well done” you know and you kind of spur people along [...] a lot of people do need a bit of pushing on (Caroline, 145).

These extracts illuminated the perceived importance of on-going support for the patient, which appeared to be both necessary and wanted by the patient, and in these cases, fulfilled by the nurse who is able to actually offer this support.

C. ’You can lead the horse to water, you can’t make them drink’: the issue of choice and responsibility

All of the nurses recognised that there were a range of external, physiological or psychological factors that may impact on a patient and their behaviours:

You know there are certain things that happen to our bodies that, you know we might inherit or just one of those unfortunate things [...] you have every control about what you are putting into your mouth, and to certain extent what activity you are doing as well, obviously people are restricted with disabilities and what not, you know I think it’s really important that people take on responsibility for their health if they can, if they are able to (Jenny, 221).
Chapter five: Study two

It seemed that the nurses' main aim of the process and/or outcome of HBC was a means of the patient achieving good health or good control of physiological markers such as cholesterol. As a consequence, engaging in such behaviours was perceived to be a straightforward and moral choice for the patient to make. However, although some of the nurses did acknowledge scenarios or factors that may cause the patient difficulties when attempting HBC, if the patient appeared to choose to not engage in HBC, the nurses were rather disparaging towards their lack of efforts and commitment to a healthier lifestyle:

> You can sit and talk to them until the cows come home, but they're the ones who have got to stop putting so much in their mouth (Jane, 421).

> Because a lot of time if you leave it up to people to make that decision themselves, they won't, they'll find other important things to do, or they just think oh no, I'll just carry on smoking, and just sort of push it under the carpet (Anna, 131).

The nurses' frustration may be associated with the patients' lack of engagement with their intervention to instigate or support HBC. Jane intimated that a patient's decision to engage in HBC is solely down to a straightforward choice, 'If they want to do it, they'll do it; if they don't, they won’t' (542). However, it is possible that, for patients in otherwise good health, making a choice to engage in HBC which involves sacrificing enjoyable behaviours, or engaging in behaviours perceived to require effort, for little apparent gain may be perceived as anything but straightforward.

Caroline and Valerie appeared to see HBC as much more complex than having knowledge and information and then simply deciding to make or not make the choice to change:

> It shows they weren't adequately motivated at that time in order to quit and perhaps they weren’t at the right place to do it. Maybe there were other things going on that made it difficult for them (Caroline, 135).
Chapter five: Study two

However, through leaving the ‘door open’ (120, 346), it seemed that Caroline embraced the patient coming back to her at a later date when they were possibly more motivated to change or in a stronger position to make behavioural changes.

The extent of most of the nurses’ responsibility to their patients who did not have a diagnosed condition or who were not presently unwell seemed to be to introduce the issue of HBC and offer support to change. For patients who did not then choose to change or did not appear to be sufficiently motivated to change, the nurses accepted that HBC in generally healthy adults was a matter of patient choice and responsibility, although they were not always pleased with this choice. However, given the constraints of time and competing priorities within general practice, they accepted that there was little else they could do, ‘You can approach, you can lead the horse to water, you can’t make them drink’ (Valerie, 9).

Although the nurses acknowledged the importance of health behaviours for both primary and secondary prevention, as a possible consequence of external influences such as QOF, it was apparent that most of the nurses saw their role in, and responsibility for HBC in the management of long-term conditions (LTC's) as being greater than in primary prevention, and as such prioritised this work:

It’s probably the allocation of time, how do we prioritise that, to whom do we prioritise that? Because there will be those with other morbidities we would have to then, obviously lifestyle changes really impact more on that group or the elderly (Valerie, 460).

It seemed that, at the point at which the patient became unwell or was diagnosed with a condition, the nurses' sense of responsibility to the patient increased:

I suppose that’s the challenging bit, particularly with smoking when you get someone who says “well I enjoy smoking” and you think oh here we go and that is probably quite a challenge to actually persuade people that really they should stop smoking or whatever, particularly ones that have already got chest problems […] they’re the challenge, where you try and find your best to help them have a better quality of life by changing their lifestyle or whatever
and you are up against, you can be up against a fence sometimes, if anything or why am I bothering? But obviously you have to; you have to keep persevering (Anna, 173).

Mary also illustrated a greater sense of responsibility to her patients with LTC's. It seemed that, rather than question the choices or responsibility of the patient (as she had previously done for a healthy patient); she seemed to blame herself for not doing more:

[to a patient with diabetes] “Well if you had come back when we said we could have helped a bit more”. Sometimes that’s demoralising, and sometimes I think well perhaps I should have remembered and called them back after three months. We do try, but it’s not always possible is it? (337).

However, with the greater sense of responsibility for LTCS, the nurses' role in secondary prevention also seemed to fit more naturally with the patients. In such cases the nurse could introduce the issue of HBC by describing a direct cause and effect to the patient between their LTC or health problem and the health behaviour that may be able to improve the condition. This scenario seemed to be more favourable and acceptable to the nurse and appeared to offer a way of maintaining the nurse-patient relationship as opposed to having to introduce sensitive behaviours in consultations where such an introduction was perceived to be out of context:

You obviously need to be quite sensitive the way you are putting across to people, you know, you wouldn't say “you are overweight and you are not doing enough exercise”. [...] You can’t be dictatorial about it. Although we know it would help them. Obviously I mean if they have got an obvious problem you know, then we can be more assertive about it. You know like blood pressure or obesity. It makes more sense to them then doesn’t it? (Mary, 197).

The nurses' role in and responsibility for the management of LTCS or other conditions, involved attempting to support the patient to achieve control of the
condition. Many of the nurses expressed their enthusiasm at being able to use physiological markers such as blood pressure or blood sugar levels that they had to routinely measure as a means of educating their patients of the benefits of HBC and/or attempting to motivate their patients to continue with their efforts, ‘And actually if you can help them see results [...] that can be really rewarding [...] then they are pleased as well’ (Valerie, 272); ‘that can be a good way of showing people what they do to their bodies by lifestyle [...] so I think people do find it very positive when they make a change’ (Caroline, 273).

Having a mechanism through which the nurses could educate and/or motivate their patients appeared to have a beneficial impact on both patient and nurse; the patient was more likely to achieve positive health and well-being outcomes while the nurse achieved a sense of achievement, reward and satisfaction. In such cases there appeared to be a synergy, where the HBC intervention delivered within the context of the LTC may be better understood and so engaged with by the patient; the presence of the LTC supported the nurse to raise the issue, demonstrate progress and outcomes and was an aspect of work for which she had assigned responsibility and so may have felt more supported to deliver.
DISCUSSION – STUDY 2A

A number of the nurses in study 2A appeared to be striving to achieve congruence between what they perceived their patients and the practice expected of them, and what they felt skilled, confident and had the time to deliver. The experience of most of the nurses was that such congruence was elusive, which seemed to arise in negative experiences, peppered with a range of emotions including frustration, awkwardness and dissatisfaction. The one nurse who perceived that a range of factors were in place to support and facilitate her HBC interventions appeared to find the experience to be more positive and fulfilling. Study 2A was able to illuminate the experiences of PNs on their routine work on HBC. The small sample size afforded the opportunity to undertake a detailed study, which being inductive in nature was very much led by the issues, experiences and reflections that were of most importance to the participants. However, by undertaking a cross-sectional study, it was only possible to consider a snap-shot of the participants’ experiences of their routine work to change health behaviours.

Study 2B used a longitudinal, case study approach to explore the experiences of two PNs and one HCA before training to deliver the walking intervention, and again following delivery of the intervention to patients (see chapter four and French et al. 2011).
INTRODUCTION TO STUDY 2B

The value of undertaking longitudinal, qualitative studies to better understand the views, experiences and needs of HCPs and/or patients is being increasingly recognised (Boyd et al. 2009, Lawton et al. 2009, Murray et al. 2009 and Powell, McKee and Bruce 2009). Longitudinal studies offer scope for exploring changes in participants’ perspectives, experiences and views over time. Furthermore, longitudinal studies utilising data collection methods such as interviews may also facilitate the development of the participant-researcher relationship, thus affording the opportunity for greater depth of data than may be achieved in one-off interviews.

The aim of study 2B was:

i) To explore PNs’ and HCAs’ experiences before training to deliver the walking intervention, and again following delivery, to investigate whether and how their experiences of helping people to change their health behaviours changed over this time.

Approach taken in this study

To inform the current study methods six IPA papers were reviewed that adopted a longitudinal approach; a brief summary of each of these studies is presented in appendix nine. As a result of undertaking the review of these papers it was determined that, of the longitudinal studies reviewed, those that told a story of each participant were felt to facilitate a deeper understanding of their experiences. In the present study, the case study approach was adopted during the stage of analysis as it became clear that the experiences of each participant were unique and so this would enhance the idiographic and phenomenological insights that IPA affords.

Case study approach

The case study approach is advocated by a number of authors, particularly in the field of social science, health psychology and health services research (Crowe et al. 2011 and Radley and Chamberlain 2001). Smith, Flowers and Larkin (2009: 53)
report that case studies can generate 'rich and powerful accounts'. However, there remain relatively few studies that have employed a case study approach using IPA. Of those that have, most initially approached the study with a larger number of participants, but during analysis, the richness of experience of an individual participant led to a decision to present a single case study for that participant (Eatough and Smith 2006, Smith 1996 and Smith, Flowers and Larkin 2009).

The case study approach most often involves focus on a single participant. There are few studies that have undertaken a case study analysis of a small number of participants, whether or not these studies use IPA. However, Watts, O'Hara and Trigg (2010) and Osborne and Coyle (2002) both report illuminating and interesting case studies of four participants. In both studies the authors acknowledge that, although such an approach is unusual, the value is that it appreciates each case as a unique entity, whilst offering the potential for then drawing more general conclusions across the sample. Undertaking such a detailed, exploratory study can offer enhanced understanding, which may be particularly valuable in a subject area where there is limited knowledge.
METHODS - STUDY 2B: LONGITUDINAL, CASE-STUDY ANALYSIS

Design
Study 2B adopted a longitudinal design with participants interviewed before training to deliver the walking intervention, and again following delivery.

Participants
Participants were two PNs and one HCA working in general practice in NHS Coventry (n=1) or NHS Warwickshire (n=2). The two PNs (Jane and Mary) were also included in study 2A. The characteristics of each participant are summarised within their case study. First interviews lasted between 58 minutes and 68 minutes (the median was 66 minutes). Second interviews lasted between 57 and 76 minutes (the median was 69 minutes).

Procedure
For all participants the first interview was undertaken prior to training in the delivery of the walking intervention to patients; all first interviews were undertaken during July and August 2009. The timing of the second interview was determined as a result of when participants had delivered the walking intervention to up to four of their patients and were undertaken in November 2009 (n=1) and April 2010 (n=2). The interviewer had also met the participants at an additional time-point during their training to deliver the walking intervention; the intermittent contact between the author and participants in this study was felt to enhance rapport and consequently supported the process of generating data at the second interview.

The first interview schedule was as described for the cross-sectional study. The areas explored through the second interview included participant’s experiences of delivering the walking intervention and how these compared to their delivery of previous HBC interventions. Furthermore, the interview also re-explored some of the issues covered in the first interview to encourage reflection on broader aspects of their HBC work following delivery of the walking intervention. The schedule for the second interview is presented in appendix ten. Interviews were recorded and transcribed verbatim, as previously described.
Data Analysis

For each participant the process of analysing their interview transcripts was undertaken as described in study 2A. The focus of the longitudinal study was to explore the changes in each participant's account between the first and second interviews through a case-study approach. The idiographic focus would enable a detailed exploration of the individual participant and whether involvement in the walking intervention influenced the way in which they experienced their work in HBC. The results of study 2B focus only where material did not overlap with the results of study 2A. All extracts are from the second interview unless denoted by T1, in which case the extract is from the first interview.
RESULTS - STUDY 2B

Jane
Jane was a 39 year old, female PN. She was white British and working part-time in a rural practice in Warwickshire. She had been working in the practice for four and a half years and prior to that as a District Nurse, and a nurse in a hospital. Jane had not undertaken any training specifically focussed on supporting HBC, but had signed up to the research study to receive training to deliver the walking intervention, and also to attend the local NHS Smoking Cessation training, with the intention that this would equip her to be able to deliver stop smoking services in the practice.

The importance of a 'best fit'
Jane had used some of the planning techniques of the walking intervention in her personal life as a means of helping her to increase her own walking. As a consequence of her personal experiences she perceived these techniques as beneficial, ‘but it’s nice just to sort of think, right if I start doing this half an hour before it means I can walk. You know if you just think about it’ (142); ‘I did try, and in my mind sort of plan things so that it would be easier for me to do’ (147). Jane also reflected on the importance of actively engaging in HBC:

If you do something for yourself, you will enjoy it more and embrace it more and you will try harder. Well you should do, I know I would [laughs]. But if you’re told to do something you think oh sod it! (504).  

However, the value of the patient-centred approach which underpinned the walking intervention appeared to be at odds with Jane’s usual approach of advising her patients on HBC. Although she appeared to recognise the value of patients taking more responsibility ‘we should try and make the patients more pro active’ (382); Jane evoked a sense of continuing to maintain some control over the consultation through her use of ‘make them’, ‘trying to make them take responsibility’ (593).
The divergence between Jane's personal and professional perspectives was further illustrated when, reflecting on the walking intervention, which was delivered through two intervention sessions, Jane appeared to revert to her information-giving approach:

But then if you can't get your point over in two sessions then you're never going to get it over are you! To be honest if you don't get it over in one then you have had it (440).

The role of the nurse in delivering the walking intervention was intended to be one of a facilitator, where the techniques delivered aimed to elicit the patient's own reasons for being confident about their ability to increase their walking and facilitate them to make their own plans to increase their walking; the nurse was not intended to get her 'point over'. Furthermore, Jane implied that she perceived the walking intervention was at odds with what the patients expect from behavioural interventions, from what they expect nurses to deliver and from what they expect of interventions delivered in general practice:

They do get into this sort of mindset of, oh I'll go to the doctors and they'll give me this stuff and they'll make me feel better. [...] If they don't come out holding a prescription they feel they've been diddled (289).

This scenario illustrated both a passive patient role and a passive intervention. Jane's usual behavioural interventions were very similar; one-off interventions in which the patient was told what to do, with the expectation that they will do it, and subsequently their health will improve. Jane reflected that the most important features of HBC interventions were, 'accurate, honest information' (512) and so her usual interventions appeared to fit with what she perceived the patient expected. In cases where the patient was perceived to be struggling with HBC, rather than adopt a different approach, or modify the content of her information-based interventions, Jane used a variety of strategies to attempt to heighten their understanding, 'you might need to repeat it so it goes in' (211); 'And if they don't understand something the first time round it's no big deal you just tell them again' (214).
When considering her own experiences of the walking intervention and her role in delivering it, Jane continually emphasised her perception of the patients' expectations and the impact the intervention may have on them:

“They probably felt like they were a bit on the spot I think. They probably didn’t expect to have to do that. [...] I just think it’s ‘cos, it’s not the normal thing they’re used to (304).”

Jane appeared to perceive that her patients may not understand the intervention, and as a consequence they may question her role in delivering it:

“I think it’s easier just to keep things simple. Because it makes more sense to them than if you start using too much erm, sometimes if you start using too much detail in the wrong places it just confuses them and they don’t understand what they’ve got to do (222).”

It appeared that Jane's experience was that all interventions delivered by nurses to their patients in general practice had to be aligned or work as a 'best fit'. The following extract illuminates the extent to which the introduction of the walking intervention which differed from the usual interventions she delivered, challenged all other aspects of the 'best fit':

“I think, I think a lot of them [patients] are so used to being spoon fed and handed all the information to them [laughs] and they come to you and you tell them what they’ve got to do, it’s [the walking intervention] been more of a role reversal. They’ve actually got to think for themselves and they’re not used to doing that, you know, they’re really not, especially in this sort of setting. Oh the brain’s thinking, oh that’s not right you know [laughs]. So it’s, it’s once they’ve got round that idea it’s a bit easier for them, um, but I think, I still think it’s a good idea. Whether it, from my point of view, working as a practice nurse part-time, fitting it in was just a nightmare because the time schedule was just, it wasn’t realistic for my, my work sort of, because I only work part-time and I, but they, obviously they need longer appointments to begin with and trying to fit it in to, everything else was very difficult, umm from, from a
time point of view and because you know, umm you’ve got a full list of other patients that have all got other things to do, you know other problems so it, it sometimes it’s quite difficult to hop out of that and hop into that, into the Walking Study because you then have to think about it because if you hadn’t done it for a while, you think oh my God, right I’ve got to re-acquaint myself with the book [intervention protocol] (19).

Jane was explicit about a number of pragmatic challenges associated with delivering the walking intervention. However, towards the end of the extract, she also hinted at the difficulties she faced when delivering techniques that she was not familiar with. Although fairly confident in the information-giving role that she usually assumed when delivering HBC interventions, Jane appeared to have concerns about the extent to which she would be perceived as competent when using new intervention techniques:

I sort of had them [intervention resources] open, so I was sought of flicking through while I was there talking, you know and trying to look like I know what I’m doing (180).

Jane appeared to experience a sense of unease about the use of the intervention resources; her perception was that her patients may doubt her credibility and professionalism when using an approach that she herself lacked confidence in delivering, ‘I hope this is making sense to the patient you know, you’re always thinking in the back of your mind, I’m sure they’ll think I’m mad’ (221).

It seemed that Jane was attempting to find ways in which the techniques of the walking intervention that she perceived to be particularly valuable and beneficial could be incorporated into her usual practice. During the first interview, Jane implied a lack of professional confidence when reflecting on certain behavioural techniques such as setting goals, which may have stemmed from a lack of training and education on HBC, ‘I don’t really know how else to sort of err explain to you about goals really, because it has never been explained to me’ (T1, 395). However, following involvement in the intervention, Jane had developed a greater understanding of her role in facilitating patients to set a goal, ‘making sure they set
themselves realistic and achievable goals’ (606). However, Jane illustrated a lack of understanding of the intervention techniques, as she encouraged the patient to write things down as a means of reinforcing her instructions, ‘You know, so I suppose if they wrote a few things down it would reinforce that type of behaviour to them’ (391). It may be that Jane’s commitment to giving information was too great to fully embrace the techniques of a patient-centred intervention. Furthermore, Jane appeared to perceive that offering on-going support was not an appropriate part of her role, and so, rather than acknowledge the potential benefits of such support, even when offered by other agencies, she undermined such interventions:

You know I think some of them do need more sort of you know coaxing along the line. I think they need that sort of emotional crutch really of going to see somebody to say that they’ve done it. [...] Bit like Weight Watchers isn’t it? You can’t lose weight by yourself, but you can lose weight with a room full of people that you don’t even know. Room full of fat people. What is that, I just don’t understand that (416).

Jane had only delivered the intervention to three patients and so had limited opportunities for practicing delivery of intervention techniques or generally taking a more facilitative role in HBC. It may be that Jane felt a sense of vulnerability that stemmed from delivering an intervention that required a shift in the usual content, format and style of consultation between nurse and patient. It seemed that Jane's reservations about the lack of alignment between the intervention, her role in delivering it and her perception of the patients’ expectations of being given advice and information were too great for her to continue to use the techniques in the longer term.
Mary
Mary was a 49 year old, female PN. She was white British and working full-time in a suburban practice in Coventry for ten years and prior to that as a nurse in hospitals. Mary was the sole PN and there was no HCA working at the practice. Mary had delivered some information-based HBC interventions as part of her routine work in the practice, most notably as part of her work in the management of LTCs.

A sense of resignation
It seemed that Mary's acceptance that a number of organisational factors were impeding her current behavioural interventions may have inspired her to explore and utilise new approaches and techniques, which in turn may have contributed to her decision to participate in the walking intervention research. During the first interview, it seemed that Mary perceived a gulf between the organisational requirements of the practice and the needs of her patients; Mary's use of ‘the danger is’ (T1, 252) evoked a sense of real concern that, although she had ‘ticked all the boxes’ (T1, 252) this was undertaken at the cost of meeting the needs of her patients.

Mary was working within significant time constraints and pressures of work, and as a consequence it seemed that she had to emphasise the importance of brief but on-going information provision and support rather than longer consultations focussed on the needs of the patients. Therefore, the fact that the walking intervention was to be delivered over a number of sessions potentially held a large appeal for Mary; providing a means of supporting her patients during a longer appointment, over a prolonged period, whilst still working within the requirements of the practice. However, she expressed her own disappointment and that of her patients that the intervention ultimately only involved two sessions:

> I felt a bit um bad really, saying to people “well it is only two sessions” because a lot of them had read the um, you know the information sheet at the start and said “oh I thought I was coming for six”, you know because it actually said up to six, and I said “well yes but this is only for two”. [...] But I
felt a bit bad saying “oh well that’s it”, you know “you’re on your own now, you have done your two sessions” (39).

Mary described feeling ‘bad’ that she only saw patients twice; however, she intimated stronger emotions when she used ‘you’re on your own now’. The lack of a mechanism for offering on-going support appeared to limit her perception of the scope of the intervention:

I think they [patients] know they should, whether they will carry it on is another matter; they might do [laughter]. So I will be optimistic. I mean obviously if it was in more sessions I would say “yes they definitely will”, but because I have only done two, it’s quite easy for them to think oh I won’t bother doing it any more (342).

Mary acknowledged a range of issues concerning the change in approach from her usual information-based interventions to a more patient-centred one. The uncertainty she had initially experienced when delivering an intervention that differed from her usual approach was illustrated through her use of the phrases ‘mixed up’ (421); ‘a bit flummoxed’ (425) and ‘a bit jumbled up’ (429). However, Mary appeared to be receptive to the challenges she faced when learning and delivering the new approach, particularly related to the development of her skills:

It's really opened my eyes to, so it was a different, like I say a different way of working and introducing things to the um, to the patients, yeah a positive experience (710).

Mary used the word ‘positive’ to describe the impact this shift in approach and role had on her, which appeared to heighten her sense of satisfaction and reward concerning the extent to which she could actually support her patients:

I think I have gained from seeing a different way of, not a different way of working because we do work sort of like that, but it's enabling the patient to do it more, rather than just sending them off on their own [laughter] and hoping they will come back, so yeah I found it quite useful actually (375).
Mary reflected on the value of techniques she could use in her HBC interventions to facilitate patients being more active and taking responsibility for their own HBC. She emphasised the value of these techniques for her patients:

It would probably mean more to them if they have worked it out themselves, that’s something that could you know, benefit them, going to have to think about it more because quite often when we are seeing people we make suggestions you know and say, whereas with this they were meant to make the suggestions themselves, think about it themselves (514).

Mary considered the value of a change in approach to more patient-centred interventions, ‘I think it is about them being involved rather than us spouting off to them [...] taking more responsibility for themselves I think’ (530). Mary appeared to feel a strong sense of positivity about many of the intervention techniques and acknowledged that, for example, the Supportive Plan was ‘something they could refer to, so it probably is something that we should be incorporating into everything’ (501). Mary was clearly looking forwards in terms of how she might continue to draw on the skills and techniques she had developed through delivering the walking intervention.

However, whilst Mary appeared to see the intervention as having a number of positive features for both herself and her patients and that many of the techniques could be of value in her future work, she seemed to experience a sense of resignation, ‘I don’t know what else we can do apart from like I say getting them to write things down and bringing them back’ (535). There was a further hint of resignation when she considered that:

It makes you think, oh dear perhaps there are a lot of other things that we should be doing you know that we could incorporate this sort of thing in [laughter]. Only time will tell though (568).
When considering her future work in HBC, whilst Mary seemed to recognise the importance of attempting to engage the patient, she appeared to revert to her previous information-giving and paternalistic approach. She also seemed to be resigned to having to largely resume her previous way of working as a result of the constraints within which she worked, ‘we try and do the best that we can’ (480). The impact of the practice context was further illustrated when Mary explained that:

I’m not saying I would have time to do it with every intervention, you know every health intervention, there just physically wouldn’t be time to do it [...] but probably after I got more competent I would do it faster (284).

Rather than her increasing competence and confidence enabling her to deliver the intervention with more expertise, professionalism or accuracy, Mary emphasises that it would enable her to do it faster. This illustrates the influence of the general practice setting on her work.

Mary’s involvement in the walking intervention research appeared to be a means through which she could develop skills and techniques to enhance her current and future practice. Through being involved she appeared to have achieved an increase in her confidence and skills, ‘because the more I did it the more confident I got’ (127). However, it seemed that her enthusiasm to use the techniques that she perceived to be so beneficial and which she considered her patients had engaged with; would be difficult to sustain in the longer-term. This was as a direct influence of the demands of the general practice context within which she worked, where external influences had to be prioritised and time was scarce.
Linda
Linda was a 47 year old female HCA. She was white British and working full-time in a suburban practice in Warwickshire. She had been employed for three and a half years as a HCA, having previously worked as the practice receptionist. Linda had responsibility for HBC interventions that were focussed on primary prevention and she had undertaken training for, and was delivering weight management and smoking cessation clinics within the practice.

Embracing a slight shift in approach
Linda's role, as the practice HCA appeared to be well-defined and as a result she seemed to have a sense of clarity about the extent of her role and responsibility for primary prevention, which were closely aligned with those of her practice colleagues, ‘Any chronic diseases would go through the nurse’ (T1, 37). This also appeared to afford Linda with a sense of ownership of aspects of her work, as she repeatedly used ‘my clinic’ to refer to the weight management clinics that she ran (T1, 42). This evoked a sense of pride in her work, possibly heightened as both the PN and GP referred patients to her clinics. Furthermore, Linda had been actively involved in the development of practice procedures concerning HBC interventions, which may have increased her perception of the value of her role in primary prevention interventions, ‘We all sit down, the doctor, the nurse, myself and the manager, and we discuss the area we think needs to be improved. [...] We all have to agree on it’ (T1, 361).

It seemed that prior to delivering the walking intervention Linda’s experience of delivering HBC interventions was largely positive. Many of the patients who had appointments booked with Linda were already considering changing their health behaviours and had acknowledged they would like, or would need support in so doing, ‘when they come in for weight management’ (T1, 46). With a specific responsibility for primary prevention, Linda did not appear to be constrained by time pressures or other competing demands on her role, and as a consequence she appeared to have a degree of autonomy in her work, [referring to weight management] ‘I’m quite happy to keep them going until they’re happy themselves’ (T1, 446).
However, despite her general positivity, Linda appeared to experience a degree of self-doubt about her abilities and her sense of worth:

If I’m truthful, I never feel well equipped because I always feel there is something you can learn from somebody else. [...] don’t ever think I know it all and I’m supposed to be the right person for the job (T1, 269).

Her self-doubting reflections seemed to highlight insecurities in her role. Linda seemed to feel a need to prove to herself that she was worthy of the developing role of the practice HCA and could therefore justify her place as a member of the practice health-care team, having previously been the practice receptionist. As a possible means of achieving this, she repeatedly emphasised the importance of on-going learning:

You just have to keep continually learning [...] and that’s what I feel this [participation in the walking intervention research] has done, is offer me something that I hadn’t thought about and how it can be implemented with what I’m doing (386).

Following her training and delivery of the walking intervention, Linda reflected that the way in which she previously attempted to facilitate HBC, through making tailored suggestions to her patients, rarely worked. Linda presented a scenario which could be likened to a game of table tennis, in that she served a suggestion, which the patient returned, and so she attempted a further suggestion, which was similarly revoked. Linda recognised that in such scenarios, her intervention could have negative consequences:

We can all tell them to go you know, “go to a park”, “well actually I have to catch two buses to get to that park”. [...] sometimes you can overload them with stuff that they know very well that they can’t afford and you’ve just put them in a bigger rut than when they have walked through the door (545).

It seemed that Linda’s recognition of the limitations to her usual tailored suggestions approach was facilitated through her introduction to, and use of
techniques in the walking intervention that engaged the patients in their HBC efforts:

By writing it down, made them realise what they were doing and seeing good times of what they have achieved on a day out they could implement that into everyday life, if they, you know, it's just seeing it in a different light really. [...] it made a big difference to look at it (116).

Linda appeared to perceive that she played an integral role in the delivery of the intervention techniques, and by achieving this sense of worth, this may have enabled her to embrace the new techniques, 'so the feedback was really good of stimulating them to do stuff' (37).

Prior to and following delivery of the walking intervention, Linda perceived that motivating patients was an important part of her role in HBC and one that she felt well placed to fulfil. However, although Linda emphasised the value of her role in providing support and motivation, she recognised that despite her best efforts to motivate her patients that they did not always engage in HBC:

They have to use their own motivation [...] at the end of the day it is their own motivation that gets them where they are, but it takes them a long time to realise that (450).

As a consequence she particularly reflected on a new technique she had delivered as part of the walking intervention that facilitated her to engage and encourage her patients:

I have never actually done a program where you always look at positives, so that to me made me think totally differently, which now I do tend to look at more positives when somebody says something than their negatives, yes you have got to acknowledge the negatives or they feel that you’re not actually listening to what they are saying, but try and turn it around to look at it in a positive way, so for me that has made me change things round slightly with what I do (210).
Linda perceived such a degree of value from using the technique that she had subsequently used it in her routine work:

I had a girl come in a few weeks ago smoking, done extremely well, really gutted with herself because she had ended up starting smoking again. [...] I said “that’s not a negative, you are smoking less but you have now got to look forward to a positive of getting yourself sorted”. [...] So she went out happier than what she would have before, whereas I would have said “oh no, you know, what have you done to yourself?” whereas you shouldn’t look at it like that, you have got to look at the positives of that they have actually come down half of what they were, so that is a positive and that’s the way I tend to look at it now. [...] It’s nice to know that they are going through the door happier than when they came into you (215).

Linda’s experience of employing this technique appeared to be extremely positive; although the patient had not maintained their initial healthy behaviours, the experience for both Linda and the patient seemed to reflect achievement and optimism. The slight change in approach appeared to be experienced by Linda as affording her with an opportunity for changing the dynamics of some of her consultations and so breaking an otherwise vicious circle of negativity. The second interview took place just one week after Linda had delivered her final walking intervention session and so the fact that she felt sufficiently able and confident to use intervention techniques in other parts of her work pointed to the possibility that she may continue to draw on these techniques in her future work.

Linda had considered further positive knock-on effects of adopting a positive approach, as a means of encouraging patients to be more open and honest about their HBC efforts and thereby enhancing her role in facilitating HBC:

It’s trying to get them to see a different way of doing things. They have got to be truthful with you because if you haven’t got a patient that’s being truthful with you, you’re just going round in circles, you’re getting frustrated because you want to be there to help them (353).
Following delivery of the walking intervention, it seemed that Linda not only perceived that the intervention techniques themselves were valuable but that she fulfilled an important role in delivering them. There appeared to be a shift in Linda’s perception of herself as a facilitator of HBC. Rather than questioning whether she was the ‘right person for the job’ she acknowledged that, ‘I’m not very good at actually praising myself [laughter]’ (488).

Although the intervention techniques placed the patient at the centre of the HBC, Linda seemed to recognise that her role as facilitator was both necessary and valuable as a means of supporting and actively engaging the patient with their own HBC. Linda’s experience of delivering the walking intervention therefore appeared to equip her with valuable new skills to consolidate and strengthen her on-going role in facilitating HBC.
DISCUSSION – STUDY 2B

There was considerable divergence between the experiences of the three participants in study 2B. Following their participation in the walking intervention, all the participants had differing experiences that appeared to be influenced by factors at play prior to their involvement. This divergence in experience, which was also linked to the participants’ prior beliefs, would not have emerged had the longitudinal, qualitative study not been undertaken.

Jane appeared to perceive that, from her perspective as a PN, the influences and expectations of the general practice context within which she worked and from the perspective of her patients, the walking intervention did not offer a ‘best fit’. However, Jane did reflect that if one or more of these factors were changed then a more suitable fit may be possible. Mary appeared to be very receptive and engaged with the walking intervention and the range of associated positive effects that she perceived it afforded. However, her enthusiasm was marred by her reflection that the practice in which she worked and the extent of her pre-existing responsibilities would be unlikely to facilitate longer-term use of intervention techniques or sustained opportunities for seeing her patients with the frequency with which she would like. Linda, as the only HCA in the sample had a significantly diverging experience. Possibly as a result of her role in primary prevention and usual approach to delivering HBC interventions, she appeared able and keen to build on her foundations to further develop her skills and use of the techniques she had learnt during her involvement in the walking intervention research.
OVERALL DISCUSSION

Summary of principal findings
In study 2A, the majority of the nurses appeared to struggle to accommodate the competing demands and expectations they faced when helping patients to change their health behaviour.

In study 2B, there was considerable divergence between the experiences of the three participants following training to deliver the walking intervention which appeared to be influenced by their prior beliefs and experiences.

Strengths and limitations

Data generation
All interviews were conducted within the practice treatment room, over the lunch-time period as this was the preferred option for each participant to fit in with their busy working day. Although not an intended feature of the data generation process this was considered to be extremely positive as participants were familiar with the setting of the interview and had not had to travel to the interview, which may have minimised some anxieties. Furthermore, the fact that both the author and participants were female and in the majority of cases were of a similar age may have enhanced rapport.

However, some of the interviews were restricted by time limitations due to participants running late from morning surgery or needing to prepare for afternoon surgery; this partly accounts for the difference in duration of time of the interviews. A further limitation of interviewing participants within their work-place was that it was difficult to control for interruptions. However, this was minimised as, in most instances participants requested that they were not interrupted during the interview.

Data analysis
During analysis, the author acknowledges that she was initially cautious in making interpretations. Therefore during the early stages of analysis the author met with colleagues using IPA to present and discuss findings. This process served as both
an opportunity to enhance the process of analysis by increasing the confidence of the author, supporting reflexivity and self-monitoring and also to enhance the outcome through increasing the transparency and credibility of the final account (Yardley 2000).

By exploring the experiences of a small number of participants, this study enabled a detailed exploration that may not have been possible if a larger number of participants were included. In addition, the findings of the present study may enable an enhanced understanding of how other HCPs may respond or feel about similar experiences, as the ‘detail of the individual also brings us closer to significant aspects of the general’ Smith, Flowers and Larkin (2009: 32).

Through considering the findings of the two sub-studies, it was clear that, whether as part of their routine care or within the context of a research study, the importance of achieving some degree of congruence between the HBC intervention, the perceived or actual expectations, needs and wants of the patients and the providers' skills, confidence and assigned roles and responsibilities within the practice was extremely important. Furthermore, all of these factors appeared to be directly influenced or affected by the general practice context within which the intervention took place. As was evident in study 2B, if a new HBC is introduced, it seemed that it may only be in circumstances where the provider perceives a potential or actual 'best fit' between intervention, provider, patients and practice that the greatest likelihood of continued use of intervention techniques within ongoing routine work will occur. It is recognised that the participants in this sample were likely to be particularly motivated and enthusiastic about undertaking work on HBC and so the perceived challenges facing other HCPs in their HBC interventions may be even greater than those in the present sample (Tomasik et al. 2011).

Relation to other studies
As far as could be ascertained, this is the first study using IPA to explore PNs/HCAs' experiences of delivering HBC interventions. As a result of the rapidly developing role of these HCPs and the importance of HBC for health improvement, the study may therefore be particularly timely.
The responsibilities assigned to participants and the extent to which they perceived that this is what the patients expect and what was appropriate for them to deliver in general practice appeared to influence their delivery of HBC interventions. The issue of responsibility was central to this; many of the PNs were working within time constraints and perceived a lack of autonomy, and so particularly regarding their primary prevention interventions, once they had introduced the issue of HBC and offered support to change, they conceded responsibility. These themes were also central in Epstein and Ogden's (2005) study of GPs' views on managing patients with obesity. The GPs experienced a sense of conflict between their perception of the extent of their responsibility and the responsibility of their patients for managing obesity. However, this seemed to be at odds with their perceptions of what they perceived their patients expected from them and from general practice; which was that they regarded obesity as a medical problem requiring management by the GP. The extent to which general practice is perceived by patients as a sickness service rather than a service that can play a part in keeping them well may have implications for delivery of HBC interventions which are often preventative rather than curative (Epstein and Ogden 2005 and Williams et al. 2004). It seems that the experiences of HCPs of the way they perceive their patients view them, and of the extent to which they fulfil the role that they perceive their patients expect them to should not be underestimated, as it may contribute significantly to the way in which they deliver HBC interventions. However, Little et al. (2001) in an observational study of preferences of patients for a patient-centred approach to consultations in general practice found that only 25% patients wanted a prescription. There may then be value in further exploring and if necessary attempting to address the possible misconceptions held by HCPs of patients' perspectives and of patients' perspectives of the role of HCPs and of general practice services.

In the present study the HCA appeared to have positive experiences of both the process and outcomes of HBC and so had a diverging experience from most of the PNs. The majority of her patients presented specifically for support with HBC and so may have been more engaged in HBC. This differs from the scenarios that many of the nurses presented where they had to introduce the issue of HBC. Furthermore, Linda perceived she was well equipped, with a specific role and
responsibility for primary prevention to offer support for HBC. These findings are reflected in Francis and Johnston (2010) who argue that the behaviour of HCPs may be highly influenced by factors such as their professional role and identity, adhering to professional norms and working within time pressured health-care contexts. Although all working within general practice, it seems that the role, identity, professional norms and demands on the role of the PNs and the HCA in the present study differed to a greater extent than any differences that were apparent within the group of nurses (with the exception of Caroline). The PNs’ self-efficacy concerning delivery of HBC interventions appeared to be, in most cases negatively influenced by both the practice context and the patients.

Whilst some of the PNs aimed to ‘give’ information or increase the motivation of their patients, none of the participants reflected on the importance of patients’ behavioural skills that may be necessary to translate ‘informed motivation into action’ (Abraham 2010: 102). The results of study 2B were particularly illuminating in this respect as they explored the changing experiences of participants before and after they delivered the walking intervention, which did aim to equip patients with the skills to translate informed motivation into action. However, of the three providers, it was only the HCA who appeared to recognise the importance and value of such skills, be receptive to delivering them and was working in a context that would facilitate her to continue to do so.

Most of the PNs perceived HBC was assigned lesser importance than other aspects of their work from the perspective of the policy and context within which they worked. McGregor et al. (2008), in a study of PNs’ perceptions of the impact of the 2004 General Medical Services (GMS) contract and delivering QOF, report that PNs were generally positive about their developing professional roles. However, some PNs felt under-valued, whilst others expressed concerns about increasing workloads and less time to spend with their patients. Some of the PNs in this study perceived they were fulfilling a role which involved little more than ticking boxes and in which they had little autonomy, limited time to spend with their patients and experienced frustration at the sense of compromise they faced as a result. This was particularly evident where the PNs had to raise the issue of lifestyle with their patients for monitoring purposes, but were not then able to
support the HBC. This appeared to result in such interventions being perceived as having a negative impact on their provider-patient relationship.

Michie et al. (2004) found that GPs who were regarded as low implementers of National Service Framework guidelines appeared to experience a lack of ownership over the development and implementation of the guidelines, a lack of autonomy over their practice and perceived less positive and more negative consequences of implementing the evidence-based guidelines. The findings are comparable to the findings in the present study in a number of ways; PNs who appeared to perceive they had less autonomy also seemed to perceive more negative consequences of their work in HBC. It may then be hypothesised that these PNs may be less likely to deliver HBC interventions which has potentially important consequences for the future delivery of HBC interventions.

**Implications of the study**

Through enhancing understanding of the experiences of PNs/HCAs as key providers of HBC interventions in general practice; researchers, policy makers and providers may be better placed to develop strategies and mechanisms to enhance delivery of HBC interventions as part of both routine care and within research contexts. Such strategies need to focus more widely than at the providers themselves; rather a comprehensive range of inputs may be needed that also address issues at patient and practice level. These elements will be considered in turn:

**Patients**

Some of the participants presented a picture in which patients did not perceive general practice as a ‘wellness service’ and that patients rarely introduced the issue of their lifestyle or changing their health behaviours. A number of the participants also shared the difficulties of having to introduce the issue of often sensitive behaviours to their patients. It may be that an attempt to raise awareness of the role of general practice and the HCPs working in it regarding the importance of, and the support available for HBC may heighten awareness of patients. This may in turn encourage patients to present in general practice for support with HBC such as adopting healthy eating behaviours and increasing physical activity, as
currently happens in some practices with smoking cessation (NICE 2006b). This may facilitate the early stages of the HBC process, which may optimise both HCP and patients' engagement in the on-going process of HBC.

**PNs/ HCAs**

It seems that provision of training and resources to support the work of HCPs in delivering HBC interventions is important as it may enhance their knowledge, skills and confidence and also affirm the value of the importance of HBC (Dixon and Johnston 2010). Training may be particularly important given that the patient-centred approach which is increasingly used in HBC interventions may involve a shift in the traditional roles of provider and patient (Mead and Bower 2002). However, the realities of the challenges influencing work undertaken in general practice appear to point to the delivery of HBC interventions being less straightforward than simply training HCPs. This was illustrated in study 2B, where, although all participants received the same training and delivered the same HBC intervention, their experiences following delivery were very different. These appeared to be influenced by factors at play prior to their training to deliver the walking intervention. Furthermore, training may only have a long-term influence on practice if the other significant influences impacting on providers are perceived to, or actually facilitate such work.

The nurses in the present study appeared to be trying to juggle a number of demands within the context of their work in general practice. The impact of juggling appeared to have a knock-on effect on their morale and job satisfaction and also the extent to which they perceive they can and do actually help their patients. However, while they seem to be prepared to relinquish responsibility for some of the demands, such as primary prevention, they were trying to sustain their efforts in managing LTCs, where the patient was living with an existing condition, or where the patient was temporarily experiencing impaired health, and for which they had assigned responsibility.

As a consequence of the developing roles and responsibilities of both PNs and HCAs in general practice, it may then be that facilitating HBC is undertaken by these providers for particular patient groups. Where employed in general practice,
HCAs may be well placed to support primary prevention activities and could in most cases be assigned responsibility to do so. Furthermore, it seemed that the HCA in the present study, as a result of her non-specialised role was comfortable and confident with her role in facilitating patient-centred behavioural interventions. Furthermore, as a result of her assigned role for primary prevention she also had allocated time to undertake such work which may be necessary to facilitate HBC interventions.

As many PNs already have specific responsibility for the management of LTCs, they may be best placed to facilitate HBC at a level of secondary prevention. This may then enable them to offer a greater level of support to these patients, enable them to fulfil their responsibilities of the QOF and possibly in turn enable them to feel a sense of greater value and satisfaction in their role. The specialist nurse in the present study was already working in this way, having assigned responsibility for patients with LTC’s. She had also participated in extensive training and had sufficient time to undertake patient-centred interventions, which together appeared to increase her skills and confidence to the extent that she was prepared to let the patient assume the role of 'expert'.

Practice and Policy level
As the pressures facing HCPs working in general practice continue to increase, there is a possibility that, given the emphasis on achieving aspects of work identified as priorities, that only this work will be undertaken. As few HBC interventions currently form part of the QOF, for HCPs who regard HBC with lesser importance, then the likelihood is that, without a range of inputs to support this work, it may not even be attempted. This clearly has important implications for public health.

As described in chapter two, changes at policy and practice level necessitate evidence of efficacious interventions. National policy changes may support delivery of such interventions in routine general practice by incentivising such activities and therefore prioritising them. Furthermore, they may enhance the provider’s perceived value of their role in delivering such interventions. However, to achieve a scenario in which such inputs are available, treatment fidelity must be
enhanced and assessed in HBC interventions delivered in research contexts in order to interpret the efficacy of such interventions.

**Unanswered questions and future research**

To further explore the experiences of PNs and/or HCAs on their work to change health behaviours, future studies could recruit different groups to explore the extent to which the findings of this study are generalisable. For example, the considerable impact of the context from both the individual practice and local NHS context on the experiences of the participants could be further explored. Furthermore, little is presently known about the experiences of HCAs with specific focus on HBC and primary prevention. As their roles are developing rapidly, the experiences of this group of HCPs merits further study.

The perceptions that the participants had of patients' expectations, needs and wants appeared to have a significant influence on their experiences. Therefore eliciting the perspectives of patients regarding HBC within general practice may have a number of advantages. Kendall *et al.* (2010) suggest that a multi-perspective approach to understanding patients and providers' experiences, which are often inextricably linked, has great value. Such studies may illuminate the extent to which patients' perspectives correspond with the HCPs' perceptions of patients’ needs and wants. The may be particularly valuable given that patient-centred interventions may involve a shift in the traditional roles of providers and patients in HBC interventions.

The following chapter overviews the methods for Phase Three of the walking intervention research relevant to studies three, four and five of the thesis.
CHAPTER SIX

METHODS FOR PHASE THREE OF THE WALKING INTERVENTION RESEARCH RELEVANT TO STUDIES THREE, FOUR AND FIVE OF THE PRESENT THESIS
Chapter six: Methods for Phase Three of the walking intervention research

**Design**

Phase Three of the related walking intervention research was an exploratory (pilot) trial to optimise the delivery and further refine the walking intervention, study procedures and measures for the definitive explanatory trial.

**Participants**

**Providers**

Ten providers were recruited and trained. Eight providers (n=2 Practice nurses (PNs) and n=6 health care assistants (HCAs) delivered the walking intervention to up to 15 eligible patients. Three providers were working in general practices in NHS Coventry and five within NHS Warwickshire; one PN and one HCA were from the same practice. The providers were all female, white British and aged between 24 and 57 years (mean was 43 years, SD=10.2). All had been working in their present role for at least one year (see table 6.1).

**Table 6.1: Demographic characteristics of providers in Phase Three of the walking intervention research**

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Demographic characteristics</th>
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</thead>
<tbody>
<tr>
<td>Tina</td>
<td>47 years old. HCA for 10 years. Works 7 hours per week in a small urban practice. Also works as a community nurse.</td>
</tr>
<tr>
<td>Lindsay</td>
<td>39 years old. PN for 2½ years in a small urban practice. Previous nursing experience. Works full-time.</td>
</tr>
<tr>
<td>Catherine</td>
<td>40 years old. PN for 2½ years in a large urban practice. Previously a hospital nurse. Works full-time.</td>
</tr>
<tr>
<td>Zara</td>
<td>38 years old. HCA for one year; prior to that as a HCA in a hospice. Based in a large urban practice. Works full-time.</td>
</tr>
<tr>
<td>Jo</td>
<td>42 years old. HCA for 7 years in a small rural practice. Previously worked in the practice dispensary and as the practice receptionist. Works part-time.</td>
</tr>
<tr>
<td>Judith</td>
<td>57 years old. HCA for one year, prior to that as a HCA in a hospital. Works part-time hours over seven days in a newly established health centre in a small suburban practice in an area with high deprivation.</td>
</tr>
<tr>
<td>Denise</td>
<td>53 years old. HCA for 4 years in a suburban practice. Prior to that as a HCA in a hospital. Works part-time.</td>
</tr>
<tr>
<td>Mandy</td>
<td>24 years old. HCA for 2½ years in a large urban practice. Prior to that as practice receptionist. Works part-time.</td>
</tr>
</tbody>
</table>
Practices
The eight providers worked within seven different general practices in Warwickshire and Coventry. Demographic data on each practice was obtained in order to set the context for the studies (see appendix eleven for further details and sources of data). This data shows that the practices varied considerably in terms of:

i) Practice size. The median practice size for all general practices in Coventry was 4296, for all practices in Warwickshire the median practice size was 5944. Of the practices involved in the walking intervention research, three were larger and four were smaller than the median practice size for all Coventry and Warwickshire practices.

ii) Index of Multiple Deprivation (IMD) score. IMD measures relative levels of deprivation in small areas of England called Super Output Areas. The range of IMD ranks of this sample of seven practices was from 23% to 94% (median 52%).

iii) Quality and Outcomes Framework (QOF) score. The QOF scores for these seven practices ranged from 55% to 99% (median 95%).

As recruitment to Phase Three of the walking intervention research was through the practice self-selecting or volunteering to be involved, it may be that these practices were more engaged in the topic of this research (i.e. HBC) and therefore not necessarily representative of general practices locally or nationally. However, as a result of the variation in demographic characteristics of the practices, this may enhance generalisability of the findings to other practices locally and nationally.

Patients
Sixty-six patients were recruited to receive the walking intervention. Providers delivered Session One of the walking intervention to n=63 patients and Session Two of the walking intervention to n=59 of the same patients (n=3 patients withdrew after receiving the baseline session and n=4 patients withdrew after receiving the first intervention session). Patients were aged between 30 and 75 years (mean was 56 years, SD=8.5). Approximately three-quarters of the sample
(74%) were female and 87% of patients were British White, with 3.2% Indian (Asian/British Asian), 3.2% Irish White, 3.2% White other/White mixed, 1.5% Chinese/British Chinese and 1.5% Bangladeshi (Asian/British Asian). Almost 30% held a degree or postgraduate qualification and 29% were employed full-time (Williams et al. 2011).

**Procedure**

**Ethical approval**

Ethical approval for Phase Three of the walking intervention research was granted by the Warwickshire Local Research Ethics Committee (Ref: 09/H1211/56). This included ethical approval for all aspects of Phase Three and all studies undertaken as part of the thesis. A copy of the ethics approval is presented in appendix twelve.

**Recruitment of practices and providers to Phase Three of the walking intervention research**

Every general practice in Coventry and Warwickshire were sent letters and e-mails inviting them to participate in the study. Telephone follow-ups were made by the research team. Furthermore, members of the research team attended PN and GP forums to promote the study. Practices were offered a number of incentives for participating including free training for their participating PN/HCA and financial reimbursement. Interested practices/participants were sent further information, including a detailed Participant Information Sheet. Providers were recruited to the study when their signed consent form was received by the research team. Two practices/providers were recruited to deliver an 'information provision plus pedometer' control intervention.

**Recruitment of patients**

Recruitment of patients was undertaken through a process of identifying eligible patients within each practice. A list of the first 100 randomly generated patients who met the inclusion criteria was screened by a practice GP prior to letters being sent by the practice to the identified patients. Patients were invited to telephone the practice to make a baseline appointment with their provider should they wish to participate.
Provider training

Training to deliver the intervention

All providers received training according to the study arm to which they had been assigned. Providers in the walking intervention arm received training to introduce them to the walking intervention, develop their skills to deliver the intervention and the resources to be used. Training was delivered over two half-day sessions, one week apart. This provided the opportunity for providers to reflect on the training and to practice delivery of the intervention. Training was delivered by members of the research team and involved formal presentations, video demonstration of delivery of the intervention, participative learning and practice sessions. Providers were trained to use the intervention protocol, which specified intervention techniques to be delivered to all patients during intervention sessions. Providers delivering the control intervention received a one hour training session.

Assessment of competence prior to provider delivery of the walking intervention to trial patients

The final part of the training involved providers delivering Session One and Two of the walking intervention to a patient/colleague/acquaintance within their general practice. Each session was observed and assessed by the author using a 20 item checklist of essential intervention components and techniques, as specified in the intervention protocol. The checklist is presented in appendix thirteen. Following each session the author gave immediate feedback to the provider and followed this up with a formal written feedback sheet. Feedback was intended to both enhance the skills and confidence of the provider and provide a means of enhancing fidelity of delivery of the intervention. Providers were required to achieve 15 or more marks (out of a maximum of 20) to be certified as competent to deliver the intervention. If they did not achieve a score of 15 or more, they were re-observed at a later date.

Training on trial procedures

After providers had completed their assessment of competence, a member of the research team visited them in their practice to provide a further one hour training session on trial procedures. Providers then commenced delivery of the walking intervention.
Provider delivery of the walking intervention

Intervention protocol

Providers were issued with an intervention protocol which specified techniques to be delivered and a guide for the time over which the technique should be delivered. This was designed and intended to be used by providers during delivery of all intervention sessions. Furthermore, to enhance fidelity of delivery by providers, all intervention resources, such as worksheets to be completed by patients, were provided in the specified order and immediately ready to use.

The walking intervention

The walking intervention, as delivered in the Phase Three exploratory trial comprised four sessions. Figure 4.1 (presented on page 70) outlines the timing of these sessions and measures undertaken in the Phase Four explanatory trial, but the timing of sessions and measures also apply to the Phase Three exploratory trial. The first three sessions were delivered face-to-face at the patient’s own general practice; patients had the option of receiving the final follow-up session in person at the practice or by telephone. The baseline session delivered by providers included an introduction to the study and intervention: baseline data (t1 measures) and patient consent was also obtained. Providers then delivered walking intervention sessions one and two which included motivational techniques aiming to increase patients’ self-efficacy through eliciting from patients their own reasons why they are able to walk more and volitional techniques, to support patients to translate their increased intentions into action. At the end of intervention session two, providers administered t2 measures to each patient. Patients were asked to return these measures to the research team by post.

A follow-up intervention session was the final session delivered by the PNs/HCAs, after which time t3 and t4 measures were sent by the research team to the patient by post. Patients were asked to return these measures to the research team by post.
The next chapter reports on an assessment of fidelity of the walking intervention delivered by PNs/HCAs to their patients within general practice (study three). The study was undertaken alongside Phase Three of the walking intervention research and assesses provider adherence to the specified techniques defined in the intervention protocol.
CHAPTER SEVEN: STUDY THREE

ASSESSMENT OF FIDELITY OF THE WALKING INTERVENTION DELIVERED BY PRACTICE NURSES AND HEALTH CARE ASSISTANTS
INTRODUCTION

Relatively few studies have undertaken an objective, in-depth assessment of fidelity of delivery of a health behaviour change (HBC) intervention by providers using techniques that have been specified in a protocol (Hardeman et al. 2008). An assessment of delivery of specified techniques is particularly important to provide information about the validity of behavioural interventions (Bellg et al. 2004 and Borrelli 2011).

Of the published studies that have undertaken a detailed and objective assessment of fidelity of delivery of a HBC intervention to general practice patients (whether the intervention was delivered within the general practice setting or at the patient's home), most have recruited providers who are specifically employed and trained to deliver the intervention (e.g. Hardeman et al. 2008 and Harting et al. 2004). Whilst offering important insight, these studies are unable to enhance understanding of the extent to which practice nurses (PNs) and/or health care assistants (HCAs) adhere to the specified techniques of a HBC intervention.

A number of authors have reported their intention to assess implementation of a HBC intervention by PNs but no published results could be identified (Jansink et al. 2009, Lakerveld et al. 2008, Macmillan et al. 2011, Spillane et al. 2007 and Sturt et al. 2008). A small number of studies have made some assessment of the extent to which nurses delivered a HBC intervention in general practice (El Fakiri et al. 2008, Pill et al. 1998, Pill et al. 1999, Whittemore et al. 2010 and Wilcox et al. 2010). However, each is considered to have some limitations. For example, El Fakiri et al. (2008) in a process evaluation of a HBC intervention for patients at risk of cardiovascular disease, assessed adherence to key intervention components, such as whether the patient attended the specified educational sessions rather than specified techniques. Whittemore et al. (2010) assessed self-reported fidelity of delivery of a lifestyle intervention by nurse practitioners and report implementation according to the protocol of 76%. However, self-reports have commonly been shown to over-estimate actual fidelity and so may be an unreliable source of data (Borrelli 2011, Conroy et al. 2005, Davis et al. 2000 and Hardeman et al. 2008).
Wilcox et al. (2010) published an objective assessment of delivery of a HBC intervention in general practice. ‘Providers’ (82% of whom were physicians) delivered the majority of the HBC techniques, whilst nurses delivered the Goal Setting component of the intervention. However, techniques were not documented in a protocol as essential but were recommended topics or skills. This may account for why the percentage of encounters in which many of these topics were discussed was so low (only four of the thirteen recommended topics were discussed in more than 50% of sessions assessed).

The present study therefore aims to add to the existing literature by undertaking an objective assessment of fidelity of delivery of the specified techniques of an intervention to increase walking. The intervention was delivered within general practice by trained PNs/HCAs as part of Phase Three of the walking intervention research (see chapters four, six and French et al. 2011). The inclusion of HCAs in the study sample may be particularly important as this group of general practice staff is increasing and they may be well placed to deliver HBC interventions (see chapters two and five).

Audio-recording all intervention sessions is regarded as the gold standard of data collection, as it facilitates an objective assessment of fidelity of delivery (Borrelli 2011). Recording all sessions may also reduce reactivity of providers to having some of their sessions recorded which may enhance reliability of findings as commonly only a sample of sessions delivered will be coded (Leeuw et al. 2009, Moncher and Prinz 1991 and Schlosser 2002). However, a number of studies report significant challenges when asking providers to audio-record intervention sessions, and cite a range of reasons for non-recordings including equipment malfunction, providers forgetting to record sessions and no patient consent (Godfrey et al. 2007, Hardeman et al. 2008 and Ward et al. 2000). In intervention studies delivered within general practice, between 50 and 70% of intended recordings are typically available for analysis (Godfrey et al. 2007, Ward et al. 2000 and Wilcox et al. 2010).

There is no consensus on the percentage of intervention sessions that should be assessed for fidelity of delivery. However, in order to provide formative feedback to
providers as a means of enhancing fidelity of delivery, Borrelli (2011) recommends listening to a minimum of 50% encounters immediately post training, and further into the delivery period, 20%. Furthermore, Schlosser (2002) recommends that if observations of sessions are to be used to assess fidelity of delivery, then 20-40% may be an appropriate sample to maximise representativeness of the data, but caution that the distribution of sessions may be of greater importance than the absolute percentage.

Likewise, Leeuw et al. (2009) describe challenges when determining the number of essential intervention elements necessary for adequate protocol adherence. Although Borrelli (2011) suggests that 80-100% integrity would indicate high fidelity, determining what constitutes high or low fidelity of delivery is likely to be influenced by a number of factors. For example, Resnick et al. (2005b) report 91% adherence to intervention techniques, based on direct observation of providers using a seven-point check-list. In contrast, in the ProActive study, Hardeman et al. (2008) report an extremely detailed assessment of fidelity of delivery of 208 facilitator behaviours specified in an intervention protocol, with an overall mean adherence to intervention techniques of 45%. These percentages are clearly not comparable. However, following the assessment of fidelity of delivery during ProActive, Hardeman et al. (2008: 22) recommend ‘less intensive fidelity assessments in larger samples’ and the assessment of ‘core characteristics of techniques rather than specific behaviours’. Similar conclusions were drawn by Harting et al. (2004) who report their assessment of fidelity of delivery to comprise 77 single items clustered into 19 subscales. The authors conclude that greater focus on the essential elements of the intervention could have simplified the observation list, which may have improved inter-observer agreement and consequently confidence in the process evaluation.

The aims of this study were:

i. To assess the extent to which PNs/HCAs adhere to the specified components and techniques defined in the walking intervention protocol (intervention content)
ii. To assess the time spent delivering individual intervention components and
   the overall intervention (intervention dose)

iii. To explore the extent to which a range of provider variables are associated
    with fidelity of delivery of the walking intervention

iv. To use the findings of the study in conjunction with those of other studies in
    the thesis to enhance understanding of the influences on fidelity of delivery
    of HBC interventions by PNs/HCAs and the potential impact of fidelity of
    delivery on patients' understanding and engagement with the walking
    intervention (see chapters eight and nine).
METHODS

Design
The study used an observational design to assess fidelity of delivery of a walking intervention by PNs/HCAs according to the techniques specified in the intervention protocol.

Participants
Eight providers (n=2 PNs and n=6 HCAs) delivered the intervention to eligible patients within general practices in Coventry and Warwickshire. Demographic characteristics of the providers are reported in chapter six.

Intervention sessions delivered to 41 different patients were included in the present study (8 males and 33 females). Patients included in the present study were aged between 30 and 75 years (mean was 56 years, SD=8.7). This sample is representative of the larger sample recruited to receive the walking intervention in Phase Three (see chapter six).

Procedure
The procedure for recruitment and training of providers in Phase Three of the walking intervention research is detailed in chapter six.

To undertake an objective assessment of fidelity of delivery, providers were asked to audio-record all their intervention sessions. To maximise recording of sessions, a number of mechanisms were employed. Firstly during the training sessions, providers were informed that they would be asked to record intervention sessions as a means of assessing the extent to which the intervention was delivered with fidelity. To encourage providers to record all intervention sessions, each was offered a £25 gift voucher. Each provider was given a digital audio-recorder with simple written instructions and a demonstration of how to use.

Additional strategies to encourage recording of intervention sessions included the use of coloured stickers added to the intervention protocol to prompt recording and sending text message and e-mail prompts to providers to offer support and
reminders to record sessions. Furthermore, at least once during the period of delivery the author visited the practice to swap recorders. This provided a means of emphasising the importance of recording the sessions, whilst also avoiding issues such as the risk of accidental deletion of audio-files. All recorded intervention sessions were uploaded onto a computer and stored in secure folders.

**Sample of intervention sessions selected for coding**

When intervention delivery was complete, 50/63 (79%) of Session One of the walking intervention (hereafter termed Session One) and 49/59 (83%) of Session Two of the walking intervention (hereafter termed Session Two) that were delivered were recorded. Reasons for non-recordings were not known in every case but included a minimum of two recorder failures. Furthermore, one provider kept the recorder at home, due to a lack of secure facilities within the practice, but on some occasions forgot to bring the recorder into work (this provider only recorded 13 of the 23 sessions she delivered). Another provider decided that as she would have to help a patient who was visually impaired to complete the intervention worksheets the session should not be recorded.

The numbers of patients receiving the intervention was not evenly distributed across the providers; the range was from n=3 to n=14 patients per provider. The primary reason for this difference was as a result of difficulties with recruitment of patients to the study by individual practices and time constraints impacting on the provider's ability to deliver sessions.

Coding was conducted on half (i.e. 62) of the 122 intervention sessions delivered across the providers. The sample was obtained from all providers and was evenly distributed across the period of delivery. This served to enhance representativeness of the sample (Schlosser 2002). The sample obtained for coding was achieved by applying the following sampling strategy for each provider; if up to five intervention sessions were recorded, all would be included. If more than five sessions were recorded, then five were included. The sub-sample for coding was obtained by using the first, middle and last delivered and recorded session, and the session mid-way between the first and middle, and the middle and last session. The sampling strategy resulted in a total of 62 sessions for
coding (51% of the entire sample); (n=32 out of a total of n=63 deliveries of Session One and n=30 out of a total of n=59 deliveries of Session Two of the intervention). The intervention sessions delivered, recorded and coded per provider is presented in appendix fourteen.

Coding of intervention sessions

The piloting and coding process was initially undertaken for Session One. An identical process was followed for Session Two.

Coding was undertaken for three deliveries of Session One that had been recorded but would not be used in the present study, to pilot the coding frame. One of these sessions was double coded by the author’s supervisor. Minor amendments were made following discussion to improve the guidelines for coding further sessions.

A second independent coder (a PhD student with whom the author had previously worked) double coded eight deliveries each of Session One and Two to assess inter-rater reliability for 25% of the total intervention sessions that would be coded.

Two deliveries of Session One were randomly selected for independent coding by the two coders, who then met to discuss results and to improve the guidelines for further coding. The next two intervention sessions randomly selected were then independently coded and discussed, until the total of eight further sessions had been double coded. Inter-rater reliability was assessed for these eight double coded sessions.

Agreement was reached through discussion which was facilitated as the coders had documented extracts from the recordings on the coding frame. Agreement on codes was reached in all cases after the first meeting.

The remaining 22 sessions were then coded by the author. When all 32 sessions had been coded, the two sessions that had been coded at the start of the process were re-coded.
Measures

Sessions One and Two of the walking intervention each comprised four main sections (see tables 7.1 and 7.2). Within each section there were one or more components of the intervention. Within each component, assessment of fidelity of delivery of specified, essential techniques was undertaken.

Table 7.1: Specified sections, components and techniques for Session One of the walking intervention

<table>
<thead>
<tr>
<th>Section</th>
<th>Component</th>
<th>Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning the session</td>
<td>Introduction</td>
<td>Outline of session provided</td>
</tr>
<tr>
<td></td>
<td>Assessment of Average Daily Walking</td>
<td>Patient told their average daily walking</td>
</tr>
<tr>
<td>Motivational Phase</td>
<td>What Makes it Easier to Walk</td>
<td>Patient asked to complete worksheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient asked to elaborate on worksheet</td>
</tr>
<tr>
<td></td>
<td>Walking Experiences</td>
<td>Patient asked to complete worksheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient asked to elaborate on worksheet</td>
</tr>
<tr>
<td>Planning Phase</td>
<td>Goal Setting</td>
<td>Patient offered a goal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient chooses goal</td>
</tr>
<tr>
<td></td>
<td>Action Planning</td>
<td>Patient asked to complete action plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient asked to elaborate on action plan</td>
</tr>
<tr>
<td>Concluding the session</td>
<td>Conclusions</td>
<td>Patient asked to complete diary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient asked to summarise the session</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient asked to summarise their plans for walking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Positive end to the session</td>
</tr>
</tbody>
</table>
Table 7.2: Specified sections, components and techniques for Session Two of the walking intervention

<table>
<thead>
<tr>
<th>Section</th>
<th>Component</th>
<th>Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning the session</td>
<td>Introduction</td>
<td>Outline of session provided</td>
</tr>
<tr>
<td>Motivational Phase</td>
<td>Review of behaviour change</td>
<td>Patient asked to describe walking experiences</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient informed of average daily walking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient praised for their efforts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient asked to elaborate on what helped them to walk more</td>
</tr>
<tr>
<td>Planning Phase</td>
<td>Goal re-evaluation/setting</td>
<td>Patient offered a goal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient chooses goal</td>
</tr>
<tr>
<td></td>
<td>Supportive Planning</td>
<td>Patient asked to complete supportive plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient asked to elaborate supportive plan</td>
</tr>
<tr>
<td></td>
<td>Action Planning</td>
<td>Patient asked to complete action plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient asked to elaborate on action plan</td>
</tr>
<tr>
<td>Concluding the session</td>
<td>Conclusions</td>
<td>Patient asked to complete diary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient asked to summarise session</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient asked to summarise plans for walking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Positive end to the session</td>
</tr>
</tbody>
</table>

Structure of the coding frame

The coding frame was based on the checklist used to assess provider competence prior to delivering the walking intervention. The format was changed slightly so that the components and techniques were ordered as per the intended delivery in the protocol and to document the time spent delivering the intervention components. The coding frames for Sessions One and Two are provided in appendix fifteen.

For techniques where the provider was required to ask the patient to elaborate or feedback on a task they had completed, if the patient did this without prompting then the technique would be coded as delivered. It was decided that if the patient elaborated without prompting, it would be counter-productive for the provider to ask the patient to elaborate again.
Provider specific measures
The length of time between providers receiving their training and commencing delivery of the intervention, the period of time over which providers delivered the intervention and whether the provider completed an assessment of competence was documented.

Assessment of fidelity of delivery of intervention components and techniques
For Session One and Session Two, the delivery of 20 essential components and techniques were coded.

A code of 1 was assigned for competent delivery, or delivery according to the protocol where a component was delivered in the correct order, or a technique was delivered as specified in the protocol. Further details on what constituted competent delivery were described on the coding frame (see appendix fifteen). Delivery of the correct order was coded as competent where the component followed the component it was intended to, or in the case of the Introduction, was delivered before any other component. Where a component was not delivered or delivered in the wrong place, or a technique was not delivered, a code of 0 was given.

Assessment of fidelity of delivery of time spent delivering overall intervention sessions and specified intervention components
The length of time spent delivering overall sessions and specified components was documented on the coding frame. The overall length of the session was calculated from the time on the recording where the formal welcome to the session was made by the provider to the time when the intervention delivery was deemed to be complete. This was usually when the provider thanked the patient for attending and the patient was heard leaving the room. However, in eight sessions the provider did not formally end the session before the recorder was turned off and so they may have ended the session positively. However, the coders agreed that to ensure objectivity, coding must be based on what could be heard on the audio-recording and so in these eight sessions a ‘Positive End’ was coded as not delivered.
Additional features of intervention delivery
There were a number of additional features of the sessions, that, although more subjective were noted during the coding process. These included behaviours not specified in the protocol; for example, making suggestions to patients about ways in which they could increase their walking had been actively discouraged during the provider training but was still included in almost one third of the sessions coded. Behaviours that were consistent with the intervention, such as instances of praise were also noted.

Analysis
Cohen’s Kappa coefficient, weighted for chance agreement, was used to measure agreement between the two coders when double coding eight deliveries of Session One and Session Two of the walking intervention (Cohen 1960). Pearson’s correlations were used to assess the association between the times assigned by each coder for the eight double coded sessions.
RESULTS

Reliability of coding
For Session One, an overall kappa score of 0.69 for the eight double coded sessions was obtained; for Session Two an overall kappa of 0.78 was obtained. Both scores indicated substantial agreement.

For both Session One and Session Two a Pearson's correlation of 0.99 was achieved between estimated timings of intervention components between the two coders for eight double coded sessions.

Overall fidelity of delivery of walking intervention sessions
Overall, of the 32 Session Ones coded, overall fidelity of delivery was 80% (513 achieved out of a maximum possible of 640 for all sessions coded across all providers) (see table 7.3). This represents competent delivery of intervention components delivered in the correct order and essential techniques delivered competently.
Table 7.3: Overall fidelity of delivery of components and techniques coded for Session One of the walking intervention (components are shaded grey)

<table>
<thead>
<tr>
<th>Name/number of component/technique</th>
<th>Component</th>
<th>Technique</th>
<th>Sessions in which components/techniques were delivered</th>
<th>% sessions delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>✓</td>
<td></td>
<td>27/32</td>
<td>84%</td>
</tr>
<tr>
<td>2. Overview of Session</td>
<td>✓</td>
<td></td>
<td>27/32</td>
<td>84%</td>
</tr>
<tr>
<td>3. Assessment of Average Daily Walking</td>
<td>✓</td>
<td></td>
<td>17/32</td>
<td>53%</td>
</tr>
<tr>
<td>4. Average Daily Walking communicated</td>
<td>✓</td>
<td></td>
<td>30/32</td>
<td>94%</td>
</tr>
<tr>
<td>5. What Makes it Easier to Walk? (WMIETW)</td>
<td>✓</td>
<td></td>
<td>17/32</td>
<td>53%</td>
</tr>
<tr>
<td>6. WMIETW? (patient asked to complete)</td>
<td>✓</td>
<td></td>
<td>32/32</td>
<td>100%</td>
</tr>
<tr>
<td>7. WMIETW? (patient asked to elaborate)</td>
<td>✓</td>
<td></td>
<td>24/32</td>
<td>75%</td>
</tr>
<tr>
<td>8. Walking Experiences (WE)</td>
<td>✓</td>
<td></td>
<td>32/32</td>
<td>100%</td>
</tr>
<tr>
<td>9. WE (patient asked to complete)</td>
<td>✓</td>
<td></td>
<td>32/32</td>
<td>100%</td>
</tr>
<tr>
<td>10. WE (patient asked to elaborate)</td>
<td>✓</td>
<td></td>
<td>30/32</td>
<td>94%</td>
</tr>
<tr>
<td>11. Goal Setting</td>
<td>✓</td>
<td></td>
<td>22/32</td>
<td>69%</td>
</tr>
<tr>
<td>12. Goal Offer</td>
<td>✓</td>
<td></td>
<td>25/32</td>
<td>78%</td>
</tr>
<tr>
<td>13. Goal Choice</td>
<td>✓</td>
<td></td>
<td>27/32</td>
<td>84%</td>
</tr>
<tr>
<td>14. Action Plan (AP)</td>
<td>✓</td>
<td></td>
<td>30/32</td>
<td>94%</td>
</tr>
<tr>
<td>15. AP (patient asked to complete)</td>
<td>✓</td>
<td></td>
<td>32/32</td>
<td>100%</td>
</tr>
<tr>
<td>16. AP (patient asked to elaborate)</td>
<td>✓</td>
<td></td>
<td>29/32</td>
<td>91%</td>
</tr>
<tr>
<td>17. Diary (patient asked to complete)</td>
<td>✓</td>
<td></td>
<td>32/32</td>
<td>100%</td>
</tr>
<tr>
<td>18. Summary of Session</td>
<td>✓</td>
<td></td>
<td>12/32</td>
<td>36%</td>
</tr>
<tr>
<td>19. Summary of Plans</td>
<td>✓</td>
<td></td>
<td>13/32</td>
<td>41%</td>
</tr>
<tr>
<td>20. Positive End to the session</td>
<td>✓</td>
<td></td>
<td>23/32</td>
<td>72%</td>
</tr>
<tr>
<td>Total:</td>
<td></td>
<td></td>
<td>513/640</td>
<td>80%</td>
</tr>
</tbody>
</table>

For Session One, all components and techniques subsequently referred to will be identified by name and number according to table 7.3.

Overall, of the 30 Session Twos coded, overall fidelity of delivery was 76% (453 achieved out of a maximum possible of 600 for all sessions coded across all
providers) (see table 7.4). This represents competent delivery of intervention components delivered in the correct order and essential techniques delivered competently.

Table 7.4: Overall fidelity of delivery of components and techniques coded for Session Two of the walking intervention (components are shaded grey)

<table>
<thead>
<tr>
<th>Name of component/technique</th>
<th>Component</th>
<th>Technique</th>
<th>Sessions in which components/techniques were delivered</th>
<th>% sessions delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>√</td>
<td></td>
<td>21/30</td>
<td>70%</td>
</tr>
<tr>
<td>2. Overview of Session</td>
<td>√</td>
<td></td>
<td>21/30</td>
<td>70%</td>
</tr>
<tr>
<td>3. Review of Behaviour Change</td>
<td>√</td>
<td></td>
<td>21/30</td>
<td>70%</td>
</tr>
<tr>
<td>4. Patient asked to Describe Walks</td>
<td>√</td>
<td></td>
<td>26/30</td>
<td>87%</td>
</tr>
<tr>
<td>5. Average Daily Walking communicated</td>
<td>√</td>
<td></td>
<td>27/30</td>
<td>90%</td>
</tr>
<tr>
<td>6. Positive Feedback</td>
<td>√</td>
<td></td>
<td>28/30</td>
<td>93%</td>
</tr>
<tr>
<td>7. What Helped Patient to Walk More</td>
<td>√</td>
<td></td>
<td>26/30</td>
<td>87%</td>
</tr>
<tr>
<td>8. Goal Setting</td>
<td>√</td>
<td></td>
<td>17/30</td>
<td>57%</td>
</tr>
<tr>
<td>9. Goal Offer</td>
<td>√</td>
<td></td>
<td>22/30</td>
<td>73%</td>
</tr>
<tr>
<td>10. Goal Decision</td>
<td>√</td>
<td></td>
<td>28/30</td>
<td>93%</td>
</tr>
<tr>
<td>11. Supportive Plan (SP)</td>
<td>√</td>
<td></td>
<td>18/30</td>
<td>60%</td>
</tr>
<tr>
<td>12. SP (patient asked to complete)</td>
<td>√</td>
<td></td>
<td>30/30</td>
<td>100%</td>
</tr>
<tr>
<td>13. SP (patient asked to elaborate)</td>
<td>√</td>
<td></td>
<td>26/30</td>
<td>87%</td>
</tr>
<tr>
<td>14. Action Plan (AP)</td>
<td>√</td>
<td></td>
<td>21/30</td>
<td>70%</td>
</tr>
<tr>
<td>15. AP (patient asked to complete)</td>
<td>√</td>
<td></td>
<td>28/30</td>
<td>93%</td>
</tr>
<tr>
<td>16. AP (patient asked to elaborate)</td>
<td>√</td>
<td></td>
<td>25/30</td>
<td>83%</td>
</tr>
<tr>
<td>17. Diary (patient asked to complete)</td>
<td>√</td>
<td></td>
<td>21/30</td>
<td>70%</td>
</tr>
<tr>
<td>18. Summary of Session</td>
<td>√</td>
<td></td>
<td>13/30</td>
<td>43%</td>
</tr>
<tr>
<td>19. Summary of Plans</td>
<td>√</td>
<td></td>
<td>12/30</td>
<td>40%</td>
</tr>
<tr>
<td>20. Positive End to the session</td>
<td>√</td>
<td></td>
<td>22/30</td>
<td>73%</td>
</tr>
<tr>
<td>Total:</td>
<td></td>
<td></td>
<td>453/600</td>
<td>76%</td>
</tr>
</tbody>
</table>

For Session Two, all components and techniques subsequently referred to will be identified by name and number according to table 7.4.
Overall fidelity of delivery of essential intervention techniques

This section concerns delivery of essential techniques. The following section will report delivery of intervention components in the correct order.

For Session One, the delivery of fourteen essential intervention techniques was assessed (table 7.3). Overall, of the 32 sessions coded, 368 essential techniques out of a maximum possible of 448 were delivered competently; this resulted in 82% of techniques delivered as specified. For Session Two, the delivery of fifteen essential intervention techniques was assessed (table 7.4). Overall, of the 30 sessions coded, 355 essential techniques out of a maximum possible of 450 were delivered competently; this resulted in 79% of techniques delivered as specified.

There was some variation in the extent to which techniques were delivered as specified during Session One (table 7.3). In every session coded the provider asked the patient to complete the following tasks; (6) What Makes it Easier to Walk? (9) Walking Experiences and (15) Action Planning (17). Asking the patient to complete the Diary was also delivered in every session. In 30 of the 32 sessions the provider informed the patient of their (4) Average Daily Walking and asked the patient to elaborate on their (10) Walking Experiences.

Delivery of the techniques that comprised the motivational section of the intervention (6, 7, 9 and 10) were delivered on a mean of 29 times for the 32 coded sessions. In all sessions, the providers asked the patient to complete (6) What Makes it Easier to Walk? and (9) Walking Experiences. However, encouraging elaboration or feedback on (7) What Makes it Easier to Walk? and (10) Walking Experiences was delivered less frequently. These techniques were delivered in 75% (24/32) and 94% (30/32) sessions respectively.

Techniques that comprised the planning section (12, 13, 15 and 16) were delivered on a mean of 28 times for the 32 coded sessions. Although most providers did make a (12) Goal Offer, on a number of occasions it was not according to the protocol, which specified a goal to increase walking by 10 or 20 minutes a day. However, in 84% (27/32) of sessions the patient made a (13) Goal Decision. In all sessions, the provider asked the patient to complete their (15)
Chapter seven: Study three

Action Plan, and in 91% of sessions (29/32) the patient was asked to elaborate on their (16) Action Plan, or did so without being asked to.

For Session Two (table 7.4) the delivery of techniques followed a similar pattern to Session One. In every session coded the patient was asked to complete the (12) Supportive Plan and in 28 of the 30 (93%) coded sessions the patient was asked to complete the (15) Action Plan. Asking the patient to elaborate on their (13) Supportive Plan and (16) Action Plan happened in fewer sessions; 26/30 (87%) and 25/30 (83%) sessions respectively.

Of the four main sections of Session One and Two, 'Ending the session' was delivered with least fidelity across both sessions. The (18) Summary of the Session and (19) Summary of Plans for Walking (19) were delivered in less than 50% of sessions. A (20) Positive End to the session was determined to be present in less than 75% of sessions. However, in every Session One coded, the patient was asked to complete their (17) Diary, whereas for Session Two, patients were asked to complete the (17) Diary in only 22 of 30 (73%) sessions.

Overall fidelity of delivery of order of intervention components
For Session One, the order of delivery of six essential intervention components was assessed (table 7.3). Overall, 145 components were delivered in the specified order out of a maximum possible of 192; this resulted in 76% of components being delivered in the order specified. For Session Two, the order of delivery of five essential intervention components was assessed (table 7.4). Overall, 98 components were delivered in the specified order out of a maximum possible of 150; this resulted in 65% of components being delivered as specified.

There was considerable variation in the extent to which components were delivered in the specified order. During Session One, the (3) Assessment of Average Daily Walking and (5) What Makes it Easier to Walk? were delivered in the specified place in just over half of all sessions (17/32). The (11) Goal Setting component was delivered in the specified place in around 75% of sessions (23/32). Where it was not in the specified place, it was commonly delivered immediately after the (3) Assessment of Average Daily Walking. The two
motivational components were always delivered as specified in relation to each other; (5) What Makes it Easier to Walk? was always delivered immediately before (8) Walking Experiences. For the planning components, with only two exceptions (11) Goal Setting always preceded (14) Action Planning and so was delivered as specified. (17) Completing the Diary, which formed part of the concluding section of the intervention, always followed Action Planning, as specified.

For Session Two, the (1) Introduction was missing in nine sessions, but where it was delivered, it was in the specified place. Where the Introduction was missing, the (3) Review of Behaviour Change was delivered as the first intervention component. In all sessions where the Introduction was delivered, the Review of Behaviour Change immediately followed. The (8) Goal Setting component was delivered in the specified place in only 17 out of 30 sessions. In seven out of 30 sessions it was delivered after the (11) Supportive Plan but before the (14) Action Plan. In two sessions, the Goal Setting component was missing; in three sessions it was delivered in the middle of the Supportive Plan and in one session immediately after the Action Plan. The Supportive Plan was delivered as specified (i.e. that it immediately followed Goal Setting) in 18 of 30 sessions. In 11 sessions it immediately followed the Review of Behaviour Change and in one session was the last component to be delivered, after Action Planning. In seven sessions the Action Planning component followed the Goal Setting component, rather than the specified Supportive Planning component. In two sessions it was missing.

**Fidelity of delivery according to provider**

**Delivery of essential intervention techniques by provider**

*Table 7.5: Frequency of competent delivery of 14 essential intervention techniques in Session One by each provider*¹²³

¹ Figures for tables 7.5, 7.6, 7.7 and 7.8 are given out of the maximum score that could have been achieved based on sessions coded.

² Provider numbers were assigned according to the date the provider completed their training and assessment of competence, with provider 1 being the first provider who was trained. Provider numbers will be identified in the relevant tables.

³ Total figures in tables 7.5 and 7.6 are given out of the maximum score that could have been achieved based on sessions coded and are also shown as a percentage.
Chapter seven: Study three

<table>
<thead>
<tr>
<th>Sessions coded</th>
<th>Tina (P1)</th>
<th>Lindsay (P2)</th>
<th>Catherine (P3)</th>
<th>Zara (P4)</th>
<th>Jo (P5)</th>
<th>Judith (P6)</th>
<th>Denise (P7)</th>
<th>Mandy (P8)</th>
<th>Total - all providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>32</td>
</tr>
<tr>
<td>Intro. (2)</td>
<td>0/1</td>
<td>2/4</td>
<td>5/5</td>
<td>3/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>27/32 84%</td>
</tr>
<tr>
<td>Average Daily Walking (4)</td>
<td>0/1</td>
<td>3/4</td>
<td>5/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>30/32 94%</td>
</tr>
<tr>
<td>WMIETW (ask) (6)</td>
<td>1/1</td>
<td>4/4</td>
<td>5/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>32/32 100%</td>
</tr>
<tr>
<td>WMIETW (elaborate) (7)</td>
<td>0/1</td>
<td>3/4</td>
<td>2/5</td>
<td>4/5</td>
<td>5/5</td>
<td>0/2</td>
<td>5/5</td>
<td>5/5</td>
<td>24/32 75%</td>
</tr>
<tr>
<td>WE (ask) (9)</td>
<td>1/1</td>
<td>4/4</td>
<td>5/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>32/32 100%</td>
</tr>
<tr>
<td>WE (elaborate) (10)</td>
<td>0/1</td>
<td>3/4</td>
<td>5/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>30/32 94%</td>
</tr>
<tr>
<td>Goal Offer (12)</td>
<td>0/1</td>
<td>1/4</td>
<td>5/5</td>
<td>4/5</td>
<td>5/5</td>
<td>1/2</td>
<td>4/5</td>
<td>5/5</td>
<td>25/32 78%</td>
</tr>
<tr>
<td>Goal Choice (13)</td>
<td>0/1</td>
<td>3/4</td>
<td>5/5</td>
<td>4/5</td>
<td>5/5</td>
<td>2/2</td>
<td>3/5</td>
<td>5/5</td>
<td>27/32 84%</td>
</tr>
<tr>
<td>Action Plan (ask) (15)</td>
<td>1/1</td>
<td>4/4</td>
<td>5/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>32/32 100%</td>
</tr>
<tr>
<td>Action Plan (elaborate) (16)</td>
<td>0/1</td>
<td>2/4</td>
<td>5/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>29/32 91%</td>
</tr>
<tr>
<td>Diary (17)</td>
<td>1/1</td>
<td>4/4</td>
<td>5/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>32/32 100%</td>
</tr>
<tr>
<td>Summary of Session (18)</td>
<td>0/1</td>
<td>0/4</td>
<td>4/5</td>
<td>2/5</td>
<td>3/5</td>
<td>0/2</td>
<td>0/5</td>
<td>3/5</td>
<td>12/32 36%</td>
</tr>
<tr>
<td>Summary of Plans (19)</td>
<td>0/1</td>
<td>1/4</td>
<td>4/5</td>
<td>4/5</td>
<td>2/5</td>
<td>0/2</td>
<td>0/5</td>
<td>2/5</td>
<td>13/32 41%</td>
</tr>
<tr>
<td>Positive End (20)</td>
<td>1/1</td>
<td>0/4</td>
<td>3/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>4/5</td>
<td>23/32 72%</td>
</tr>
<tr>
<td>Total techniques delivered</td>
<td>5/14</td>
<td>34/56</td>
<td>63/70</td>
<td>61/70</td>
<td>65/70</td>
<td>21/28</td>
<td>55/70</td>
<td>64/70</td>
<td>368/448 82%</td>
</tr>
</tbody>
</table>
There was considerable variation between providers regarding the competent delivery of the essential intervention techniques. Of the sessions coded, Tina delivered 36% techniques as specified in contrast to Catherine, Jo and Mandy who delivered over 90% techniques. There appeared to be a pattern of delivery by each provider in Session One and Two. If a provider did not deliver a technique, they tended to not deliver it in a number of the sessions. The grey shaded boxes in tables 7.5 and 7.6 denote instances where a provider delivered a technique in 50% or less of the coded sessions. In contrast where a provider did deliver a technique they tended to deliver it in almost all the sessions coded.

Table 7.6: Frequency of competent delivery of 15 essential intervention techniques in Session Two by each provider
<table>
<thead>
<tr>
<th>Section</th>
<th>Tina (P1)</th>
<th>Lindsay (P2)</th>
<th>Catherine (P3)</th>
<th>Zara (P4)</th>
<th>Jo (P5)</th>
<th>Judith (P6)</th>
<th>Denise (P7)</th>
<th>Mandy (P8)</th>
<th>Total - all providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro. (2)</td>
<td>0/3</td>
<td>2/3</td>
<td>3/5</td>
<td>4/4</td>
<td>5/5</td>
<td>0/2</td>
<td>4/5</td>
<td>3/3</td>
<td>21/30 70%</td>
</tr>
<tr>
<td>Pt. describes walks (4)</td>
<td>3/3</td>
<td>3/3</td>
<td>5/5</td>
<td>2/4</td>
<td>4/5</td>
<td>1/2</td>
<td>5/5</td>
<td>3/3</td>
<td>26/30 87%</td>
</tr>
<tr>
<td>Pt. told av. walking (5)</td>
<td>2/3</td>
<td>1/3</td>
<td>5/5</td>
<td>4/4</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>3/3</td>
<td>27/30 90%</td>
</tr>
<tr>
<td>Positive feedback (6)</td>
<td>1/3</td>
<td>3/3</td>
<td>5/5</td>
<td>4/4</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>3/3</td>
<td>28/30 93%</td>
</tr>
<tr>
<td>What helped walking (7)</td>
<td>2/3</td>
<td>3/3</td>
<td>4/5</td>
<td>3/4</td>
<td>5/5</td>
<td>1/2</td>
<td>5/5</td>
<td>3/3</td>
<td>26/30 87%</td>
</tr>
<tr>
<td>Goal Offer (9)</td>
<td>0/3</td>
<td>2/3</td>
<td>5/5</td>
<td>2/4</td>
<td>5/5</td>
<td>2/2</td>
<td>3/5</td>
<td>3/3</td>
<td>22/30 73%</td>
</tr>
<tr>
<td>Goal Choice (10)</td>
<td>2/3</td>
<td>3/3</td>
<td>5/5</td>
<td>4/4</td>
<td>5/5</td>
<td>2/2</td>
<td>4/5</td>
<td>3/3</td>
<td>28/30 93%</td>
</tr>
<tr>
<td>SP (ask) (12)</td>
<td>3/3</td>
<td>3/3</td>
<td>5/5</td>
<td>4/4</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>3/3</td>
<td>30/30 100%</td>
</tr>
<tr>
<td>SP (13) (elaborate)</td>
<td>1/3</td>
<td>2/3</td>
<td>5/5</td>
<td>4/4</td>
<td>4/5</td>
<td>2/2</td>
<td>5/5</td>
<td>3/3</td>
<td>26/30 87%</td>
</tr>
<tr>
<td>AP (ask) (15)</td>
<td>1/3</td>
<td>3/3</td>
<td>5/5</td>
<td>4/4</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>3/3</td>
<td>28/30 93%</td>
</tr>
<tr>
<td>AP (16) (elaborate)</td>
<td>1/3</td>
<td>1/3</td>
<td>5/5</td>
<td>3/4</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>3/3</td>
<td>25/30 83%</td>
</tr>
<tr>
<td>Diary (17)</td>
<td>0/3</td>
<td>1/3</td>
<td>5/5</td>
<td>3/4</td>
<td>2/5</td>
<td>2/2</td>
<td>5/5</td>
<td>3/3</td>
<td>21/30 70%</td>
</tr>
<tr>
<td>Summary of Session (18)</td>
<td>0/3</td>
<td>0/3</td>
<td>4/5</td>
<td>1/4</td>
<td>5/5</td>
<td>0/2</td>
<td>1/5</td>
<td>2/3</td>
<td>13/30 43%</td>
</tr>
<tr>
<td>Summary of Plans (19)</td>
<td>0/3</td>
<td>0/3</td>
<td>3/5</td>
<td>3/4</td>
<td>3/5</td>
<td>1/2</td>
<td>2/5</td>
<td>0/3</td>
<td>12/30 40%</td>
</tr>
<tr>
<td>Positive end (20)</td>
<td>2/3</td>
<td>0/3</td>
<td>4/5</td>
<td>3/4</td>
<td>5/5</td>
<td>0/2</td>
<td>5/5</td>
<td>3/3</td>
<td>22/30 73%</td>
</tr>
<tr>
<td>Total techniques delivered</td>
<td>18/45</td>
<td>27/45</td>
<td>68/75</td>
<td>48/60</td>
<td>68/75</td>
<td>21/30</td>
<td>64/75</td>
<td>41/45</td>
<td>355/450 79%</td>
</tr>
</tbody>
</table>

| Total providers                | 21/30 70% | 26/30 87% | 27/30 90% | 28/30 93% | 30/30 100% | 22/30 73% | 28/30 93% | 30/30 100% | 355/450 79% |

| 71/104 69%                    | 12/30 40% | 22/30 73% | 355/450 79% |
There was considerable variation between providers regarding the competent delivery of the fifteen essential intervention techniques. Of the sessions coded, Tina delivered 40% techniques as specified in contrast to Catherine, Jo and Mandy who delivered over 90%.

Order of delivery of intervention components by provider

Table 7.7: Frequency of competent delivery of **Session One** components in the order specified, by provider

<table>
<thead>
<tr>
<th></th>
<th>Tina (P1)</th>
<th>Lindsay (P2)</th>
<th>Catherine (P3)</th>
<th>Zara (P4)</th>
<th>Jo (P5)</th>
<th>Judith (P6)</th>
<th>Denise (P7)</th>
<th>Mandy (P8)</th>
<th>Total for All providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sessions coded</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>32</td>
</tr>
<tr>
<td>Intro. (1)</td>
<td>0/0</td>
<td>2/4</td>
<td>5/5</td>
<td>3/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>27/32 84%</td>
</tr>
<tr>
<td>Av. daily walk (3)</td>
<td>0/0</td>
<td>0/4</td>
<td>4/5</td>
<td>2/5</td>
<td>5/5</td>
<td>2/2</td>
<td>0/0</td>
<td>4/5</td>
<td>17/32 53%</td>
</tr>
<tr>
<td>WMIETW (5)</td>
<td>0/0</td>
<td>0/4</td>
<td>3/5</td>
<td>3/5</td>
<td>5/5</td>
<td>2/2</td>
<td>0/0</td>
<td>4/5</td>
<td>17/32 53%</td>
</tr>
<tr>
<td>WE (8)</td>
<td>1/1</td>
<td>4/4</td>
<td>5/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>32/32 100%</td>
</tr>
<tr>
<td>Goal (11)</td>
<td>1/1</td>
<td>2/4</td>
<td>3/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>0/0</td>
<td>4/5</td>
<td>22/32 69%</td>
</tr>
<tr>
<td>Action Plan (14)</td>
<td>1/1</td>
<td>3/4</td>
<td>4/5</td>
<td>5/5</td>
<td>5/5</td>
<td>2/2</td>
<td>5/5</td>
<td>5/5</td>
<td>30/32 94%</td>
</tr>
<tr>
<td>Total delivered</td>
<td>3/6</td>
<td>11/24</td>
<td>24/30</td>
<td>23/30</td>
<td>30/30</td>
<td>12/12</td>
<td>15/30</td>
<td>27/30</td>
<td>145/192 76%</td>
</tr>
</tbody>
</table>

Jo and Judith delivered all components in the order specified, with Catherine, Zara and Mandy delivering components in the specified order in over 75% of coded sessions. Tina, Lindsay and Denise delivered approximately half of the components in the specified order.
It was intended that the (3) Assessment of Average Daily Walking was delivered immediately after the (1) Introduction as a means of underpinning the subsequent intervention components. There was wide variation in the way this component was delivered. For example in only 19% of sessions coded (6/32) was there strong adherence to all aspects of this component as specified in the protocol (i.e. that the patients' Average Daily Walking was assessed within the session, in the order specified, in front of the patient and the figure given to the patient as specified in the protocol). In 11/32 sessions (34%) providers calculated the patient's Average Daily Walking prior to the session commencing. However, as these providers delivered the component and technique as specified they still achieved maximum scores from coding. In 7/32 sessions the assessment was done in the session but calculated while the patient completed (5) What Makes it Easier to Walk? and/or (8) Walking Experiences. This resulted in the component being delivered in the wrong place, as the patient was informed of their Average Daily Walking later in the session than intended. However, in these cases the technique was still applied. In 6/32 sessions the assessment was undertaken prior to the session commencing, and although the technique was delivered it was not in the order specified; rather it was delivered as soon as the session started or immediately prior to (11) Goal Setting. In 2/32 sessions, no assessment was undertaken.
Table 7.8: Frequency of competent delivery of Session Two components in the order specified, by provider

<table>
<thead>
<tr>
<th>Sessions coded</th>
<th>Tina (P1)</th>
<th>Lindsay (P2)</th>
<th>Catherine (P3)</th>
<th>Zara (P4)</th>
<th>Jo (P5)</th>
<th>Judith (P6)</th>
<th>Denise (P7)</th>
<th>Mandy (P8)</th>
<th>Total for all providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro. (1)</td>
<td>0/3</td>
<td>2/3</td>
<td>3/5</td>
<td>4/4</td>
<td>5/5</td>
<td>0/2</td>
<td>4/5</td>
<td>3/3</td>
<td>21/30 70%</td>
</tr>
<tr>
<td>Review (3)</td>
<td>0/3</td>
<td>2/3</td>
<td>3/5</td>
<td>4/4</td>
<td>5/5</td>
<td>0/2</td>
<td>4/5</td>
<td>3/3</td>
<td>21/32 70%</td>
</tr>
<tr>
<td>Goal (8)</td>
<td>0/3</td>
<td>3/3</td>
<td>3/5</td>
<td>4/4</td>
<td>2/5</td>
<td>2/2</td>
<td>0/5</td>
<td>3/3</td>
<td>17/30 57%</td>
</tr>
<tr>
<td>SP (11)</td>
<td>1/3</td>
<td>3/3</td>
<td>3/5</td>
<td>4/4</td>
<td>2/5</td>
<td>2/2</td>
<td>0/5</td>
<td>3/3</td>
<td>17/30 57%</td>
</tr>
<tr>
<td>AP (14)</td>
<td>0/3</td>
<td>3/3</td>
<td>5/5</td>
<td>4/4</td>
<td>2/5</td>
<td>2/2</td>
<td>2/5</td>
<td>3/3</td>
<td>21/30 70%</td>
</tr>
<tr>
<td>Total delivered</td>
<td>1/15 7%</td>
<td>13/15 87%</td>
<td>17/25 68%</td>
<td>20/20 100%</td>
<td>16/25 64%</td>
<td>6/10 60%</td>
<td>10/25 40%</td>
<td>15/15 100%</td>
<td>98/150 65%</td>
</tr>
</tbody>
</table>

Zara and Mandy delivered components in the specified order in all sessions coded. Lindsay delivered 13 out of 15 (87%) and Catherine, Jo and Judith delivered between 60 and 70%. Denise delivered less than half of the components in the specified order; whilst Tina delivered only one component in the correct order in one of her sessions.
Time taken to deliver the overall intervention and specific components

Table 7.9: Suggested and actual time to deliver each intervention component in Session One

<table>
<thead>
<tr>
<th>Intervention component</th>
<th>Suggested time (minutes)</th>
<th>Actual time spent delivering intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>1</td>
<td>0:32 (0:22)</td>
</tr>
<tr>
<td>3. Assessment of Average Daily Walking</td>
<td>3</td>
<td>1:56 (2:04)</td>
</tr>
<tr>
<td>8. Walking Experiences task</td>
<td>5</td>
<td>3:36 (2:07)</td>
</tr>
<tr>
<td>11. Goal Setting</td>
<td>1</td>
<td>1:36 (1:35)</td>
</tr>
<tr>
<td>14. Action Planning</td>
<td>8</td>
<td>5:05 (2:36)</td>
</tr>
<tr>
<td>16. Conclusions</td>
<td>3</td>
<td>3:35 (2:47)</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>19:15 (8:14)</td>
</tr>
</tbody>
</table>

* Figures in table 7.9 and 7.10 are the mean of all sessions delivered. Standard deviation is given in brackets. All times are in minutes: seconds

Table 7.10: Suggested and actual time to deliver each intervention component in Session Two

<table>
<thead>
<tr>
<th>Intervention component</th>
<th>Suggested time (minutes)</th>
<th>Actual time spent delivering intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>1</td>
<td>0:21 (0:19)</td>
</tr>
<tr>
<td>3. Review of Behaviour Change</td>
<td>8</td>
<td>3:57 (2:29)</td>
</tr>
<tr>
<td>8. Goal Setting</td>
<td>1</td>
<td>1:09 (1:01)</td>
</tr>
<tr>
<td>11. Supportive Planning</td>
<td>8</td>
<td>5:18 (2:59)</td>
</tr>
<tr>
<td>16. Conclusions</td>
<td>3</td>
<td>7:19 (includes trial procedures totalling 4:48)</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>21:24 (11:00)</td>
</tr>
</tbody>
</table>

In most cases the overall intervention was delivered in less time than recommended to providers. For Session One the actual mean time was 19 minutes compared to the suggested time of 25 minutes; for Session Two the actual mean time was 21 minutes compared to 26 minutes. The most notable
examples of techniques where less time was spent involved asking patients to elaborate following completion of activities. In Session One, this was evident during (7) What Makes it Easier to Walk? (10) Walking Experiences and (16) Action Planning. In Session Two, this was evident when encouraging the patient to (4) Elaborate on their Walking Experiences, (7) What had helped them to increase their walking, their (13) Supportive Plan and (16) Action Plan. In each of these cases, this then reduced the overall time taken to deliver the associated component.

In Session One, although the mean time to deliver the (3) Assessment of Average Daily Walking was two minutes across all sessions, in the six sessions where the assessment was calculated in the session and delivered as specified in the protocol, the average time taken to deliver this component was approximately five minutes.

During Session Two, the (16) Conclusions took longer than was suggested. This is likely to be because the recommended time for delivering the intervention conclusions did not include the time necessary for delivering a number of additional study/trial procedures at the end of the session. Many of the providers attempted to deliver the conclusions of Session Two as specified in the protocol; they delivered some of the concluding intervention techniques and then some of the trial procedures and then, in some cases further intervention techniques. For this reason it was difficult to assign an exact time to the intervention techniques only.
Table 7.11: Mean time and range for delivery of Session One by provider

<table>
<thead>
<tr>
<th>Provider name/number</th>
<th>Number of sessions coded</th>
<th>Mean time taken</th>
<th>Range of times</th>
<th>Mean score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tina (P1)</td>
<td>1</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Lindsay (P2)</td>
<td>4</td>
<td>10</td>
<td>8-17</td>
<td>11</td>
</tr>
<tr>
<td>Catherine (P3)</td>
<td>5</td>
<td>27</td>
<td>17-40</td>
<td>17</td>
</tr>
<tr>
<td>Zara (P4)</td>
<td>5</td>
<td>17</td>
<td>9-31</td>
<td>17</td>
</tr>
<tr>
<td>Jo (P5)</td>
<td>5</td>
<td>17</td>
<td>10-21</td>
<td>19</td>
</tr>
<tr>
<td>Judith (P6)</td>
<td>2</td>
<td>19</td>
<td>18-21</td>
<td>17</td>
</tr>
<tr>
<td>Denise (P7)</td>
<td>5</td>
<td>26</td>
<td>21-39</td>
<td>14</td>
</tr>
<tr>
<td>Mandy (P8)</td>
<td>5</td>
<td>18</td>
<td>14-26</td>
<td>17</td>
</tr>
</tbody>
</table>

5 In tables 7.11 and 7.12 the mean time taken and range are given to the nearest minute. Mean score was out of the maximum score of 20 for each session delivered.

In Session One, there was considerable variation between providers for the mean time of delivery. Tina delivered the intervention in the shortest time (eight minutes), whilst the mean time in which Catherine delivered the five sessions that were coded was 27 minutes, which was the longest of all providers. There was also a considerable range in time spent delivering single intervention sessions; from eight to 40 minutes.

Table 7.12: Mean time and range for delivery of Session Two by provider

<table>
<thead>
<tr>
<th>Provider name/number</th>
<th>Number of sessions coded</th>
<th>Mean time taken</th>
<th>Range of times</th>
<th>Mean score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tina (P1)</td>
<td>3</td>
<td>16</td>
<td>15-17</td>
<td>6</td>
</tr>
<tr>
<td>Lindsay (P2)</td>
<td>3</td>
<td>13</td>
<td>12-20</td>
<td>13</td>
</tr>
<tr>
<td>Catherine (P3)</td>
<td>5</td>
<td>21</td>
<td>17-26</td>
<td>17</td>
</tr>
<tr>
<td>Zara (P4)</td>
<td>4</td>
<td>15</td>
<td>12-19</td>
<td>17</td>
</tr>
<tr>
<td>Jo (P5)</td>
<td>5</td>
<td>20</td>
<td>12-31</td>
<td>17</td>
</tr>
<tr>
<td>Judith (P6)</td>
<td>2</td>
<td>22</td>
<td>20-25</td>
<td>14</td>
</tr>
<tr>
<td>Denise (P7)</td>
<td>5</td>
<td>39</td>
<td>24-65</td>
<td>15</td>
</tr>
<tr>
<td>Mandy (P8)</td>
<td>3</td>
<td>17</td>
<td>14-24</td>
<td>19</td>
</tr>
</tbody>
</table>
In Session Two, Denise was the only provider to deliver the intervention in a mean time over the recommended time of 26 minutes. However, Denise delivered the longest session of 65 minutes, which is over double the recommended time. Four providers (Tina, Lindsay, Zara and Mandy) delivered the intervention with a mean time of between ten and twenty minutes which is significantly shorter than was recommended. In terms of the range of time taken to deliver a single intervention session, Lindsay, Zara and Jo delivered in the shortest time (twelve minutes). There were only five deliveries of Session Two that were over the recommended time of 26 minutes; four of which were delivered by Denise and one by Jo.

Time spent delivering the session does not appear to be associated with fidelity score. The two providers (Tina and Lindsay) who delivered Session One in the shortest mean time also had the lowest mean fidelity scores. However, Denise, who was the provider with the third lowest mean fidelity score, delivered all her sessions in the closest mean time to that recommended. The provider with the highest mean fidelity score (Jo) delivered her sessions in approximately half of the recommended time (17 minutes).

In Session Two, of the four providers who delivered the session in the shortest mean time, two providers (Tina and Lindsay) had two of the lowest mean fidelity scores, whilst two providers (Zara and Mandy) had two of the highest mean fidelity scores.
Exploration of variation between providers in their fidelity of delivery and possible explanations for this

Table 7.13: Delivery of the intervention according to the protocol by provider, and possible sources of variation for fidelity between providers

<table>
<thead>
<tr>
<th></th>
<th>Tina (P 1)</th>
<th>Lindsay (P 2)</th>
<th>Catherine (P 3)</th>
<th>Zara (P 4)</th>
<th>Jo (P 5)</th>
<th>Judith (P 6)</th>
<th>Denise (P 7)</th>
<th>Mandy (P 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time from training to</td>
<td>7</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>4</td>
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<tr>
<td>delivery of first int.</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>session (months)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of</td>
<td>X</td>
<td>X</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>competence completed</td>
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<td>achieved from both</td>
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<td></td>
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<td>sessions)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivery period of</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>intervention to patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(months)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of patients</td>
<td>5</td>
<td>5</td>
<td>12</td>
<td>6</td>
<td>14</td>
<td>3</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>to whom Session One</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>was delivered</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score - Session</td>
<td>8</td>
<td>11</td>
<td>17</td>
<td>17</td>
<td>19</td>
<td>17</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>One (Range of scores)⁶</td>
<td>8</td>
<td>9-13</td>
<td>15-20</td>
<td>13-19</td>
<td>18-20</td>
<td>16-17</td>
<td>12-15</td>
<td>15-19</td>
</tr>
<tr>
<td>Mean score - Session</td>
<td>6</td>
<td>13</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>14</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>Two (Range of scores)</td>
<td>5-7</td>
<td>9-16</td>
<td>14-18</td>
<td>16-18</td>
<td>14-20</td>
<td>13-14</td>
<td>12-16</td>
<td>18-19</td>
</tr>
</tbody>
</table>

⁶Where only one score is given this is because only one session was delivered

The table shows that there does not seem to be any obvious association between the times from training to delivery of Session One and mean fidelity score. The shortest time for starting delivery following training was for Denise who achieved the third lowest mean fidelity score for Session One and fourth lowest score for Session Two.
The two providers who delivered with least fidelity (Tina and Lindsay) did not complete the assessment of competence. The remaining providers all completed the assessment of competence and all achieved over 89% across the two sessions. For the six providers who completed the assessment of competence, it is therefore difficult to identify any pattern between assessment score and mean fidelity score.

There does not appear to be any link between the period of time over which providers delivered the intervention or the number of patients to whom the intervention was delivered and mean fidelity score.

For Session One the range of scores for a single session delivered across all providers was 12. However, the score range for deliveries of all sessions coded for a single provider was never more than six (Zara). For Session Two, the range of scores across all providers was 15. However, as in Session One, the score range for a single provider was never more than seven (Lindsay).

This illustrates that for both sessions there was less variation in fidelity of delivery for each provider than between providers. Although not shown in the table, there did not appear to be any notable drift in skills over the period of delivery with the possible exception of Zara for Session One, where the last session coded was four points lower than any of her other coded sessions and Lindsay for Session Two where the last session coded was seven points lower than any of her other coded sessions.
Additional features of intervention delivery

Inclusion of non-specified behaviours

Table 7.14: Inclusion of behaviours in Session One that were not specified

<table>
<thead>
<tr>
<th>Behaviour that was not included in the intervention but was delivered by the provider</th>
<th>Number of sessions</th>
<th>Providers who included these behaviours and number of sessions in which they were included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making suggestions to patient about how they could increase their walking</td>
<td>10</td>
<td>Lindsay (P2) in 2 of 4&lt;br&gt;Zara (P4) in 4 of 5&lt;br&gt;Jo (P5) in 1 of 5&lt;br&gt;Denise (P7) in 3 of 5</td>
</tr>
<tr>
<td>Comparison of Average Daily Walking with others</td>
<td>10</td>
<td>Catherine (P3) in 3 of 5&lt;br&gt;Zara (P4) in 2 of 5&lt;br&gt;Jo (P5) in 1 of 5&lt;br&gt;Mandy (P8) in 4 of 5</td>
</tr>
<tr>
<td>Outlining guidelines on physical activity; explaining intensity of walking or reference to 10,000 steps</td>
<td>7</td>
<td>Zara (P4) in 3 of 5&lt;br&gt;Jo (P5) in 2 of 5&lt;br&gt;Denise (P7) in 1 of 5&lt;br&gt;Mandy (P8) in 1 of 5</td>
</tr>
</tbody>
</table>
Table 7.15: Inclusion of behaviours in **Session Two** that were not specified

<table>
<thead>
<tr>
<th>Behaviour that was not included in the intervention but was delivered by the provider</th>
<th>Number of sessions</th>
<th>Providers who included these behaviours and number of sessions in which they were included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making suggestions to patient about ways to increase walking</td>
<td>10</td>
<td>Lindsay (P2) in 1 of 3 Zara (P4) in 1 of 4 Jo (P5) in 3 of 5 Judith (P6) in 1 of 2 Denise (P7) in 4 of 5</td>
</tr>
<tr>
<td>Associations with others, i.e. telling patients that there are others doing the study, making a positive comparison of patient's achievements with others</td>
<td>6</td>
<td>Tina (P1) in 3 of 3 Zara (P4) in 1 of 4 Judith (P7) in 1 of 2 Mandy (P8) in 1 of 3</td>
</tr>
<tr>
<td>Clarifying what constitutes walking / explaining intensity of walking (delivered in response to patient's questions)</td>
<td>3</td>
<td>Zara (P4) in 1 of 4 Jo (P5) in 2 of 5</td>
</tr>
</tbody>
</table>

Tina was the only provider who did not include non-specified behaviours in either session. Furthermore, no additional behaviours were delivered by Judith in Session One, and Catherine in Session Two. All of the remaining providers included at least one non-specified behaviour.

**Instances of praise and encouragement / negativity**

In only three deliveries of Session One were there no instances of praise or encouragement from providers. These were delivered by Tina in the only session available for coding and Zara in two of five sessions coded. It was notable that in the remaining three sessions delivered by Zara, she was extremely positive and encouraging (five or more instances). Four providers gave praise and/or encouragement between five and 10 times or over 10 times during a single session (Zara, Jo, Denise and Mandy). Mandy was the most positive, giving praise and/or encouragement over ten times in four of her sessions and between five and 10 times in one session. Only Denise appeared to be negative towards one of her
patients; however, in the four remaining sessions she was considered to be very positive and encouraging.

In only two deliveries of Session Two were there no instances of praise from providers. These were delivered by Tina in two of the three sessions that were coded. During seven sessions between two and four instances of praise were given; these were by Zara, Jo and Judith. During 11 sessions, four providers praised the patient between five and ten times (Catherine, Zara, Jo, and Denise). During ten sessions, four providers praised the patient over ten times (Catherine, Zara, Denise and Mandy). Mandy was the most positive; giving praise over ten times in all sessions coded. There were no instances where providers were felt to express any negativity towards patients. However, in two sessions the provider focussed on the few days when the patient was unable to walk during both the Review of Behaviour Change and when facilitating the Supportive and Action Plans.
DISCUSSION

Summary of principal findings
There was generally high fidelity of delivery of the walking intervention with overall mean delivery of components and techniques across both intervention sessions of 78%. Essential techniques were delivered according to protocol in 82% of deliveries of Session One and 79% of Session Two. Components were delivered in the right order in over 75% of deliveries of Session One and 65% of Session Two. The mean time of delivery of both intervention sessions was less than recommended to providers (mean time for Session One was 19 minutes, compared to the recommended time of 25 minutes; mean time for Session Two was 21 minutes, compared to the recommended time of 26 minutes).

Strengths and limitations
There are a number of strengths of the present study. The study used audio-recordings of intervention sessions to undertake an objective assessment of fidelity of delivery. Furthermore, fidelity of delivery of over 50% of all sessions delivered was assessed, from the entire sample of available recordings for each provider. Sessions were coded from each of the eight providers, with the spread across the provider sample being as evenly distributed as possible across time. The pattern of delivery and coding scores assigned were similar for each provider which may enhance confidence that the sample of sessions coded is representative of all the sessions delivered (Schlosser 2002).

The development and use of a simple, objective coding frame to assess fidelity of delivery was a major strength of the study. Inter-rater reliability for the presence of components and techniques in Session One and Two was high. These scores are particularly encouraging, as the second coder had not been involved with the development of the walking intervention, delivering provider training or assessing provider competence, and, for pragmatic reasons was only given one hours training in the use of the coding frame for each session to be coded.

One limitation of the present study that has also been documented as challenging in other studies is collecting data through audio-recording of intervention sessions.
Over 80% of all sessions delivered were recorded which compares favourably to other studies where PNs have been asked to record sessions (e.g. Wilcox et al. 2010). However, given the efforts that were undertaken, this highlights the challenges of obtaining data for objective coding of delivery of interventions. Even where providers are specifically employed to deliver interventions, the collection of data through recording intervention sessions is poor, although there may be a number of external factors affecting this, such as patients not consenting and equipment malfunction (Godfrey et al. 2007, Hardeman et al. 2008 and Ward et al. 2000). In the present study, although the majority of sessions were recorded, the reasons for not recording the remaining sessions were not formally established. Therefore, in order to illuminate future studies, providers could be encouraged to document the reason for non-recordings; a view shared by Wilcox et al. (2010). This process may also increase the number of sessions recorded. Furthermore, recording sessions in order that an assessment of fidelity of delivery can be undertaken, may also serve to enhance fidelity of delivery (Tappin et al. 2000).

**Findings in relation to other studies**

Understanding the factors influencing a fidelity score is an essential element of interpreting study findings (Schlosser 2002). Claims of ‘high adherence’ or percentages of fidelity of delivery can only be understood when variables such as what was actually assessed, the sample from which it was obtained, the type of data collected and inter-rater reliability are reported. However, given the methods employed in the present study, the achievement of almost 80% adherence to essential intervention components and techniques as specified in the intervention protocol is encouraging and could be regarded as high fidelity (Borrelli 2011).

The vast majority of studies that report an assessment of implementation of a HBC intervention use provider or patient/recipient self reports of what was delivered, report implementation as an assessment of the time taken to deliver the intervention, the number of participating settings or simply state the provider of the intervention (e.g. Absetz et al. 2007, Beehler et al. 2010, Breckon, Johnston and Hutchison 2008, Helmink et al. 2010 and Kinnunen et al. 2008). For example, Whittemore et al. (2010: 687) report that ‘study protocols were successfully implemented’. However, data on implementation was obtained through providers
(nurses) completing a checklist of the components delivered. Self-reported data has been found to frequently over-estimate what was delivered (Conroy et al. 2005, Davis et al. 2000 and Hardeman et al. 2008). Furthermore, asking recipients whether or not they received aspects of an intervention may be influenced by recall bias (Houston et al. 2008) and/or desire not to negatively impact the provider, which may be a particular issue in interventions where the provider is the patient’s usual provider of care (Borrelli 2011).

A range of factors have been considered to influence fidelity of delivery of HBC interventions. In the present study, the Assessment of Average Daily Walking was rarely delivered exactly as intended; this may be due to providers’ discomfort or lacking confidence to do this in front of the patient. One of only two providers who took data off the pedometer as specified during Session One stated that ‘I’m not very fast at taking data off the pedometer’ and in a subsequent session ‘I could do with playing music while I’m doing this’ [to overcome the silence evident on the audio-recording]. Baranowski et al. (2000) suggests that low levels of implementation in the Gimme 5 fruit and vegetable consumption intervention study may be partly attributed to the intervention providers, who were teachers, not appearing to be comfortable in delivering the intervention.

Implications of the study
Fidelity of delivery by PNs/HCAs in the present study was generally very good. There are a number of factors which may have contributed to this. Firstly the intervention protocol specified the essential techniques to be delivered which were the same for all patients and so did not require providers to select or tailor appropriate techniques. Secondly, the protocol was structured to enhance fidelity of delivery, with components and techniques detailed in the order in which they should be delivered and all worksheets provided in the correct order for delivery. Training for providers was structured around the intervention protocol so that presentations and practice sessions followed the order of specified delivery. The inclusion of an assessment of competence was also considered to be a key factor enhancing fidelity of delivery.
Although fidelity of delivery was enhanced by the above strategies, the following section considers the implications of the study and includes recommendations for further enhancing and/or assessing fidelity of delivery in HBC interventions.

**Development and provision of intervention protocols**

Intervention protocols are increasingly considered to be an essential element of advancing scientific knowledge concerning HBC (Michie and Abraham 2008). In the present study, the prior specification of techniques documented in the intervention protocol was instrumental in the development of the coding frame and the process of coding delivery of the intervention.

However, one area that may be improved in future studies is ensuring that the names of intervention techniques are clear to all involved. In the present study, the worksheet that documented the patient’s Goal, Action Plan and actual walking was titled ‘Walking Diary’. This appeared to cause confusion during some sessions between the provider and patient, and also impacted on the coding process as the providers frequently referred to the ‘Walking Diary’ to mean both the Action Plan and the Diary.

**Preparation of providers to support delivery of HBC interventions**

The intervention protocol underpinned the provider training and served as a means of maximising the knowledge and skills of the providers to deliver the intervention as intended.

Provider training is likely to be an essential element in equipping providers to deliver HBC interventions, particularly because, in the present study the motivational and volitional components in which the providers had received the most detailed training were generally delivered with greater fidelity. However, it was notable that within these components, in both intervention sessions, providers generally asked the patient to complete the worksheets more often than they asked the patient to elaborate and/or feedback on their experiences and/or plans. This illustrates the importance of emphasising the rationale for these techniques when training and providing opportunities for providers to practice delivering techniques that they may be less familiar with.
The inclusion of an assessment of competence was undertaken to ensure providers were delivering the intervention according to the protocol and to provide an opportunity for correcting deviations to the protocol. Providing an opportunity, post training for providers to deliver the intervention before they delivered to their trial patients may also have served to enhance their confidence to deliver the intervention, which may, in turn enhance fidelity of delivery. The two providers who scored the lowest mean fidelity scores were the only providers for whom an assessment of competence was not undertaken; which was partly due to the providers not consenting to be observed (a scenario also experienced by Leonhardt et al. 2008). However, these providers also had a relatively long period from training to delivery of their first session. Furthermore, following analysis of interviews undertaken with these providers (reported in chapter eight) one provider was uncomfortable with the patient-centred style of delivery of the intervention.

Although providers only delivered the intervention to up to 15 patients, in many cases the providers seemed to deliver the intervention sessions in a similar way. By providing more formative feedback at an early stage of delivery, correcting deviations to protocol could have occurred (Borrelli 2011 and Lakerveld et al. 2008). Furthermore, the fact that the order of delivery of intervention components was lower in both Session One and Two than the delivery of the techniques points to the importance of ensuring providers understand the rationale for the order of delivery as well as the techniques themselves.

The techniques delivered with least fidelity over both sessions were asking the patient to Summarise the Session and their Plans for Walking. It may be that this was due to the volume of trial related activities and patient queries that had to be dealt with at the end of the session. Researchers should consider the most effective way in which to enhance provider fidelity of delivery of HBC interventions whilst achieving the research/trial procedures that are necessary to assess efficacy of such interventions. It is possible that following the administration of the trial procedures, providers simply forgot to return to the final techniques in the intervention protocol or had insufficient time to do so.
It is possible that pressures of time were also a factor that influenced the way in which the Assessment of Average Daily Walking was delivered. In around a quarter of sessions, the provider asked the patient to complete What Makes it Easier to Walk and Walking Experiences whilst they undertook the assessment. It is possible that providers perceived that, in order to save time, the assessment could be done whilst the patients completed their worksheets. However, this had implications for the delivery of these techniques as specified.

Quality of delivery of intervention techniques

One of the principal strengths of the coding frame was its objectivity and simplicity. However, during the coding process it was clear that whilst some techniques were coded as delivered, there was variation in the quality of delivery of techniques. For example, during some sessions, the provider simply asked the patient to “please complete this Action Plan/worksheet”, which would have been coded as present. However, in other sessions, a more detailed guide as to how to complete the activity and/or the rationale behind the activity was given, which would constitute better quality delivery. Zara was particularly good at explaining the rationale for activities, and did so in every session coded.

Therefore, when training providers, emphasising not only the techniques but the rationale for delivering them appears to be essential. This may be particularly important for delivery of patient-centred HBC interventions which may differ from providers’ usual consultation style or approach (Karhila et al. 2003). Gresham (2009) argues that provider adherence differs from competence; a provider may deliver the techniques as required but do so in such a way that may not be considered to be competent.

Although not quantified, there was a notable difference in communication style of delivery of the intervention. One of the most adherent providers (Jo) delivered sessions that were considered to be quite formal, whereby she delivered the techniques but did not initiate or engage in general conversation with the patient. In contrast, Denise spent a considerable amount of time chatting to her patients, both about walking specifically and more general conversation, most of which was initiated or linked with talking about walking. The extent to which adherence to
techniques, quality of delivery or ability to engage the patient impacts on patient outcomes is beyond the scope of the present study but each may be associated with treatment outcomes and so merit further study (Barber, Crits-Christoph and Luborsky 1996, Barber et al. 2006, Borrelli 2011, Campbell 2011, Dixon and Johnston 2010 and Glasziou et al. 2010).

Inclusion of non-specified behaviours
There were a number of instances where non-specified behaviours were included. In both sessions, the most common examples were making suggestions about ways in which patients’ could increase their walking. During Session One, half of the providers, in a total of ten sessions, offered a favourable comparison of the patient’s baseline Average Daily Walking with that of other patients. A number of patients when interviewed referred to this as being particularly encouraging and motivating and may have provided a means of positive social comparison (Festinger 1954) (see chapter nine). This may be an important issue for consideration in HBC interventions where the focus is on an individual patient.

Unanswered questions and future research
The present study did not have a sufficient sample size to provide statistical power to assess the extent to which fidelity of delivery (the independent variable) was associated with patient outcomes (the dependent variable), unless the relationships were of medium to large size. Borrelli (2011) also advocates coding the delivery of intervention sessions to the control group, as providers may deliver an active treatment ingredient which could reduce overall effect sizes.

Although there was consistency within providers across both sessions, it was evident that there was considerable variation across providers in terms of their mean fidelity scores. There did not appear to be any differences between the PNs’ and HCAs’ delivery of the intervention in the present sample. However, in future studies, if sample sizes permit, exploring the associations between a range of factors such as the provider’s position within the practice (i.e. whether a PN or HCA), their age, previous training and the extent to which the intervention is similar or different to their usual way of working, and the fidelity scores achieved may illuminate the extent to which such factors impact on delivery.
A more objective assessment of non-specific treatment effects could be undertaken and explored in relation to patient outcomes. This may include perceived provider warmth, instances of praise and/or the extent to which the provider’s communication is consistent with the principles of the intervention. However, these effects may be extremely difficult to reliably identify.

Qualitative studies exploring providers’ experiences of delivering the walking intervention with a particular focus on delivery according to the protocol may enhance understanding of the process of delivery in the present study and support the development of strategies to enhance fidelity of delivery in future HBC studies. Furthermore, exploring patients’ experiences and understanding of receiving the walking intervention offers great potential for further illuminating the study findings and developing strategies to enhance treatment receipt. This will be the focus of chapters eight and nine.

The following chapter reports on the views and experiences of PNs and HCAs concerning the factors that influence their delivery of the walking intervention (study four). Study four used data generated through semi-structured interviews with PNs/HCAs who had delivered the walking intervention in the present chapter.
CHAPTER EIGHT: STUDY FOUR

PRACTICE NURSES’ AND HEALTH CARE ASSISTANTS’ VIEWS AND EXPERIENCES OF FACTORS INFLUENCING THEIR DELIVERY OF THE WALKING INTERVENTION
INTRODUCTION

Enhancing delivery of health behaviour change (HBC) interventions according to protocols is essential in order that the efficacy of such interventions can be assessed (Bull and Milton 2010 and Hardeman et al. 2008). A number of authors of studies exploring the efficacy of HBC interventions conclude that a lack of intervention effect may be due to inadequate implementation (Ammerman et al. 2003 and Koelewijn-van Loon et al. 2010).

The majority of studies that have undertaken a detailed investigation of fidelity of delivery of HBC interventions in general practice have recruited and trained providers specifically to deliver the intervention (e.g. Hardeman et al. 2008 and Harting et al. 2004). However, the issues facing such providers may significantly differ from those who are delivering HBC interventions to their usual patients and alongside their routine work.

The findings of chapters three, five and seven in the present thesis illustrate that there are many factors that may influence delivery of HBC interventions by practice nurses (PNs) and health care assistants (HCAs) within general practice. The meta-synthesis of qualitative studies of nurses’ experiences described a range of factors that influenced delivery of HBC interventions by nurses (Taylor et al. 2011). These are consistent with publications subsequent to the review that report on the experiences of providers who delivered HBC interventions alongside their usual work within general practice (Beune, Haafkens and Bindels 2011 and Voogdt-Pruis et al. 2011). However, the broad focus of the studies included in Taylor et al. (2011) and the studies of Beune, Haafkens and Bindels (2011) and Voogdt-Pruis et al. (2011) limit an in-depth exploration of factors that may influence providers’ delivery of, and adherence to intervention protocols.

Furthermore, the published studies by Taylor et al. (2011), Beune, Haafkens and Bindels (2011) and Voogdt-Pruis et al. (2011) do not focus on the experiences of HCAs, whose role in recent years has greatly developed, particularly in delivering primary prevention interventions (Dale and Vail 2010, Ferrer et al. 2009 and Palmer and Midgette 2008).
The present study focuses on PNs’ and HCAs’ (hereafter termed providers) experiences of using a protocol to deliver the walking intervention as part of Phase Three of the associated walking intervention research (see chapter six and French et al. 2011). To the best of the author’s knowledge, no published study has focused on exploring the experiences of providers concerning their delivery of a protocol for a HBC intervention in general practice and views on the factors that influenced their adherence. As a result of the dearth of knowledge in this area, a qualitative approach to exploring providers’ experiences was considered to be particularly appropriate (Miles and Huberman 1994).

Qualitative studies can offer valuable insight into factors influencing delivery of HBC interventions (Oakley et al. 2006). A number of study protocols published in the last two years state that qualitative studies will be undertaken to explore experiences of providers who have delivered HBC interventions in general practice. However, these studies appear to be of providers’ general experiences of delivering HBC interventions such as through the exploration of ‘feasibility and acceptability’ of the intervention (Fanaian et al. 2010), ‘views of taking part in the trial’ (Spanou et al. 2010: 3) and ‘barriers and enablers to the delivery of the intervention’ (Browning et al. 2011:7). By contrast, the present study aims to facilitate an in-depth understanding of the process of delivery of the walking intervention by focussing on the factors that influenced providers’ use of, and adherence to the protocol.

The findings of the present study will also be considered alongside other studies in the thesis which involved the same providers. Chapter seven described a quantitative assessment of fidelity of delivery of the walking intervention and chapter nine reports on the findings of interviews undertaken with patients who received the walking intervention. The use of qualitative and quantitative data sources offers significant potential for illuminating the process of delivery of the intervention (Campbell et al. 2000, Craig et al. 2008, Creswell and Plano-Clark 2011 and Hulscher, Laurant and Grol 2002).
The aims of this study were:

i. To investigate providers’ experiences concerning their delivery of the walking intervention protocol and their views on the factors that influenced their adherence

ii. To consider the findings of the present study by triangulating data on delivery of the walking intervention from different sources

iii. To make recommendations for enhancing fidelity of delivery of future HBC interventions.
METHODS

Design
The present study used a cross-sectional design to explore providers’ experiences of delivering the walking intervention during Phase Three of the walking intervention research (see chapters four and six, and French et al. 2011).

Participants
Eight providers (n=2 PNs and n=6 HCAs) delivered the walking intervention to between three and 14 general practice patients.

Interviews lasted between 42 minutes and 71 minutes (mean was 56 minutes, SD=9.5).

Procedure
The overall procedure for recruitment and training of providers and their subsequent delivery of the walking intervention during Phase Three of the walking intervention research is detailed in chapter six (see also French et al. 2011). Procedures specifically relevant to the present study are noted below.

Recruitment of providers to the present study
Following training and delivery of the walking intervention to patients, each provider was invited to participate in an interview to explore their experiences of the intervention and their views on, and use of the intervention protocol. The author offered to purchase lunch as a token of appreciation.

Data collection
All interviews were undertaken face-to-face by the author between November 2010 and January 2011, with the exception of one interview which took place during May 2011 (Lindsay requested that her interview was undertaken after she had completed her Quality and Outcomes Framework reporting and then after Easter). All providers chose to be interviewed during lunchtime within their general practice. Providers were given further details regarding the aim of the interview
before the interview commenced. All interviews were audio-recorded with the provider’s written and verbal agreement.

The interview schedule served as a guide for the interview. Open-ended questions and probes were used extensively to enable the author to explore issues in greater detail. The format was intentionally flexible to facilitate exploration of issues raised by providers and therefore enhance understanding of the issues of greatest significance for the providers.

**Interview schedule**
Following the development of a draft interview schedule, the schedule was piloted with a PN who had participated in Phase Two of the walking intervention research (see chapter four). The interview schedule is presented in appendix sixteen. The interview explored positive/negative experiences of delivering the walking intervention, views on training to deliver the intervention, exploring use of the intervention protocol and accompanying resources, and the provider’s anticipated future use of skills and/or techniques used during the intervention.

**Data analysis**
Interviews were transcribed verbatim and analysed with thematic analysis; a ‘method for identifying, analysing and reporting patterns (themes) within data’ (Braun and Clarke 2006: 79). The interviews generated data on general experiences of delivering the walking intervention and more in-depth experiences of delivering the intervention according to the protocol and the factors that influenced this. In order to fulfil the aims of the present study and due to constraints of space in the thesis the focus of analysis was on delivery of, and adherence to the protocol, rather than on the more general experiences of delivery of the intervention.

The process of analysis followed the guidance of Braun and Clarke (2006) and was initially undertaken for each provider’s transcript independently. Analysis involved reading and making notes on the transcript that referred to the provider’s use of the intervention protocol and the factors that influenced this. Notes were then grouped into themes for each provider and all relevant text from the transcript
was copied and pasted into a word document for each provider. Initial themes were then reviewed by re-reading the provider’s transcript and re-grouping the initial notes where necessary. By focussing on the experiences of individual providers, the initial approach to analysis was therefore idiographic.

The above process was then repeated for each provider. When all transcripts had been independently analysed, a cross-case analysis was undertaken that developed themes across all providers. The process of analysis continued when writing up the results of the study whereby the author further developed themes. At this stage the findings of chapters seven and nine were used to illuminate aspects of the present study. The themes presented were developed according to both prevalence and salience across the providers (Braun and Clarke 2006). In the final write-up the author attempted to illustrate where, although a theme may be shared across the providers, there may have been differences in terms of the influences on their use of the intervention protocol.
RESULTS

The analysis produced five themes, which will be considered in turn:

A. Preparation to deliver the intervention
B. Impact of practice organisational issues
C. Format and usability of the intervention protocol and associated materials
D. Impact of patients
E. Perceived value of skills and techniques

A. Preparation to deliver the intervention

The majority of the providers perceived that the format and amount of training and preparation to deliver the intervention was both acceptable and appropriate. Providers emphasised the importance of feeling suitably prepared to deliver all aspects of the intervention, which increased their confidence, ‘training was perfect, and when you came out and listened to me and everything. And I felt quite confident to do it’ (Zara, 192).

Providers explained that practicing delivery, both within and outside of the formal training was essential to enhance their skills and confidence. Catherine described that, ‘If I’d have put more time into practising with a few more people then I would have been more confident’ (222); ‘It made more sense when I’d done a few patients’ (212).

Most providers found the assessment of competence, involving observation and feedback on their delivery of the intervention, a useful aspect of their preparation to deliver the intervention:

I found that good, ‘cos obviously it enabled you to have some idea of what you were going to be doing [...] So it gave you the practice of responding to different people [...] So when you did the actual trial...you knew exactly kind of what you were doing, where you were at, and you knew how you would respond to different things (Mandy, 250).
Providers also valued being given feedback and suggestions for further developing their skills, ‘I liked that [assessment of competence] because you were there and you could have picked up when I faltered and you could feed back [...] I thought that was really good’ (Catherine, 306).

However, the walking intervention differed from most of the providers’ usual approach to changing health behaviours and this appeared to challenge some of the providers when they delivered the intervention. Denise and Lindsay both commented that, although they found the training to be useful, it may not have been sufficient to enable them to deliver the intervention as intended, ‘You could have had five days in the classroom and you wouldn’t be [...] anything with me, it just takes time...it’s just new stuff isn’t it?’ (Lindsay, 385); ‘I mean you could have trained me for a year and I’d still be me’ (Denise, 756). Denise gave examples of scenarios where the difference in approach was particularly difficult to maintain:

So it was completely different for me [...] I was biting my tongue a lot of the time because you could see that they [patients] were struggling and I just wanted to help that little bit and say “you know what about this?” [...] I did chip in a little bit and did help them, which I know I shouldn’t have [...] but it just comes out because that’s the natural thing we do. You know, sort of give advice. Everybody in the practice would give advice (36).

Lindsay also described that the approach of the intervention was ‘not familiar’ (189) and later that it ‘was completely alien to me’ (326). Jo described the impact of the contrast to her usual way of working, but understood the requirements of delivering the intervention according to the protocol, ‘There were the odd ones [patients] that were struggling and I desperately wanted to help them and I knew that I couldn’t’ (183).

There were a number of challenges concerning aspects of the providers’ delivery of the walking intervention and study procedures that linked to the training they received. This particularly included their perceived skill and confidence to deliver aspects of the trial procedures and monitoring necessary for assessing study outcomes. Whilst most of the providers queried the need for the volume of trial
paperwork that they were asked to administer, half explained that they ‘just feel we needed a bit more training...a bit more understanding of the [trial] paperwork really’ (Tina, 257). Tina explained that, ‘The [walking] intervention is easy [...] it’s just the paperwork that goes with it, that was difficult, making sure you filled it in properly’ (236). Jo commented that, ‘Some of the patients struggled with some of the [trial] questions’ (92) and how this impacted on her delivery:

I got a bit caught out because I hadn’t read the [trial] questionnaire (123). [...] they [patients] were asking you questions on it and the first time I hadn’t read it through so perhaps it would be an idea to know what you’re doing on it (129).

Patients were described as having various questions about their walking and the walking intervention research that the providers felt they were poorly equipped to answer, ‘They were asking me questions about what was happening at the end of the study that I didn’t really [...] I didn’t feel prepared enough to say’ (Catherine, 230). Jo described patients who queried what types of walking could be included (i.e. mowing the lawn), ‘that did flummox me a little bit because I’m thinking well, can they count that?’ (482). Mandy also described a patient that:

...completely confused me to a point that I had no clue then what, I was just like “I don’t have a clue”. [...] but I think the lady just did completely, you know, sent me round in circles so much so that I just thought I’m dizzy (296).

B. Impact of practice organisational issues
The mean time between provider training and delivery of the intervention to the first trial patient during Phase Three of the walking intervention research was over five months. This was influenced by a range of issues, but largely those of completing the assessment of competence and recruiting patients to the study. The majority of providers felt the gap was too long, ‘the sooner you can get going the better’ (Judith, 427), and had a number of negative effects. This included having to spend time re-familiarising themselves with the intervention protocol, ‘the whole thing was new again’ (Denise, 544); ‘Just refreshing yourself mentally but once you’d got everything sorted, once you started with the first sessions
again it all fits into place’ (Zara, 246). Furthermore, many of the providers described deterioration in their enthusiasm and confidence to deliver the intervention, ‘In all honesty, I think we probably lost a little bit of interest because of the gap which is normal isn’t it?’ (Tina, 197). Judith described feeling ‘deflated’ (453) and Jo that, ‘It knocks your confidence because you feel like you’re starting all over again’ (291).

Over half of the providers reflected that the scheduling of their delivery of the intervention to individual patients was not helpful in terms of supporting their adherence to the protocol. All providers with the exception of Catherine stated a preference for delivering the intervention in blocks of appointments:

I’d have liked a whole day doing the same thing [...] because it was a bit bitty; I had to fit the patients in between you know my regular patients and I was flitting from one thing to the other, where just concentrating completely on the walking project might have been better for me (Denise, 558).

However, due to the length of appointment time required and structure of the pattern of delivery of intervention sessions, an ad hoc approach to delivery was necessary for most of the providers. Denise described the implications of having to deliver each of the three different intervention sessions to each patient:

Maybe because there was a gap again, in between the time from the first input of patients to the second input of patients again. And they were even more bitty, I had [walking intervention sessions] one’s, two’s and three’s all in one week, but on different days [...] and I got a little bit confused with the end bit (603).

The development of skills was perceived to be a significant factor influencing delivery of the intervention. Five providers felt that their skills to deliver the intervention improved and they associated this directly with the number of patients to whom they delivered the intervention, ‘you knew exactly what you were doing once you’d done a couple of them [patients] you knew where to go’ (Catherine, 26). Catherine’s experience was shared by Mandy:
I think obviously the more you do something [...] the better you get at certain points of it, so you know, it might have been that on my first one I’d have, just been not really asking too many questions to delve a little bit deeper, but then on the next ones realising that’s, you know, where I maybe need to work a bit more (312).

Jo, Denise, Lindsay, Tina and Zara perceived that, although the standardised structure of the protocol was helpful, that it had varying degrees of negative influences on their communication with their patient. However, providers’ experiences appeared to differ according to the number of patients to whom they delivered the intervention. Jo and Denise, who delivered the intervention to the most patients and more than double that of Tina and Lindsay, experienced an increased sense of confidence and fluency in their delivery style over time. Denise explained that, ‘by the end of the trial I knew where, I knew kind of what was coming next (546)’, whereas she had previously ‘had to stop and think again, so I couldn’t give my full attention to the actual patient, I just kept flicking through the notes and that distracts the patients’ (547).

It appeared that the more patients the intervention was delivered to, the more familiar providers became with the protocol, and the more they perceived their communication skills developed. Jo considered that her delivery went from ‘regimented’ to ‘relaxed’, ‘I was quite nervous about doing it ...I was conscious that I keep reading and I was thinking did I look unprofessional?’ (72). However, Jo reflected that, ‘I think by the tenth [patient] you’re really into the flow of it and I was really enjoying it’ (652). She added that:

I didn’t feel that I’d given the first patient less than I’d given the last one, I just felt a lot more relaxed and confident in how I was doing it (328).

Although generally experiencing an increase in her skills over time, Denise’s patients were recruited to the study in two parts. She referred to a ‘zigzag’ (598) in which, although her skills had initially improved, they later ‘plummeted’ (596):
I was a bit novicey again, I had to start looking through the papers and thinking oohh, what did I do at this point? It’s all about delivery; it’s like the difference between flowing from you and stumbling (622).

Denise’s distinction between flowing and stumbling and Jo’s of regimented and relaxed highlights the importance that providers assign to their own sense of expertise and confidence in their delivery. In addition, enhanced fluency in delivery that was perceived by providers to develop as they delivered the intervention to more patients may also be important in terms of portraying competence to the patients.

Tina and Lindsay did not consider they delivered the intervention to enough patients to develop their skills, ‘I don’t think I did enough, I don’t think six [patients] was enough’ (Tina, 489). Lindsay stated that, ‘You will only get better after you have done it so many times, so five, six, seven, the more you do it the better you get’ (486).

There was only one provider (Jo) who identified that her developing confidence may have impacted negatively on her delivery according to the protocol:

I think I delivered, I hope I delivered as close as I can […] probably as I got a bit more confident I went off a bit and I thought oh, I missed that bit […] but I think I went back and covered it afterwards even if it wasn’t in the right sequence (385).

Having delivered the intervention to three patients, Judith acknowledged that to enhance her skills further, both the number of patients and the format of delivery was important, ‘I’d imagine that if you had done it to more the process becomes easier I suppose and flows a bit’ (493). However, she added that:

I did have a couple of patients who came on the same days […] I noticed that when I’d done one, I started on the next one and that was quite good because that was still fresh (496).
Judith perceived that the low numbers of patients recruited to the walking intervention research in the practice was because the research, ‘didn’t take priority I don’t think’ (887). Half of the providers commented on, or implied that any work undertaken within the practice has to fit with its day-to-day organisation, ‘it’s just how a practice is isn’t it? Squishing everything in together’ (Denise, 890). Zara made a number of suggestions for changing the structure of walking intervention appointments to ensure that ‘it would fit into practice’ (215). These findings highlight the importance of considering the organisation and how it operates on a daily basis when developing and planning HBC interventions to be delivered within general practice.

C. Format and usability of the intervention protocol and associated materials

Six of the providers generally spoke favourably about the format of the intervention protocol and associated materials. They viewed it as simple and straightforward and described that they largely used it as intended to deliver the intervention:

All written down, sort of stage by stage so you know if you turn the page you know where you’re going. It was all really clear what I was supposed to be doing (Catherine, 31).

Folders were prepared by the research team which included intervention protocols with every resource necessary to deliver the intervention and trial procedures for each of five patients per folder. Judith explained that the way the folders were ‘set out was perfect [...] everything was written down for you, how to ask’ (13). Zara explained, ‘How it was all set out, it was basic and you know, like a story that I could go through each bit I knew’ (15). Mandy felt the protocol, ‘takes the pressure off of you, you know what you’re meant to be doing’ (441). Jo concurred:

The only thing I had to do when the patients came in was just go into their folder...that was fantastic, just having everything written down and just being able to follow it through (81).
Two providers described that the protocol was essential to help them to overcome difficulties related to their general recall. Denise explained that she was ‘a bit slow on the uptake and remembering things’ (563); while Catherine referred to her ‘goldfish memory’ (282).

The intervention protocol aimed to ensure that providers delivered the same intervention to all their patients. A small number of providers commented that this standard approach directly facilitated their ability to deliver the intervention as intended, ‘All the questions in the sessions were more or less the same [...] using the same paperwork and the statements and the diary and all that was the same’ (Judith, 602). Zara perceived that:

They [skills] definitely got better, because the more you’re doing it, the more practice and more confident you are and the more you’re repeating yourself saying the same things a lot, you actually know the process better (277).

Jo explained that in any aspect of her work she valued, ‘just to be really assured that you’re still doing it correctly’ (556) and that the protocol could ‘reaffirm that you are doing everything’ (569).

The protocol was considered by a number of the providers as a tool to enable them to be perceived by their patients as knowledgeable and confident in their delivery of the intervention. Mandy particularly liked that ‘you could deliver it in a way that you sounded like you knew what you were talking about’ (4). Jo perceived that the format of the protocol which included resources for patients to complete, enhanced the extent to which her patients’ engaged with the intervention but also that it enabled her to be perceived as competent:

...because they [patients] had to have things that went back into that folder they were having to fill out bits, then it kind of feels like it’s yours together, you and the patient’s folder it’s not just mine, it was theirs as well [...] I think if you’re just going from a book all the time, I think they’re going to think oh she doesn’t know what she’s doing. Whereas if they know that you’re reading from it and you’re getting things out for them, it’s not because I don’t
know what I’m doing, it’s like passing it and the next bits for you to do, it’s like a joint thing, so I’m using the book for both of us and not just for me because I don’t know what I’m doing (575).

Tina and Zara felt that the folders were too big for use in the space that was available in their consultation room. As a result of lack of space, Zara explained, ‘I’d take what paperwork was relevant for each session and so took out the resources necessary for individual patients’ (291). However, Zara added that ‘I think it actually looks better rather than going through a folder’ (298). Tina also expressed concerns about how her use of the folder may have been perceived by the patients, ‘perhaps they thought I was fumbling around with loads of paperwork you know with the folder and taking stuff out’ (423). Catherine and Tina suggested that if patients were to have their own folders, but in a similar format, that this may overcome the issue of cumbersome folders and personalise the intervention for the patient, which may enhance their engagement:

If each patient could have had their own little folder that would have been better than those to be honest. It would have been a bit nicer to get their folder out for them rather than say “I’ll just flip through until I find you” (Catherine, 551).

It seemed that the way the providers perceived their patients viewed their use of the protocol was important for some providers and may have directly influenced the way in which they used the protocol. Lindsay felt that the structure of intervention protocol impeded her communication with patients, ‘This type of study with all the paperwork, you can sound like a robot...because it is very paper orientated’ (281). As a direct result of the difference in communication style from her usual consultations, she perceived this impacted on her patients:

...they were going what the hell am I going on about and I’m like “I’m sorry this is the way they want me to deliver it”, so they were looking at me like I’m a two eyed monster, so its, it’s a conflict because it’s not how I speak, it’s not how I deliver things (45).
Lindsay’s discomfort may also have impacted on her patients’ receipt and engagement with the intervention. She explained to patients:

Before I took the recording [of the intervention session], “I have to do it this way, sorry” [...] and then after the recording we spoke afterwards, it was very much a set up because I had to explain this is the way I have to do it (62).

As the only nurse in the practice, Lindsay described knowing all of her patients well; it is therefore possible that her discomfort was exaggerated because of her pre-existing and on-going relationship with these patients.

D. Impact of patients

Providers described a range of factors concerning their patients that may have directly influenced their delivery of the intervention according to the protocol.

Tina stated that, ‘I had the odd ones [patients] that were a bit negative, it makes you a bit negative doesn’t it? Makes you want to rush through’ (355). Mandy described how one of her patients directly affected her delivery of the intervention:

I didn’t spend as much time, ‘cos maybe it was more like I was trying to rush [...] I mean he was a lovely guy, but I think in the same point he was a bit knowledgeable and you know sometimes that can intimidate [...] I delivered it to the best of my ability to him, but obviously, maybe I didn’t push him as much, so like if we got to a bit and he was like “ughh I can’t think of anymore”, then I would have just said “fine” and move on. Whereas, say with somebody else I would have maybe tried to work around it a little bit more (217).

Though feeling some discomfort, Mandy still delivered most of the intervention techniques. However, she avoided delivering a technique, that of encouraging patients to elaborate, that both she, and other providers reported as being quite difficult.

Providers also perceived that many of their patients did not like the difference in approach that the walking intervention necessitated from their usual style and
format of consultation delivery. Lindsay’s perception of her patients’ dislike of her different communication style has previously been considered in theme C. However, patients were also considered to be uncomfortable with the extensive use of paper-based tasks. Tina stated that, ‘I found a lot of them [patients] found it too much paperwork...and they really don’t want to be filling in’ (6). She later identified a particular group of patients who she perceived found the paperwork particularly difficult, ‘especially in people that are a bit older, they are a bit frightened of the paperwork’ (26). Jo also reflected on the impact of some of the intervention tasks on her patients and how this influenced her delivery of the intervention:

Some of them [patients] [...] writing down experiences and things like that, they didn’t always like [...] I tried to deliver that like that but I don’t know. Some of them just, I think they just thought that you were going to do it all for them (173).

Zara perceived that, as a consequence of the volume of paperwork that ‘The patients kind of felt [...] you could tell they were losing their motivation’ (228). It seems that where patients are perceived to be unfamiliar and therefore possibly uncomfortable with the format or style of delivery that providers may experience discomfort which may then influence their delivery of the intervention.

Half of the providers made a direct reference to the impact of patients’ enthusiasm on their delivery of the intervention, ‘I was quite lucky with the first few because they were dead enthusiastic...it just made it easier’ (Tina, 210). Jo reflected on the extent to which her patients influenced her delivery of the intervention:

I don’t think it changed how I delivered it apart from the ones that were obviously very enthusiastic, I didn’t have to push things quite so much because some of them were just raring to go (444).

Catherine reflected on the contrast she experienced when delivering the intervention as a result of the direct impact of her patients, ‘If they’re really enthusiastic it really gets you enthusiastic. I did find it difficult when there were
some that were not quite so forthcoming’ (561); ‘I know you try and do everybody with the same enthusiasm and motivation [...] but when someone’s not very forthcoming it’s difficult’ (569).

Providers were unanimously enthusiastic about the positive and encouraging approach that they were encouraged to adopt when delivering the intervention. This was largely because of the impact they perceived this had on their patients, ‘because if you’re enthusiastic about it they’re going to be as well’ (Mandy, 514).

A number of intervention techniques focussed on what the patient could do, in contrast to what they were unable to do. Catherine felt that focussing on positives was a particularly valuable approach to develop as it changed the usual dynamics of her consultations:

I suppose working here [in general practice], we get lots of negative feedback so it’s trying to turn things round with people, because you do tend to listen to all the bad things that people say (43).

Catherine perceived that, ‘it’s changed the way I work with patients’ (713) and explained that:

It’s just made me a bit more positive about...this sort of intervention, this sort of positive reinforcement type thing. I think it’s made me a bit more positive about doing it that way (719).

Providers could also see the potential benefits of using such a positive approach in other aspects of her work, ‘I think it would help with the Smoking cessation and the lifestyle changes’ (Catherine, 681). Mandy explained that:

I think the thing with this is, it was a lot about commendation and a lot about praising [...] “well done, you’ve done great, that’s excellent”. So I think that’s good; that is something I will use as well, the positivity of it all [...] so I think I’ll take away maybe the positivity of it all and the enthusiasm into other things (606).
E. Perceived value of skills and techniques

Theme D considered the impact of the patients on the provider’s delivery of the intervention and also the way in which the positive approach to the intervention was described as providing a means of increasing the enthusiasm of patients with HBC. Theme E focuses on the providers’ views of the skills and specified techniques of the intervention, and the extent to which these influenced their delivery of the intervention.

Providers positively described specific techniques and/or skills that consolidated or developed their existing skills. Furthermore, they described the value of techniques that may have been unfamiliar prior to delivering the intervention, but that could be used when delivering future interventions. Mandy explained, ‘The skills I’ve picked up on this, I will use...whether knowingly or unknowingly in the different aspects of my job’ (83). Judith perceived considerable benefits to her developing role, ‘it’s really beneficial to me to do it, to give me another bit of scope to keep me in work’ (744).

Although there were a number of aspects of the intervention and study that Lindsay did not like, she was positive about developing skills for encouraging patients to be more involved and to support her in ‘shutting up’ (717); ‘it’s just a role reversal isn’t it, the patient is telling you, not you telling the patient and that’s the [walking] intervention, you’re getting the patient to tell you’ (420). Lindsay reflected on the value of letting ‘them [patients] try and come up with the answers’ (81) and of putting ‘power into the patient’ (412). However, she recognised this necessitated a significant shift in current practice for herself and described the challenges this posed, ‘It’s almost a case of I had to push my chair back, it’s just frustration...it’s almost like trying to teach a child to do something’ (627).

In terms of specific techniques, the Walking Diary was described favourably by seven providers, largely because it was a familiar resource to providers and patients, particularly those with long-term conditions:

You have cardiovascular patients who are used to having pieces of paper and coming back, you have diabetic patients who have, like little booklets to
take back to the nurse, so any lifestyle counselling kind of area, if they had a
diary with what they’ve done, what they’ve, maybe what they’ve eaten, what
they’ve walked, something tangible then that would work in practice (Zara,
34).

Jo identified that some patients appeared to like completing the Diary and using it
to feedback on their achievements, which, in turn she liked as she perceived it
enhanced their motivation:

I found that some of them liked writing it down, then coming back, some of
them are like little children in a sweet shop, they would come back and say
“look what I’ve got, look what I’ve done”. So I found that actually writing that
down, what they were doing every day. [...] I kind of liked that bit and I think it
kept them excited actually, kept them going (149).

Denise’s enthusiasm for the Diary was largely because it facilitated the patient to
personally monitor and become more engaged in their HBC:

I liked the walking diary. I think that’s excellent because to see it on paper [...] And again it’s, they’re involved aren’t they? They’re monitoring, giving them
some onus on the whole thing (78) [...] They could take it home and see it over
the week so they could keep a record of what they were doing, and then feed it
back to me when they came back (89).

Furthermore, providers considered the Diary to be a resource that was not only
easy to deliver in terms of asking the patient to complete it, but in turn, supported
the patient to elaborate on their walking at the beginning of Session Two:

Again some of them didn’t like the walking diaries because they said “I know
what I’m doing” whereas they couldn’t then show me, whereas you know with
all of them we sat and we did go through it, so actually I did like that bit
because you could say “okay tell me about this one” (Jo, 163).
The main technique that providers were uncomfortable delivering was asking patients to elaborate following completion of activities such as their past Walking Experiences or Plans for Walking. These skills and techniques differed from their usual work and were described as being ‘difficult’ (Catherine, 562), ‘strange’ (Judith, 90) and/or ‘awkward’ (Denise, 206; Judith, 101; Catherine, 137). It appeared that encouraging elaboration was perceived by many providers to be repetitious, particularly if the patient had already elaborated on an activity through natural discussion:

I think it was because the prompts are so specific aren’t they [...] you may have been just talking in general and actually just covered whatever these prompts were as you looked at it [...] and then when I look back I think, well we’ve covered that and I just flick over (Judith, 649).

When asked about the extent to which she felt she delivered the intervention according to the protocol, Mandy explained, ‘I would say I did certain parts of it when I was doing it at other points, so I wasn’t being too repetitive’ (339). Tina ‘cut some of it [...] because I thought well I’ve already said this and I feel like I’m repeating myself’ (369). Providers were also concerned about how they may be perceived by their patients when asking them to elaborate:

I actually found saying to them then “Right, you recap”. I found that a little bit patronising. I found it...sort of a bit of a child-like situation there. I didn’t sort of take to that very easily (Judith, 64).

Mandy reflected that she avoided repetition because she ‘didn’t like to sound too naggy’ (362). Denise also commented that:

You’re kind of going over the same thing, which I know is a good thing because repetition gets it into your own mind. I just found that difficult. And watching the patients do it, they struggled with...you know to try and pinpoint it down. I think I got the gist of it, and I can see the reasoning behind it. I just felt that it was a little bit awkward for me and the patients (203).
The Supportive Plan, delivered during Session Two was the task least liked by providers; largely because providers felt it was very similar to the Action Plan, ‘it’s the same question’ (Denise, 237). Zara also perceived that the Supportive Plan ‘is basically the same as the Action Plan’ (369). It seemed that the similarities between the Supportive and Action Plans, rather than being helpful and facilitating patients to plan their increased walking, actually caused confusion for providers and patients. Mandy explained:

> There were two worksheets I think, and I found that difficult to help people differentiate between the two (119). [...] you had the supportive plan with what you need to do and then when you are going back to the diary [Action Plan], they’d be kind of like, “well I’ve already” [...] “well write that onto your diary” (124) [...] they’d be like “I’ve done it” (127).

Zara perceived the intervention to be repetitive, ‘Just the repetitiveness of it’ (58). However, as a result of her thorough understanding of what she was being asked to do and why, she could see the value in delivering such techniques and getting the patients to elaborate:

> It was just to reiterate each time to get the patient to repeat why they were walking and why they enjoyed walking, and so from the psychological aspect it was just the more repetitive they were the more they would talk about walking, it was more in the forefront of their mind. [...] it’s all about reflection as well and positive reflection so that’s fine because I’d got why we were repeating it (61).
DISCUSSION

Summary of principal findings
Providers in the present study described a number of factors that influenced their delivery of the walking intervention and adherence to the intervention protocol. These were associated with (a) their preparation to deliver the intervention, (b) the impact of practice organisational issues, (c) the format and usability of the intervention protocol and the associated materials, (d) the impact of patients and (e) the perceived value of skills and techniques used when delivering the intervention.

Strengths and limitations
This study specifically explored providers' experiences of using an intervention protocol to deliver the specified techniques of the walking intervention. The focus on PNs and HCAs in the present study may be particularly timely as the role of PNs has developed in recent years with many taking on greater responsibility for secondary prevention, whilst the role of HCAs in delivering primary prevention interventions is increasing.

A particular strength was that all eight providers who delivered the walking intervention agreed to be interviewed. Therefore the views and experiences of all the providers are included, and not just those who may have agreed to participate because they particularly liked or engaged with the walking intervention. This may have been influenced by a number of factors. Firstly, during Phase Three of the walking intervention research the author had extensive contact with the providers which may have enhanced rapport (Gaglio, Nelson and King 2006). Secondly, the author offered to undertake the interviews at a convenient time and place for the providers, which may have been essential given the time constraints experienced by many providers working in general practice. Thirdly, the author offered to purchase lunch to thank providers for their time, which was reported as being valued.

One-to-one interviews were considered to be the most suitable means of collecting data as they enabled the author to explore issues that may have been
perceived to be sensitive or uncomfortable (e.g. instances when providers did not adhere to the protocol) (Britten et al. 1995 and Resnicow et al. 1998). The author encouraged providers to be honest and candid with their perceived use of the protocol and to share areas they perceived to be particularly easy or hard to deliver as a means of learning from them about the process of delivery. As interviews were undertaken in providers’ general practice consultation room this may also have enhanced their comfort during the interview due to the familiarity of the setting. Furthermore, having seen each provider’s consulting room the author was in a stronger position to understand the impact of the restrictions of space on the reported use of the protocol.

Some of the findings of the present study have been illuminated by the assessment of fidelity of delivery undertaken in chapter seven. This was possible as data were collected both qualitatively and quantitatively during Phase Three of the walking intervention research, from the same providers, delivering the same intervention to the same patients. Although triangulating the findings of the present study was not intended as a means of validating providers’ accounts, it is encouraging that where providers described aspects where they perceived their delivery was particularly good or weak, that these were largely corroborated by the findings of chapter seven. Together, these studies therefore enable a greater understanding of the process of delivery of the walking intervention and will be considered further in the Implications of the study.

Findings in relation to other studies

Qualitative studies are increasingly recognised as an important source of evidence in process evaluations (Campbell et al. 2000 and Oakley et al. 2006). Such studies can facilitate enhanced understanding of the way in which HBC interventions are delivered and received and the extent to which these factors may be associated with outcomes (Craig et al. 2008). The present qualitative study has illuminated some of the challenges that may be incurred when interventions are delivered by providers alongside their routine work in general practice, that specifically employed providers may not be exposed to, or influenced by (Heinrich et al. 2010). For example, in the present study, the different approach to delivering the walking intervention and some of the
techniques involved was described as challenging by providers who delivered the intervention alongside their routine work and to patients with whom they had a prior and would have an on-going relationship.

The complex issue of longitudinality, or the relationship over time of providers and their patients in general practice has received attention from other authors (Buetow 1995 and Crabtree et al. 1998) but has received little attention in terms of the influence on providers’ adherence to protocols for HBC interventions. Furthermore, studies where interventions are delivered by providers alongside their usual work may well involve greater numbers of providers, delivering to smaller numbers of patients than in the case of providers specifically employed to deliver interventions. For example in the present study eight providers delivered the intervention to up to fifteen patients each; whilst the ProActive study used four providers who delivered the intervention to a total of 365 patients (Hardeman et al. 2008). This may increase the need for ensuring adherence to intervention protocols as variability is likely to increase with increasing provider numbers and where providers may receive less intensive training.

The findings of this study demonstrate the importance of ensuring that interventions are acceptable to both the providers and patients who will deliver and receive them (Campbell et al. 2000 and Craig et al. 2008). The providers in the present study were greatly influenced by their patients. Providers expressed greater satisfaction when delivering techniques that they perceived their patients liked and/or engaged with to a greater extent, such as the Diary. Diaries are familiar to many patients and relatively straightforward to complete, which may be important in building on their existing skills and abilities in order that they are facilitated to engage to a greater extent in HBC (Dixon and Johnston 2010). The fact that Diaries can be completed by the patient at home may also enhance the acceptability of the use of this resource within general practice, as this reduces the time needed within the consultation.

In contrast, many providers expressed reservations about asking patients to elaborate, which although consistent with a patient-centred approach may not be what patients are used to, or expect from general practice consultations (Ogden
and Hoppe 1998). A lack of perceived patient acceptance or receptivity to interventions has been found to have a negative impact on the provider when delivering HBC interventions in routine practice (Laws et al. 2009 and Sussman et al. 2006). In relation to the present study, this appeared to influence adherence to the protocol as providers admitted avoiding or rushing techniques when they felt uncomfortable. On the other hand, providers reported feeling greater positivity when patients were perceived to be enthusiastic.

The wider treatment fidelity literature has explored the extent to which the organisation in which interventions are delivered may directly or indirectly influence providers’ delivery according to the protocol (Borrelli 2011, Dusenbury et al. 2003, Rohrbach, Graham and Hansen 1993 and Saunders et al. 2006). In the present study organisational issues influenced the recruitment of patients to the study and also the time from training to delivery of the intervention. Providers reported that the gap from training to delivery of the intervention initially reduced their perceived skills and confidence but that these later increased as they delivered the intervention to a greater number of patients.

Providers in the present study expressed greater positivity and satisfaction with delivery of the intervention when they perceived themselves as more competent and confident to deliver it. Laws et al. (2009) found that clinicians who perceived they were skilled and knowledgeable regarding delivery of interventions as part of the routine management of lifestyle risk factors felt more confident about doing so, which increased their intentions to deliver such interventions. In contrast, but still consistent with the findings of the present study, Arnetz et al. (2008) reported that nurses’ communication with patients was hindered by a lack of confidence; furthermore, they were particularly anxious about patients perceived to have greater expertise. This echoes Mandy’s experience which she reported directly impacted on her delivery of the intervention.

**Implications of the study**

A number of strategies were developed and delivered by the research team to enhance fidelity of delivery of the walking intervention according to the protocol. As these inputs were described by the providers in the present study as being
predominantly helpful when delivering the walking intervention they will be considered in turn, followed by additional implications of the study.

Provider training and assessment of competence
Providers valued the structure and content of the training, which was based on the intervention protocol and which may have directly enhanced their skills in using the protocol and associated intervention resources. Providers felt that practising delivery, both within and outside the formal training enhanced their general communication skills and facilitated them to deliver the intervention with increased fluency.

The assessment of competence was described as valuable by the six providers in the present study who undertook this; they reported increased confidence to deliver the intervention and valued the assurance that they were delivering it correctly. Furthermore, most providers commented that, as a result of being assessed, this had prompted them to practice delivery following the training.

The maintenance of skills and confidence throughout the delivery of interventions is important. Some of the providers identified that they were unsure whether they were delivering the intervention correctly or that they perceived their skills dipped if there were gaps during the delivery period. In contrast, Jo was concerned that, as a result of her developing confidence, she may have delivered the intervention less well. However, chapter seven shows that she achieved good scores for delivery of the intervention and these were fairly consistent over time. Therefore it seems that her developing confidence did not have a negative measurable impact on her delivery.

Format and use of the protocol
Providers stated that the intervention protocol aided their delivery of techniques and was particularly valuable to enhance their delivery given the gap between training and delivery of the intervention and further gaps during the delivery period.
Amalgamating the intervention protocol with paper based tasks to be completed by patients in a single folder for each patient may both further engage the patient in the intervention and facilitate providers’ use of the protocol by increasing a sense of joint ownership of the intervention. Furthermore, smaller folders may be easier to use in confined spaces. In addition, completion of intervention tasks that are photocopied, with a copy kept by the provider and subsequently returned to the research team, would provide an additional form of data in the form of permanent products. These could later be used to assess both delivery and receipt of HBC interventions (Bellg et al. 2004 and Borrelli 2011).

**Delivery of trial procedures**

Although the present study focuses on delivery of HBC interventions according to the protocol, most providers found the amount and content of some of the trial procedures that they were asked to deliver to be challenging. Providers also expressed discomfort when patients asked questions that they felt poorly equipped to answer. Strategies should be developed to maximise providers’ familiarity with the trial procedures and possible questions from patients, which may in turn minimise their concerns that they may not have been perceived as knowledgeable and competent. Furthermore, providers perceived that patients were uncomfortable with the volume of paperwork they were asked to complete, which, in turn caused them some discomfort.

**Delivery of specific techniques**

Techniques that providers and/or patients were familiar with appeared to be delivered with greater fidelity than unfamiliar techniques. In the present study, the Diary was described as a familiar resource and a straightforward technique to deliver. The findings of chapter seven showed that providers, during Session One of the walking intervention asked every patient to complete a Diary. Furthermore, in 27 of the 30 deliveries of Session Two of the walking intervention, patients described their walking during the last week. Providers felt the Diary directly enhanced patients to give feedback on their walking, and so enhanced delivery of a further technique in Session Two.
The positive approach utilised in the intervention, with a focus on what patients could do, as opposed to what they could not do, was new for many of the providers, but had numerous positive effects. Providers made a direct association between their positivity and that of the patients. Furthermore, they considered that when patients were positive and enthusiastic that the intervention was both easier to deliver and that their experience was more positive. It is possible that, when providers deliver HBC interventions to patients who are perceived to be engaged and enthusiastic that they will then deliver the intervention more closely to the protocol.

In order to assess the efficacy of interventions, whilst delivery of specified techniques is important, not delivering non-specified behaviours is equally important. During the provider training, making suggestions during delivery of the intervention was discouraged. However, the findings of this study and those of chapter seven show that even with training and provision of an intervention protocol, providers may still deliver techniques that they use within their routine work and/or perceive their patients to expect from them. Similar findings have been found in fidelity studies undertaken in educational settings (Detrich 1999). This illustrates the importance of not only communicating to providers what they should deliver during the intervention, but also what they should not include, and ensuring providers practice this. Furthermore, it is recommended that providers are encouraged to explain the rationale for intervention techniques or tasks to their patients to ensure that patients understand them, which may enhance patient engagement with the task and reduce instances of providers making suggestions. This may be particularly important when techniques differ from their usual work or approach to delivering HBC interventions.

Explaining the rationale may be particularly helpful with some of the techniques found to be more challenging to deliver such as encouraging elaboration. This technique may be particularly challenging as it was generally a new technique for providers and patients. The findings of chapter seven show that during Session Two of the intervention, although providers described a general dislike for the Supportive Plan, they adhered to the protocol and asked patients to complete the task. However, in four sessions delivered, providers did not ask their patients to
elaborate on the Supportive Plan. This appears to show that when providers dislike a technique they may still deliver it, but when they experience discomfort delivering a specific technique (i.e. encouraging elaboration) that this may influence adherence to the protocol.

However, the discomfort experienced by providers when asking patients to elaborate may also be influenced by practice organisational issues. Most general practice consultations are time-constrained and therefore providers may be more likely to focus on more traditional advice giving consultations, which are likely to be shorter than encouraging patients to elaborate (Flocke, Miller and Crabtree 2002 and Rollnick et al. 2005). Enhancing provider and patient engagement with such techniques may require a significant shift in approach to HBC interventions in general practice that necessitate interventions at provider, patient and organisational levels.

Acceptability of interventions to general practice organisations

The walking intervention was developed in line with the Medical Research Council Framework (Campbell et al. 2000 and Craig et al. 2008) and previous phases had explored acceptability to both patients and providers (see French et al. 2011). Taylor et al. (2011) found that a number of issues concerning the general practice organisation may impact on delivery of HBC interventions and French et al. (2011) report that exploring acceptability to the general practice organisation is essential. A number of issues at the level of the general practice, such as booking appointments and recruitment of patients, appear to have impacted on providers' delivery of the intervention.

Many of the issues encountered during the Phase Three exploratory trial were subsequently addressed prior to the explanatory trial undertaken in Phase Four but are outlined for consideration by other researchers. None of the providers in Phase Three delivered the intervention to the intended number of patients; however, the providers who delivered to the largest numbers of patients described the most positive experience in terms of their developing confidence and skills to deliver the intervention. Therefore, when recruiting practices to research studies, recruitment targets and the time necessary to deliver the intervention should be
emphasised. The format of delivery of intervention sessions, particularly where these differ from routine appointment times should be considered by practice teams prior to commencing patient recruitment. Timescales for training of providers and patient recruitment should also be as closely linked as possible. Furthermore, and possibly more importantly, the value of participating in the study should be communicated to providers and practice teams such that involvement in the study is regarded as positive and beneficial (Meresman et al. 2003 and Potter, Dale and Caramlau 2009).

Unanswered questions and future research
Exploring additional factors that may influence delivery of HBC interventions according to the intervention protocol may further illuminate the findings of this and future studies. Provider characteristics such as length of time working in present role, past education and training, perceived support from colleagues and managers and attitudes towards the intervention have been reported to be associated with fidelity of delivery of interventions in studies in educational settings (Botvin et al. 1990, Detrich 1999 and Dusenbury et al. 2003). Furthermore, establishing the mechanisms through which providers consent to being involved in research studies where they will deliver HBC interventions and the extent to which this may affect fidelity of delivery merits further exploration. Most of the providers in the present study had been given information about the study by their practice manager but described the decision to participate as being entirely theirs. However, one provider described being told to sign up, as the practice in which she worked is particularly research active.

Although the findings of this study have been partly illuminated by those reported in chapters seven and nine, there is potential for a more detailed investigation of what was actually delivered during the walking intervention and the experiences of those delivering and receiving the intervention. This would offer unique insight into the process of delivery and receipt of HBC interventions, particularly those delivered in general practice. Analysis of the completion of permanent products by patients, which has not been undertaken in the thesis, could further illuminate treatment fidelity.
The following chapter (study five) focuses on the patients who received the walking intervention, to explore their understanding of, and experiences of the intervention. Semi-structured interviews were undertaken with patients who had received the walking intervention from the same providers for whom data was analysed in chapters seven and eight.
CHAPTER NINE: STUDY FIVE

PATIENTS' UNDERSTANDING AND EXPERIENCES OF THE WALKING INTERVENTION
INTRODUCTION

Enhancing and assessing fidelity of delivery of health behaviour change (HBC) interventions is important to ensure that such interventions provide a valid test of the theoretical basis of the intervention (Bellg et al. 2004 and Borrelli 2011). However, interventions that aim to change health behaviours also rely on the patient being able to understand, use and perform the information and skills that constitute the intervention. Treatment receipt describes what is received by a patient during an intervention, and is one of two aspects of treatment fidelity where the focus is on the patient rather than the provider (the other being treatment enactment) (Bellg et al. 2004 and Borrelli 2011).

Bellg et al. (2004) recommend a range of strategies to enhance and monitor treatment fidelity. However, in the absence of specific recommendations for enhancing treatment receipt with particular target groups, in particular settings, with particular providers, or in the case of different behaviours, research teams need to consider which are most appropriate. As a result of the lack of published literature in this area, it is unclear which of the recommended strategies are best suited to enhancing patients' receipt of HBC interventions delivered by practice nurses (PNs) and health care assistants (HCAs) within general practice. Furthermore, methods used to enhance and assess receipt in behavioural interventions delivered by PNs/HCAs may need to be developed to maximise receipt of the intervention but to not exert additional burden on the providers (Bellg et al. 2004).

Studies that have attempted to explore or assess understanding or receipt of an intervention or programme by patients have most commonly used quantitative methods such as questionnaires or surveys. A number of studies have quantitatively assessed knowledge acquisition, provider delivery of techniques, receipt of a resource such as a booklet and/or acceptability of an intervention (e.g. Eshah, Bond and Froelicher 2010, Harting, Assema and Vries 2006, Jackson et al. 2007, Jay et al. 2010 and Voogdt-Pruis et al. 2010). Whilst such methods may be appropriate in these studies, they may be less appropriate in more patient-centred interventions, where, for example the acquisition of knowledge is rarely a primary
aim of the intervention. Pre and post-test measures as recommended by Bellg et al. (2004) and Borrelli (2011) may facilitate an accurate assessment of understanding in terms of patients’ acquisition of knowledge. However, they limit the potential for exploring the range of factors influencing patients’ understanding and in turn the extent to which these may influence behaviour. Furthermore asking providers to undertake assessments of receipt that may be perceived by the patient to be a ‘test’ of their skills and understanding may negatively influence the continuing provider-patient relationship.

Research literature increasingly highlights the value of qualitative studies of patients’ experiences of making health behaviour changes (Byrne, Cooper and Fairburn 2003) and involvement in interventions to facilitate HBC (Lindenmeyer et al. 2010, McTigue et al. 2011, Ockleford et al. 2008 and Walseth, Abildsnes and Schei 2011).

Qualitative studies have been undertaken as part of the piloting or feasibility phase of the development of a HBC intervention in an attempt to enhance patients’ acceptability of, engagement with and/or understanding of interventions (e.g. French et al. 2011 and Jansen, Foets and de Bont 2010). Qualitative studies have also been used to interview patients as part of their involvement in a Randomised Controlled Trial (RCT) of an intervention aiming to facilitate adoption of health behaviours such as physical activity and healthy eating, delivered within general practice (e.g. Hardcastle and Hagger 2011 and O’Sullivan et al. 2010).

Analysis of qualitative data generated alongside a RCT can potentially provide greater illumination of the mechanisms of the intervention and the study findings than quantitative measures alone (Farmer et al. 2009, Lewin, Glenton and Oxman 2009 and Måsse et al. 2011). Hardcastle and Hagger (2011) and O’Sullivan et al. (2010) explored patients’ experiences of, and satisfaction with a HBC intervention and which aspects of the intervention they perceived to be most helpful. However, as far as can be ascertained neither study specifically sought to explore patients’ understanding of the techniques received. Furthermore, in both studies a specialist provider was employed to deliver the intervention and so the studies are limited in
terms of the extent to which they can illuminate receipt by patients who have received interventions delivered by PNs/HCAs.

Whilst a number of qualitative studies have explored patients' experiences of involvement in HBC interventions, relatively few have explored patients' understanding of such interventions in terms of the specific techniques received. In the present study, a qualitative approach was used, to facilitate the exploration of patients' understanding and experiences of the walking intervention within the context of other factors in their life. Increasing knowledge of the extent to which patients understood and engaged with the walking intervention may help to develop strategies to enhance treatment receipt in future HBC interventions. Such strategies may be particularly important for use within general practice, where providers are delivering behavioural interventions to their patients alongside their routine work.

Framework analysis was considered to be particularly suited to the present study for a number of reasons. Firstly, the process of analysis, although based on the accounts of the participants was approached partly deductively in order to explore patients' understanding of the techniques of the walking intervention. Secondly, framework analysis offered a means of looking at all data from study participants systematically within categories and therefore reduced the likelihood of missing potentially important data at an early stage that may otherwise have been lost during the process of analysis (Ritchie and Spencer 1994). The provision of a comprehensive process of managing data supported the more creative and conceptual stage of interpreting the data (Ritchie and Spencer 1994). Thirdly, through the development of a visual matrix to support data management and analysis (Pope, Ziebland and Mays 2000), framework analysis enhanced transparency of the research process by providing an audit trail back to the original data. Finally, following the process of analysing the data and identifying underlying motivations, patterns and explanations, framework analysis specifically recognised the potential for developing strategies for change which came directly from the data (Ritchie and Spencer 1994). The aim was that framework analysis would support the development of strategies to enhance treatment receipt of behavioural
Interventions, which arose from the original accounts of patients who had received a HBC intervention.

In addition, the findings of the present study will also be considered alongside studies three and four in the thesis which involved the same providers to illuminate the process of delivery of the intervention (Campbell et al. 2000, Craig et al. 2008, Creswell and Plano-Clark 2011 and Hulscher, Laurant and Grol 2002).

The study aims were:

i. To explore patients’ understanding and use of the skills and techniques of the walking intervention

ii. To explore patients’ experiences of their involvement in the walking intervention

iii. To contribute to the development of strategies to enhance treatment receipt in HBC interventions delivered by PNs/HCAs in general practice settings.
METHODS

Design
The present study employed a cross-sectional design to explore patients’ understanding of, and experiences of, receiving the walking intervention. The walking intervention was delivered by PNs/HCAs (hereafter termed providers) to patients as described in chapters four and six.

The present study was originally conceived and undertaken as a longitudinal study to explore patients’ receipt and enactment of, skills and techniques of the walking intervention. The longitudinal design was used to undertake two interviews with each patient; the first immediately after receiving the intervention and the second, three months later. Due to constraints of space in the thesis, analysis of the second interviews has not been included. However, the second interviews will be analysed at a later date.

Participants
The participants were 12 patients; half of whom were female. This provided a sub-sample of approximately 20% of the total sample of patients recruited to Phase Three of the walking intervention research. Patients were aged between 39 and 75 years (mean was 58 years, SD=9.7). Six of the patients had long-term conditions such as diabetes, asthma or heart disease; whilst six patients had hypertension, high cholesterol levels, were overweight or obese.
Table 9.1: Demographic characteristics of participating patients

<table>
<thead>
<tr>
<th>Patient name/ Number</th>
<th>Demographic characteristics</th>
<th>Provider name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sex</td>
<td>Age</td>
</tr>
<tr>
<td>Dana P1</td>
<td>Female</td>
<td>Younger</td>
</tr>
<tr>
<td>Jean P2</td>
<td>Female</td>
<td>Older</td>
</tr>
<tr>
<td>Jack P3</td>
<td>Male</td>
<td>Older</td>
</tr>
<tr>
<td>Peter P4</td>
<td>Male</td>
<td>Younger</td>
</tr>
<tr>
<td>Ajay P5</td>
<td>Male</td>
<td>Younger</td>
</tr>
<tr>
<td>Martin P6</td>
<td>Male</td>
<td>Older</td>
</tr>
<tr>
<td>Christine P7</td>
<td>Female</td>
<td>Older</td>
</tr>
<tr>
<td>Danni P8</td>
<td>Female</td>
<td>Younger</td>
</tr>
<tr>
<td>James P9</td>
<td>Male</td>
<td>Older</td>
</tr>
<tr>
<td>Max P10</td>
<td>Male</td>
<td>Older</td>
</tr>
<tr>
<td>Maggie P11</td>
<td>Female</td>
<td>Older</td>
</tr>
<tr>
<td>Ruth P12</td>
<td>Female</td>
<td>Older</td>
</tr>
</tbody>
</table>

1 Names assigned for patients are pseudonyms. Patient numbers were assigned according to the order by which they were recruited to the study
2 Age range: younger 16-54 years; older 55 and above
3 Patient self-reported demographic characteristics (ethnicity, employment status and highest educational attainment)
Interviews lasted between 25 minutes and one hour and 51 minutes (mean was 62 minutes, SD=24).

For eight of the 12 patients interviewed, at least one of their intervention sessions was included in the analysis in chapter seven; for three of the patients both sessions were included.

**Procedure**

**Recruitment**

A purposive sampling strategy was used to recruit a sub-sample of patients who had received the walking intervention (Ritchie, Lewis and Elam 2003). The aim was firstly to obtain a sample of patients from all of the providers who had delivered the intervention, which would also result in the sample being drawn from all the general practices in Phase Three of the walking intervention research. The variability of the practices (described in chapter six) should help to enhance generalisability of findings. Furthermore, non-specific treatment effects such as providers’ communication style may have impacted on patients' understanding and acceptance of the intervention they received and so including all providers should increase the variation in the sample.

Secondly, the purposive sampling strategy aimed to maximise the variability of patients’ demographic characteristics. The intention was that, when considering factors that may influence understanding of the walking intervention and when developing strategies to enhance treatment receipt in future studies, this would be relevant to a broad range of patients. The objective was therefore to recruit; (i) patients with a range of health conditions (as defined by the inclusion criteria for the walking intervention research), (ii) male and female patients and (iii) younger (defined as aged 16 to 54 years) and older patients (55 years and over).

**Process of recruitment of patients to present study**

To facilitate recruitment to the present study the author was able to use patient data obtained at the baseline intervention session with their provider. A table was developed to facilitate recruitment, with individual cells denoting the groups of patients to be recruited (see table 9.2).
Table 9.2: Table used to recruit patients

| Patients with: Diabetes; Pre-diabetes; Coronary Heart Disease; Cardiovascular Disease; Osteoporosis; Osteoarthritis; Low back pain; Fibromyalgia |
|---------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| Female | Male | Female | Male |
| Younger | Younger | Older | Older |

Patient details

| Patients with: Hypertension; Hypercholesterolemia, or Overweight/Obese |
|---------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| Female | Male | Female | Male |
| Younger | Younger | Older | Older |

Patient details

To ensure that at least one patient, and no more than three patients, were recruited from each of the different providers, demographic data for patients two, six and 10 for each provider were initially reviewed using the table shown. If a patient had already been recruited to a particular cell, then the characteristics of the next patient that the provider delivered the intervention to were reviewed. If consent to participate in the interviews had been obtained, the patient was telephoned by the author and invited to participate. When an individual patient was recruited, the above recruitment process was then repeated.

Setting up data collection

The author offered to undertake the interview at a time and place in line with the preferences of the patient. However, prior to commencing recruitment, it was decided that all interviews should take place as soon as possible after patients received the second walking intervention session. If interviews were undertaken later than one week post intervention, the issue of recall may have interfered with exploring understanding (Houston et al. 2008). All patients contacted (n=13) consented to be interviewed. However one patient had to postpone her second intervention session due to sickness and due to both her and the author’s imminent holiday commitments it was not possible to re-schedule a convenient
Interview date. Twelve patients were interviewed and all interviews were undertaken within one week of the second intervention session. Most patients opted to be interviewed at their home (n=9). Three opted to be interviewed at their general practice.

Data collection
Prior to commencing the interview, the author introduced herself and gave an overview of the aim of the interview and clarification of consent issues. All interviews were audio-recorded with the verbal and written permission of participants. Prior to analysis, all interviews were transcribed verbatim.

Interview schedule
An interview schedule was developed, based on a schedule that had been developed and used by the author during Phase Two of the walking intervention research to interview patients after receiving the walking intervention (see French et al. 2011). The interview schedule was partly structured to facilitate the exploration of patients' understanding of specific intervention techniques. Although parts of the interview were more structured than may be the case in other qualitative studies (Pope, Ziebland and Mays 2000), probes and prompts were used to explore patients' responses in an attempt to further illuminate their understanding and experiences. The interview schedule is presented in appendix seventeen. The interview explored patients' experiences of participating in the walking intervention and walking intervention research. This included their decision to participate in the research, their expectations of the intervention, their understanding and comprehension of each part of the intervention, their perceptions of the intervention resources and their views on the role of the provider in delivering the intervention.

Data Analysis
Framework analysis was developed in the 1980’s for use in the field of applied social policy and health service research (Ritchie and Spencer 1994). Framework analysis offers a way of ordering qualitative data ‘in a systematic way that is grounded in participants’ own accounts yet orientated to the research objectives’ (Home Office 2009: 21).
The process of analysis undertaken in the present study is summarised in table 9.3 (developed from Ritchie and Spencer 1994: 178-193). Although shown in a table for clarity, and initially approached in the stages shown, the analysis did involve an iterative process whereby themes were revised as the analysis progressed.
### Table 9.3: Process of data management and analysis

<table>
<thead>
<tr>
<th>Stage</th>
<th>What was involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiarisation</td>
<td>Familiarisation with data through reading interview transcripts.</td>
</tr>
</tbody>
</table>
| Identifying a thematic framework | Consideration of the research question(s) and the questions asked during interview.  
|                               | Identification of the key issues, concepts and themes to enable data to be explored and referenced.  
|                               | Established a numbered, indexed thematic framework (which comprised themes with sub-themes). The thematic framework is presented in appendix eighteen. |
| Indexing                      | Worked through each transcript systematically; deciding what every phrase/sentence/paragraph was about.  
|                               | Recorded by hand on the transcript how the data corresponded with the thematic framework.  
|                               | If a single passage contained multiple themes, all were documented (this helped to identify patterns of meaning during the later stages of analysis). |
| Charting                      | Charts were devised with headings and subheadings, which corresponded to the thematic framework (i.e. chart one corresponded with theme one).  
|                               | As the analysis was thematic (for each theme across all participants), the columns in each matrix related to different sub-themes of a particular theme.  
|                               | The rows related to individual participants.  
|                               | When undertaking thematic charting, participants were kept in the same order in every chart, so the whole data set could be easily reviewed.  
|                               | Each passage of text, annotated with a reference was studied and a shortened summary entered onto the chart.  
|                               | Extracts which were considered for use as illustrative passages were referenced by transcript page/line numbers.  
|                               | An outline of one of the thematic charts is shown in appendix nineteen. |
| Mapping and interpretation     | All charts were reviewed.  
|                               | Perceptions, accounts and experiences of participants were compared and contrasted.  
|                               | Associations, possible explanations and typologies were considered.  
|                               | Writing up the results involved piecing together the overall picture by drawing together patterns whilst also exploring salience and the dynamics of issues.  
|                               | A number of themes were developed during this stage that will be presented. |
RESULTS

Five themes were generated, which will be described in turn:

A. Motivational components of the intervention
B. Volitional components of the intervention
C. Monitoring
D. Role of the provider
E. The extent to which hopes and expectations were realised

A. Motivational components of the intervention

Two tasks were undertaken as part of the motivational phase of Session One of the walking intervention; What Makes it Easier to Walk? and Walking Experiences. Although the timing of the interview was such that Session One may have occurred up to two weeks previously, three patients struggled to recall completing the What Makes it Easier to Walk? task. The remaining patients described being unsure what they were being asked to do; Maggie ‘found it quite difficult and a bit confusing to start with’ (283). Other patients were unclear as to why they were being asked to complete the task, ‘I thought some of the questions were a little bit strange (137) […] when you come across a strange question you think, well why’s that there?’ (Christine, 145). Jack explained that:

I found it up here a little awkward, just sort of thinking what are they actually asking me for here? […] at the end I thought well one or two of these questions are awkward to answer, not because they, they’re not understandable but because they are understandable and I just sort of think why have they asked me this? (453).

4 Reference is made to specific intervention techniques or tasks that patients were asked to complete during the walking intervention. These will be identified through capitalisation of the name of the technique/task. Further description can be found in chapter seven (pages 143 and 144).
Some patients perceived the task was a general questionnaire or survey about walking, and did not understand that it was to facilitate them to specifically consider their own walking:

They [the questions and answers] seemed like common sense [...] I would expect the answers you get back are what common sense tells you if you like, and therefore it wasn’t obvious to me what the point was of the questionnaires. As I say, the one that stands out particularly in my mind is, I can’t remember which way round it was, whether you walk more when it’s nicer or when it’s raining, but I think it was pretty obvious really (Peter, 154).

Two patients were also unable to see the relevance of the Walking Experiences task. As with the What Makes it Easier to Walk? Task, they appeared to perceive it as a more general survey, ‘I think that was another one which fell into the well it’s blindly obvious category really to me’ (Peter, 205); ‘it was just a form to fill in [...] didn’t mean anything’ (Martin, 195).

Following completion of the motivational tasks, providers were required to ask the patient to elaborate on their experiences. Jean, although explaining that she was not keen on the ‘multiple choice’ questions posed in What Makes it Easier to Walk?, illustrated the value of elaborating on her responses:

The main thing I think that came out of that was that I do like to walk in a nice surrounding and I’m better with company. Denise picked that out from listening to me talk or whatever. And that’s right, I really enjoy the park [...] I’m more motivated when I’m with somebody (390).

The value of being asked to elaborate was also experienced by Max, although the example presented concerns his plans for walking:

I had written it down, and then she didn’t just take it off me and read it, she actually got me to read it back to her, to tell her what I had said and obviously whilst I was reading it back you sort of, you suddenly start explaining it don’t you? I suppose sort of thinking behind it and that helped really, it sort of
cemented it into my mind, that’s what I’ve said, that’s what I have got to do. I think if I had just written it down I might have forgotten it by the time I had got home...it was like a commitment (355).

Most of the patients recalled completing the Walking Experiences task. The task was generally perceived as positive, enjoyable and a useful prompt to consider the benefits of walking. This was particularly the case for the female patients, as illustrated by Christine and Maggie:

I think that when you are sort of made to stop and think about things, you remember that, yes you did really enjoy doing it [...] it reminded me if you like, of how much I enjoyed walking (Christine, 173).

I probably panicked for a minute thinking goodness knows where I have walked, nowhere very extraordinary but then you actually come to appreciate the walks that you do, I think well it’s lovely really (Maggie, 342).

James experienced a change in opinion regarding the usefulness of the task:

It was pleasant to think back but whether it was useful in terms of making me want to walk more than I already do I don’t know [...] yeah it probably does a little bit, perhaps I should dwell on those walks more often (157).

The patients who appeared to engage to the greatest extent with the Walking Experiences task seemed to implicitly associate their past experiences with increasing their intention to walk. Only Max explicitly associated the motivational techniques with a heightened intention to increase his walking, although this was as a result of considerable reflection. He described, when leaving Session One:

Actually I felt reasonably motivated to do it and maybe that was because of the questions themselves, although I said I struggled to answer them, it was dawning on me, if you find this all so easy and that, why don’t you do it? […]
I don’t know if the questions were angled that way, maybe I wasn’t subtle enough to see it, umm you know it made me feel, well I’m going to have a go at this (210).

In Session Two, the Review of Behaviour Change aimed to provide positive feedback to enhance patients’ self-efficacy concerning their walking. Most of the female patients commented that they liked and valued being given positive feedback by their provider, ‘She was very positive with positive feedback and made me feel good about what I was doing, and I think we all respond to that sort of praise’ (Jean, 805); ‘made me think that I can do it’ (Ruth, 399).

Most of the male patients described being motivated by their own awareness that they had attained their goals or by being informed that they had achieved their goal by their provider. However, they were generally less concerned about being praised for their efforts, ‘she didn’t give me a lollypop or certificate or anything [...] I didn’t really feel any different’ (Ajay, 574); ‘she said probably, probably a “well done” or something like that’ (Martin, 319).

B. Volitional components of the intervention

All of the patients spoke with enthusiasm and had a strong recollection of setting their own goals during Session One, ‘it’s something for you to aim for which is not over the top basically, it’s what you’ve chosen to do’ (Ruth, 283). Almost all of the patients emphasised that they had set a realistic goal that they felt they could achieve. A sense of ownership of their goal also appeared to translate into a commitment to the goal for a number of the patients, ‘I didn’t want to commit myself to something that I didn’t think I could keep’ (Maggie, 707).

Five of the six male patients spoke of the similarity of Goal Setting to their experience of setting targets and goals at work:

Well that’s a very good idea because like in a lot of jobs if you’ve got a target, psychologically you’re encouraging yourself to try and achieve it and you don’t want to be disappointed in yourself for failing to achieve it, especially
when it is difficult to achieve, so setting the target of walking a bit more than I did before [...] was a good thing (James, 165).

During Session One, Max explained that, ‘my life has revolved a lot around being targeted, so you never pitch too high, so I didn’t pitch too high, I pitched something I knew I could do’ (297). Ajay related his rationale for selecting a goal that he was confident to achieve to self-managing his diabetes:

Male pride came in as well, I didn’t want to put down that I’d do a marathon you know and then not be able to do it. So I said to Mandy “let’s just be honest and make it achievable”; least that way I don’t look like a schmuck! But also, it’s a positive thing, you know, because I think if I’d said I’d do 20 minutes per day, I know what it’s like with the diabetes thing that if I eat a chocolate biscuit I feel guilty for the rest of the day, so I know that if I don’t do the 20 minutes then I’d have felt bad that I hadn’t done it (390).

Martin was the only patient who, although offered a realistic goal according to the intervention protocol (of 10 or 20 minutes increase a day), opted to increase his walking by 30 minutes a day. His rationale for this was also linked to his job, but was in stark contrast to the other patients who had ‘pitched low’. Nevertheless, the sense of ownership of the goal appeared to be important:

I’ve been in sales and marketing for 40 years. So you know, if you’re gonna go for targets set a reasonable target. If you don’t set a reasonable target you have got nothing to aim for. So if I aim for 60 and I did 50 then I’m 20 minutes better off (222).

However, Martin was one of three patients who described a sense of positivity from being told by their provider that their baseline walking compared positively to others in the study. This directly influenced his goal choice:

When she [Jo] told me that people only walked 15 minutes a day I thought crikey at least I’m more than double that. Made me focus and I thought oh hang on why do only 30 minutes a day perhaps I should be doing more and
then the more we talked about it the more…I mean I like challenges and 60 minutes a day was a challenge (386).

All patients recalled completing their Action Plan in both intervention sessions and most perceived value in planning the ways in which they could increase their walking. Dana considered the positives of planning whilst also reflecting on the consequences of her lack of planning as she had increased her walking from the baseline session:

I mean we just went through, sort of like, you know what would you need to be able to do it, down to like looking at, which I didn’t do on the very first time I did it, you know got fitted with my first pedometer and went straight in and walked to the town and back in a pair of shoes that I had not done a walk in before and absolutely gave me blisters (76).

There appeared to be a difference in the patients’ attitudes to planning their walks, linked to their employment status. For the patients who were working, planning was important; particularly concerning how they would find the time to fit their walks in:

I’m more routine for these sort of things, that’s the only way I’m going to get it done anyway, if I say “I will wait until I get to so and so then I will go for a walk”, I’m never going to do that, it’s just not going to happen (Max, 452).

I have got to be organised because if something happens and I can’t go at lunch time or whatever then I have got to fit it in at sometime during the day and it’s not easy because I live out in the country, there is no pavement or street lights so you can’t say “well I will go for a walk at, after I have eaten my supper tonight” you know because there is no way you can do it so, so you miss out, so you have to organise yourself in the day (Maggie, 139).

Half of the patients were either retired or reported having considerable flexibility; some of these patients described the planning components as less useful. Martin, who was self-employed, explained:
For me it’s easy because I’ve got the time and I can, I mean, I work when I want to work and I can fit anything around whatever I want to do; so it’s dead easy for me, the only thing I’ve got to put into it is effort (416).

Most of the retired patients were not keen on planning their walks a week in advance and wanted more flexibility concerning when they did their walking. They seemed keen to, and enjoyed fitting their walk into each day on the day itself, as most described having sufficient time to do so:

I remember doing that [Action Planning] and if I’m quite honest I found that a little bit restrictive, because I’m retired and really my time is my own [...] I sort of put down oh I will go out at that time [...] but I would rather have not have done that and on the next one I put when convenient and I found that a lot better (Christine, 220).

In contrast, Ruth was retired, but regarded planning her walks as essential. Ruth was the only patient who described that she hated walking; therefore it may be that planning her walks facilitated her to ensure she completed them:

What I’d done was sort of got up, done me [house] work and went out about 12 o’clock, I knew I’d got to set me, if I’d have left it until the afternoon I wouldn’t have done it. I needed to do it, you know, once I’d had a shower I needed to get out and do it (238).

Patients were generally pragmatic about how they could increase their walking; this may have been influenced through the focus of the intervention on patients’ setting their own goals and making their own plans:

If someone says to me you know “you’ve got to walk 20 minutes a day”, I would be thinking well I probably really don’t want to, but if I’d made my own mind up that I was going to do it that would be fine (Ruth, 657).

You know it’s my baby now, so I own this and I mean, I didn’t phone Jo and say “well I’m thinking of changing this routine because it’s not working” [...] I
just changed it because you know I realised that it is mine and providing I’m hitting the overall goal then how I get there has got to be down to me, so its brought out more ownership in me (Max, 740).

The importance of a sense of ownership of goals and plans for walking was highlighted by Jack. Jack was the only patient who described being set a goal by his provider. During Session One, ‘she (Tina) said try to walk half an hour a day’ (150) and during Session Two ‘she’s asked me to do forty minutes a day instead of thirty minutes a day...And to be sure that it is forty minutes’ (255). Jack’s description implies adherence to a regime rather than any sense of ownership of the goal, ‘it was all very clear [...] and all very simple [...] it’s go for a walk and record what you’ve done, so I have’ (417); ‘It was so blindingly obvious what she wanted me to do and I was happy enough to do it’ (435).

However, there appeared to be a stark contrast in Jack’s sense of choice and therefore ownership of his plans for walking in comparison to the goal he had been set by his provider:

It’s left completely to me, all I’ve got to do is keep an eye on my watch and make sure that I’m going to hit the right target for time. The actual walk is more or less whatever I want to walk or whichever way I want to go [...] I’m allowed to do that, I can do it, you know (Jack, 569).

The fact that patients were facilitated to plan their increased walking with a degree of flexibility also appeared to enhance their self-efficacy, ‘it doesn’t matter if you walk once in the day or twice in the day really because it all adds up and helps doesn’t it?’ (Dana, 223). Max had a similar pragmatic approach:

...recognising that anything extra is a bonus sort of thing to what I’d been doing, so if I hadn’t have been doing any walking, do some walking. Some walking, a little more is a help (131).

During Session Two, patients were asked to complete a Supportive Plan to facilitate them to identify factors that may support their walking and how they could
bring about such helpful factors. Some patients had difficulty recalling the Supportive Plan; Christine stated that ‘it’s not ringing bells’ (353). A number of patients found it difficult to differentiate the Supportive Plan from the Action Plan. Ruth, when specifically asked about her Supportive Plan could not recall completing it, but after prompting explained that, ‘I think it was basically keep to the plan’ (432). Martin was somewhat dismissive of the task, ‘Wasn’t particularly useful, I don’t think really, it’s dead easy, one morning, one evening, end of story’ (363).

Of the patients that did recall the task, the majority explained that they found it difficult to complete, ‘I think I struggled on that [...] I can’t think of any way that I can help make it any easier than what I’m doing you know now really’ (Dana, 312). A number of the patients reported facing a double challenge with the Supportive Plan and some of the other written tasks, ‘I was a bit unsure as to what it was actually meaning, but you know, but also I was just not sure of what to put anyway’ (Dana, 514). Around half of the patients felt uncomfortable about being asked to complete tasks during the intervention session. Ajay explained that, although he perceived value in considering how he could implement his plans, he did not like the way in which this technique was delivered and therefore did not perceive it to be particularly useful:

It’s being put on the spot, you have to sort of sit there and think how am I actually going to do this? There was no time to think about it, and I think in something like this [...] because you’re implementing a plan you do need to actually work out how you’re going to fit the jigsaw pieces together within your own life (601).

Max explained that:

The last time I went [...] Jo did give me a sheet and I did find it bloody hard to think of what to write on it, I really did, it was, what do you need to do it and I thought well I don’t need anything, I mean I just, you know when I wake up in the morning I can do it, I really did struggle there and I must have written something but I can’t think what it was (558).
It seemed that Max may not have engaged with the Supportive Plan at the time of completing it or following the session. This is in contrast to the motivational techniques where, although not initially engaging with them, he later reflected on their value.

However, James recalled that being asked to consider a Supportive Plan was ultimately valuable:

You look at the sheet blankly at first because you’re thinking well all I’ve got to do is walk a bit more which is very simple but now we’ve got to try and explain it in words but yes yeah it was useful and good (323) [...] it’s helpful because it just identifies in your mind what it is that you’re going to try and do and if you’d identified what you’re going to try and do, it’s then easier to do it (339).

Furthermore, James had also linked his Action Plan to achievement of his goal, ‘it’s useful because it clarifies in your mind what you’re intending to do in order to go a bit further than you had before. So yeah a good thing’ (371). James’s understanding of the way in which intervention components linked with, or underpinned other components appeared to enhance his overall engagement with the intervention.

C. Monitoring
Two resources were used during the walking intervention research to monitor patients’ walking behaviour; the Diary which was an intervention technique to facilitate patients to monitor and self-report their own walking and the pedometer, which was a means of objectively recording patients’ walking as a mechanism for evaluating the outcomes of the intervention.

All patients recalled being asked to complete a Diary at the end of Session One. However, although most patients reported that they had completed their Diary, when discussing monitoring of their walking, many of the patients emphasised the importance of the pedometer as a means of objectively validating their walking. Most patients were particularly surprised, and some unhappy that, during the first
week of their attempts to increase their walking that this was not monitored by the pedometer. Max explained that:

I expected to be measured [...] because I was sort of saying “well this is what I’m going to do”, I expected to have a measure to say “a-ha on so and so you didn’t do it” or “oh yes you have done more than that or you haven’t quite” (439).

The expectation and importance of being objectively assessed by pedometer was implicit in the accounts of three further patients:

It wasn’t as I would have expected it, in that it wasn’t measured and that they nicked the pedometer off you and sort of leave you to your own devices to either make it up or not as the case may be over the following week [...] why you don’t just measure the second bit using a pedometer, as then you can be certain that whatever it is they’re actually saying is what is actually happening, as opposed to, you could actually just make it up without somebody checking on it (284) [...] there’s probably not a lot of point in making it up, but even so there is the opportunity there to make it up if you wanted to (Peter, 304).

Christine, Dana and Ajay shared Peter’s view that ‘making up’ walks that hadn’t been completed was possible but of no benefit, ‘It would have been very easy to put it down that I had walked when I hadn’t but I would only be cheating myself wouldn’t I?’ (Christine, 126); ‘You’re not doing yourself any favours if you don’t do what you say you’re gonna to do’ (Dana, 385).

Most of the patients did not seem to be aware that the Diary was the primary tool intended for the personal monitoring of their walking. As a possible consequence of the emphasis placed on the pedometer, Max perceived that ‘It [Diary] wasn’t great for me; I didn’t feel it was necessary’ (456). However, some participants referred to how the Diary had heightened their awareness of their walking and, in turn enhanced their commitment to their walking, ‘I have become more aware of
what I’m doing, umm having particularly having filled in the diaries’ (Jean, 41).

Martin explained that:

The only thing I think is any benefit is the, the walking log [Diary] […] I can’t remember you know like if you said to me “when did I do Monday or when did I do Tuesday?” I can’t remember. I go and look at the log and I say “oh yeah I did that and that”. So the walking log, and I still do it now (512).

Although a fan of the pedometer, Peter also conceded that the Diary was useful:

That was a bit more useful in the sense that you write it down then you can review how you’d done against whatever you wrote down, so from that point of view it was quite useful (241).

A number of patients likened the Diary to similar resources they had used, or were aware of from weight loss/slimming clubs. This appeared to enhance their comprehension of the value of the Diary, their confidence and commitment to using it and in turn they perceived it as a tool that would facilitate them to increase their walking:

I had to write in my walks each day and that is good, I find that really good and years ago when I went to Weight Watchers you had to fill in a Diary, a daily Diary, every meal time you had to write down what you eat and that sort of thing and I think that is the way to do it, to actually, until you get into a routine (Maggie, 308).

D. Role of the provider

The role of the provider in delivering the intervention was one that was generally perceived positively by the patients, ‘I just felt that she [Denise] made me feel very positive’ (Jean, 361). All of the patients commented on the value of the structure of the intervention in terms of providing an opportunity to re-visit their provider. For some, this provided a point of accountability, for others it was seen as a means of support and encouragement:
I think perhaps you need someone to speak to, to let you know if you're doing it right or wrong and that sort of little bit of encouragement like I have said before, um goes a long way and I think it could be open to all sorts of “oh no I can’t be bothered” if you were just doing it yourself, whereas you know you are seeing someone, that face to face thing makes a lot of difference, for me it did anyway (Christine, 540).

I just suspect that some people are not as motivated as others and so the motivation of having Catherine there explaining it all to you and encouraging you is very valuable (James, 461).

When asked what she felt were the most useful aspects of the intervention, Maggie responded, ‘I think it was coming back to somebody and sort of if you like checking in every week’ (101). She described the importance of support as she started to increase her walking:

I was hoping that, you know it would be just like a support system that would set me going really, but I realise that it is for a limited period of time that would set me on a straight and narrow path to sort of be conscious of what I’m doing in the way of exercise and eating as well (108).

Over half of the patients explained how a significant factor encouraging them to get involved was that they considered they had been selected by their practice to participate, ‘I’m pleased I was chosen’ (Martin, 471). This appeared to increase their motivation to participate, ‘So you know I felt good in that sense that my doctor was most probably looking that it could help me and you know and to actually pick me’ (Dana, 467). Martin attributed the catalysts to increasing his walking as being invited to participate by his general practice and the subsequent opportunities to focus him on doing so through discussions with his provider:

To me if I hadn’t been to see Jo and she sat me down and focused me on issues shall we say [...] I would have carried on with my thirty minutes a day. Having the meeting with Jo, it’s been brilliant, she’s fantastic (367).
Three patients commented on the difference in approach to delivering the intervention from what they were either used to when attending general practice, or expecting from the intervention. Peter commented on the structured approach to delivery of the intervention which he identified differed for both himself and his provider:

I think from her [Lindsay's] point of view, the point of it was that this was the way it was being done sort of thing, this is the means by which she’s got to deliver this particular program [...] I suspect she wasn’t entirely convinced about it herself (509).

However, Max and Ruth, although acknowledging the differences, perceived value in the patient-centred approach. This contrasted with their usual experiences of being ‘managed’ or their expectation that they would be told what to do:

Jo has taken a really, almost a neutral stance, not wanting to swing you one way or another or persuade you one way or another, I guess I’m used to a slightly different sort of way of being umm almost managed if you like, I’m used to being told what to do I suppose [...] So that was a slightly different style, if anything it’s probably totally appropriate because obviously this is me isn’t it, I have got to set the goals, I have got to see it through and I can understand that (Max, 700).

I was expecting more pressure, you know to say “do such and such” but it was totally left to you basically you know what you’d done [...] I was expecting the nurse to say to me “oh we’d like you to do so much a day, say half an hour a day or something like that”, which to me would be a nightmare (Ruth, 31).

Christine, Jean and Ajay expected more suggestions as to how they could incorporate walking into their daily routine. It is unclear whether this was because they were used to suggestions as part of their usual consultations in general practice or that they explicitly expected that the intervention would comprise such techniques:
While I have been encouraged to perhaps take part with someone else or walk in different areas, there hasn’t been a lot of input and I don’t mean this in a disrespectful way [...] but there hasn’t been a lot of suggestions (Christine, 57).

I was a bit disappointed I suppose that there weren’t more suggestions for how you could build it into your day without actually saying right stop! I must stop everything and go out for a walk (Jean, 123).

As all of the patients were due to see their provider for a final follow-up session, most did not comment on the structure of the intervention, beyond that which they had already experienced. However, for a small number of patients, the lack of further sessions was very much on their minds:

It felt almost like the umbilical cord was being cut a bit early...I can imagine if somebody did need some support on this, you know you might be in free-fall a bit soon, I mean there is a, this is all about discipline, umm and if you are reporting back to somebody every week that is a sort of discipline. It’s a bit like Weight Watchers isn’t it? You know, if you know you're going to go and somebody’s going to put you on some scales and measure you, I mean God who needs to pay for Weight Watchers really you could do it yourself really for what they do, but in all fairness the success is the fact that that is the motivator, it gives you the discipline to do it. It just felt that sort of support level was being removed quite quickly, quite sharply really (Max, 586).

Jean commented on her past experiences of the importance of on-going support and encouragement, particularly when initial enthusiasm may be difficult to maintain:

Maybe there ought to be [...] a review every three months to see how it's going, see if you’re maintaining [...] because I can see the positive results, I’m very keen to continue, but who knows what I’ll be like in October when it’s chucking it down with rain, if I haven’t got, if it’s purely up to me (880).
E. The extent to which hopes and expectations were realised

Around half of the patients believed that ‘good timing’ had initially prompted them to enrol in the walking intervention research. This included the possibility of improved weather (Peter and Jack), a change of job resulting in loss of a company car (Ajay), a sense of guilt about his inactivity levels whilst the football World Cup was taking place (Jack) and recent retirement resulting in more time (Christine). Max had recently purchased a dog:

So it might just be that if this gives me a bit of a structure then the dog will give me the reason sort of thing. So it was just coincidence that the two arrived at, more or less the same time. And that was the sort of motivation or the change me mind to sort of give it a go (22).

Jack and Christine were encouraged by family members to participate; Christine explained that her daughters gave her ‘total encouragement’ (571). Maggie and Dana described their partners as being particularly supportive of their efforts to increase their walking.

Around half of the patients perceived that increasing their walking was a realistic and achievable challenge, or a means of proving to themselves that they could achieve something positive. This was most evident in patients who were retired, and who reported that they had sufficient time to walk, but were looking for a reason or motivation to do so. Christine was recently retired and explained that:

To be quite honest with you, I was just dying to get into it and if I’m involved in something I just wanted to really get, you know involved (189); I thought yes I’m going to because I was determined to prove to myself that I could do it (212).

Ruth, who was also retired, set herself perhaps the greatest challenge of all the patients:
I really hate walking, so that was the reason why I took this on as a bit of a challenge to see if I could get myself to like to walk. Which, really it has worked in a lot of ways because I realise if you walk you do feel better (11).

Most of the patients perceived walking would result in a range of positive outcomes, which appeared to be important when initially signing up for the study. Walking was seen by a number of patients as a goal in itself. The majority of patients referred to a range of factors that had or they perceived would motivate them to continue with their walking; this included enjoyment of the local environment, walking for a purpose such as walking the dog, walking as a form of social activity and the financial benefits of walking compared to driving. James described that, ‘this morning I saw a pigeon [...] and two squirrels as well; so what more could you want?’ (182). Christine explained that:

I have got a lot of areas available to walk (446); but you work full-time and you forget that they are there, you know it in the back of your mind, but, and then it sort of brought to the fore of how lovely it is (451).

Most of the patients had also specifically considered increasing their activity levels for reasons associated with their health and well-being, although these were commonly longer-term goals. This included losing weight (Dana, Christine, Peter, James and Max); to help with management of a long-term condition (Martin, Jean, Ajay and Max) to enhance fitness (Peter) and for general improved health and well-being (Maggie, Danni and Ruth). Dana’s belief that walking would help her to achieve her weight loss goals was sufficiently strong that, even with little time she decided to participate, ‘I want to be able to lose some weight; you know that is a big thing with me’ (29). Jean had a number of complex health conditions, including diabetes, and recognised the negative impact of her low levels of activity on her health, ‘You know the fact I couldn’t walk as far as I was, I felt uncomfortable with my size, it didn’t help with maintaining my sugar levels’ (156). She was therefore keen to increase her walking for health reasons, ‘because I’d got to the point where I thought I do need to do more’ (31).
Two male patients did not describe having experienced any benefits or positive outcomes of increasing their walking and so seemed to be looking for more tangible and/or proven outcomes for their efforts, ‘saying we’re going to increase your walking time because it’ll be good for your health; yeah well prove it’ (Ajay, 242). Peter explained that, having made several previous attempts to lose weight, he was aiming to achieve weight loss outcomes that matched his efforts to increase his walking:

If I understood what the results were of me doing whatever I had been doing, however much walking I did, then I’d be far more inclined to continue it, even if I didn’t really enjoy it, because you’re kind of making yourself do things that you don’t necessarily want to do, but at the moment it’s because it’s, in inverted commas, ‘good for you’, what I don’t know is how good it is for me (193).

After just two weeks of walking, a number of patients reported improved feelings of health and well-being, ‘I don’t whether it’s psychological but something said to me last Thursday I feel better. Or I think I feel better’ (Martin, 594). Maggie reflected that:

I think if you make time for yourself, doing something like this, already after a fortnight I just feel, well it’s given me an independent strength that I can think well this is good for me physically as well (518).

A number of patients referred to the fact that they perceived a greater sense of personal involvement, understanding and control as the intervention progressed, ‘So it’s useful and it’s encouraging because you’re then a little bit more involved than you were at the start’ (James, 268). Ajay also implied an increasing sense of involvement as the intervention progressed:

...you start to feel part of what you’re doing. I think with something like this ownership is really important [...] Because you knew what was coming it didn’t feel so, and plus I’d met Mandy for the third session so we were getting on as well (550).
Almost all of the patients cited their intention to continue to walk more. Christine differentiated between walking during and after the walking intervention research:

All in all I said I was quite keen to keep going till the end and see how we do then (418) [...] I think to the end of the study and then, I hopefully will incorporate it into my days (422).

Jack, Max, Martin and Maggie were explicit about their intentions to increase their walking in the longer term, ‘I shall make this part of my life in future’ (Jack, 548); ‘I see this as a long-term thing rather than a short-term’ (Max, 474); ‘Let’s go for the objective and let’s do it. We’ve done it and we, you know, all things being equal, we will carry on doing it’ (Martin, 478). It was these patients who appeared to have gained a particularly strong sense of enjoyment or benefit from their walking. Maggie explained that:

It does make you feel more positive and I think that its, it isn’t just a temporary measure that you’re doing; it’s going to be a long-term commitment really (876).

Martin had recently been diagnosed with pre-diabetes and as well as enjoying the local countryside whilst walking his dogs, he associated increasing his walking with delaying the onset of diabetes, ‘because the walking, the exercise obviously helps that situation’ (667).

Maggie and Max also reflected on their increased confidence to walk, ‘I’m confident I will keep the walks up’ (Maggie, 1022); ‘I feel more confident that I can do it’ (Max, 746).
DISCUSSION

Summary of principal findings
The majority of patients perceived the overall walking intervention experience as one that was positive and had facilitated them to increase their walking. They particularly valued being invited to participate by their general practice, the support of their provider and some of the intervention techniques. However, patients' understanding of, and engagement with the specific intervention techniques varied, which may be partly influenced by the broad sample of patients included in the study and factors concerning provider variability. There was generally greater comprehension of the planning techniques, while the majority of patients had difficulty understanding the rationale of the motivational techniques. When patients understood the aim of tasks or techniques they appeared to find them more relevant and useful. The majority of patients, shortly after receiving the walking intervention described a greater sense of self-efficacy concerning their walking and also reported their intention to walk more, at least in the short-term. This illustrates that patients may have utilised or drawn on particular aspects of the overall experience that were of greatest importance or relevance to their personal circumstances.

Strengths and limitations
Whilst a number of studies have explored patients’ experiences of HBC interventions, as far as can be ascertained, this study is the first that has sought to explore patients’ understanding of the specified techniques of a HBC intervention delivered by their PN/HCA within general practice through qualitative means. Qualitative methods enabled an exploration of patients’ comprehension of the intervention techniques, the acceptability of the intervention and their overall experience. Furthermore, the author wanted to avoid an assessment of treatment receipt that patients may have considered felt like a test of their knowledge, or for which they perceived there were correct or incorrect answers.

In the majority of studies that have undertaken a detailed exploration or assessment of treatment fidelity, the intervention providers have commonly been recruited/employed and trained to deliver the intervention (i.e. Hardeman et al.)
Therefore the present study has the potential to illuminate the mechanisms through which patients may begin to change their health behaviours when interventions are delivered by their usual provider within their own general practice. In such cases, additional challenges such as pressures of time and conflicting priorities may be experienced which are not encountered by providers who are specifically employed and trained to deliver interventions. This has important implications for understanding the process of both delivery and receipt of behavioural interventions which are undertaken as part of research studies, but also as part of routine care where intervention providers are likely to be health care providers (HCPs) rather than specially employed providers.

The purposive sampling strategy aimed to maximise the variation of the patients interviewed to facilitate understanding of the extent to which a broad range of patients comprehended and experienced the walking intervention. Although the intention was not to make claims of representativeness, it did enable the exploration of the degree of understanding of particular techniques or aspects of the intervention that appeared to be linked with certain groups of patients. This will be further considered in the implications of the study. All of the patients who were contacted and invited to participate in an interview initially agreed to take part. Unfortunately one patient had to withdraw as a result of needing to postpone her second intervention session; due to holiday commitments it was not possible to reschedule the interview.

Joyce et al. (2009) suggest that undertaking interviews with participants at the venue in which they received a programme/intervention may inhibit them and restrict their ability to give honest answers. Therefore the fact that most of the interviews were undertaken at the patient’s home was considered to facilitate the interview process. This may also provide some explanation as to why the findings of the present study were not identified during Phase Two of the walking intervention research; as patients were interviewed within the general practice where they had received the intervention, immediately following walking intervention Session Two. This may also have restricted the ability of patients to reflect on their experiences of the intervention.
In addition, methods in the present study may have supported the generation of data and in turn, the findings obtained. For example, in Phase Two only four patients were interviewed and all of these received the intervention from the same provider. Furthermore, during Phase Two, patients received walking intervention Sessions One and Two whereas during the Phase Three exploratory trial patients also received a baseline and follow-up session and were asked to complete trial measures. As will be considered in the implications, patients’ experiences and understanding of some of the trial procedures/measures did influence their engagement with the walking intervention.

In the present study, the author encouraged participants to be open about their opinions, emphasising that the research team were extremely interested in their personal experiences and that future patients may benefit from their responses. Furthermore, whilst it is acknowledged that the influence of social desirability may have played a part in patients’ responses; patients were assured confidentiality which was particularly important as providers of the intervention were also the patient’s usual provider of care.

A limitation of the present study was that the mean age of patients was 58 years, and most of these were either retired or working part-time. Whilst the sample in the present study was potentially representative of the sample of patients who received the walking intervention during Phase Three, it is unlikely to be representative of general practice populations. Furthermore, patients in the present study were participating in a research study and, as a result of having to actively sign-up to the study were potentially more interested in changing their health behaviours and more motivated to do so than other patients. As a consequence this potentially limits generalisability of findings to other patients (Malpass, Andrews and Turner 2009). However, this further emphasises the need for developing strategies to enhance treatment receipt, as the wider patient population may be less engaged in HBC.

In the present study, no interviews were undertaken with patients in the control arm of the walking intervention research. These patients, whilst not receiving the intervention did participate in one session with their provider and did receive
written resources about walking. Furthermore, these patients also received the same trial questionnaires and pedometers as the patients in the intervention arm. The significance of the pedometer reported by the intervention patients may have produced an intervention effect for the control arm patients (Bravata et al. 2007). Borrelli (2011) recommends exploring receipt of interventions from the perspectives of both intervention and control groups to fully illuminate what aspects of the overall intervention may facilitate HBC.

Framework analysis provided a systematic approach to managing the large amount of interview data, and to enable associations and typologies to be considered. While some contest that framework analysis may minimise opportunities for an inductive and iterative approach to data collection and analysis (Bowling and Ebrahim 2005), providing a means of managing the data may have enhanced the development of an inductive analysis that facilitated answering the research questions.

**Findings in relation to other studies**

Although receipt of a HBC intervention does not always result in behaviour change, developing strategies to enhance and assess treatment receipt is important to provide a valid test of the theoretical basis of HBC interventions (Bellg et al. 2004 and Borrelli 2011). This is highlighted through the conclusions of a study which found that counselling did not increase physical activity in patients with low back pain (Leonhardt et al. 2008). The authors offer a number of suggestions for the lack of intervention effect including the small number of sessions offered and skill deficits of providers. However, they do not appear to consider that the patients may not have understood the intervention and the possible reasons for this. This highlights the importance of undertaking studies which explore treatment receipt in HBC interventions, as these may illuminate the efficacy of interventions (Glenton, Lewin and Scheel 2011 and Jackson, Kinn and Dalgarno 2005).

The importance of provider-patient rapport, relationship or alliance has been emphasised in a number of studies aiming to empower patients and/or enhance their self-efficacy (Hardcastle and Hagger 2011, Lewin et al. 2009, O’Sullivan et al.
2010, Rogers et al. 2004, Stenner, Courtenay and Carey 2011 and Yardley et al. 2009). The therapeutic alliance or non-specific treatment effects have been found to directly influence treatment receipt in psychotherapy/counselling studies (Godfrey et al. 2007 and Lambert 1989). In the present study, patients placed greater emphasis on their provider’s interpersonal skills and supportive role rather than their status as a HCP. The fact that the supportive role of the provider appeared to be important to the broad range of patients is congruent with the patient-centred underpinnings of the intervention where the patient was facilitated to set their own goals and make their own plans to increase their walking.

Walking has been found to be an acceptable form of activity to most people (Morris and Hardman 1997). In the present study, patients’ attitudes to walking were extremely positive. Furthermore, patients with complex health conditions felt they were able to walk, whereas other forms of activity were reported to be too challenging or less appealing. Patients had strong beliefs concerning walking as a form of activity that they perceived afforded them a range of benefits. This is in contrast to the findings of Darker et al. (2007), where walking was not perceived to be ‘proper exercise’, although these findings were obtained from a younger sample. In the present study, although the majority of patients also had some desired health outcomes, only two male patients in the present study wanted ‘proof’ of the extent to which walking could afford them health benefits.

The walking intervention aimed to enhance patients’ self-efficacy, which may illuminate why patients were particularly positive about their sense of ownership and control of their goals and plans. During the interviews many patients spoke of their increased confidence, positivity, commitment and ownership concerning their walking. This is in contrast to many qualitative studies exploring patients’ experiences of participation in an intervention to increase their physical activity where ‘barriers’ are a commonly reported theme (Cable et al. 1999, Elley, Dean and Kerse 2007, Hardcastle and Hagger 2011, O’Sullivan et al. 2010 and Shaw et al. 2011). Barrier identification has been found to be associated with decreasing self-efficacy (Ashford et al. 2010) and so was not included as a technique in the walking intervention.
Jack, who had been set a goal by his provider, explained ‘It was so blindingly obvious what she wanted me to do and I was happy enough to do it’. This stands in contrast to the majority of patients interviewed who made references such as ‘I can’, ‘I will’, ‘I own this’, ‘It’s going to be a long-term commitment’. O’Sullivan et al. (2010) and Hardcastle and Hagger (2011) found that choice and a sense of ownership were important factors increasing self-efficacy for physical activity and/or healthy eating. Furthermore, although interviews in the present study took place within a week of receiving the intervention, Hardcastle and Hagger (2011) found that patients with an increased sense of personal control were generally more successful in maintaining weight loss when interviewed 18 months after their last intervention session.

Implications of the study

The previous phases of the associated walking intervention research had focussed on maximising acceptability of the intervention to general practice patients and providers (see chapter four, Craig et al. 2008 and French et al. 2011). Whilst this extensive work was essential, the findings of the present study suggest a number of strategies that may be developed to further enhance patients’ acceptability, understanding, and engagement with HBC interventions:

Although it was not an intention of the present study to make claims for different groups of patients, there did appear to be some association between patients’ demographic characteristics and their engagement with certain aspects of the intervention. For example, patients who were working described a greater degree of value of the planning techniques in order that they ‘made time’ to walk. In contrast, many of the patients who were retired appeared to value greater flexibility about making plans, although a number still used some of the planning techniques to ensure they completed their walks. Furthermore, only one of the patients interviewed was working full-time which may illuminate the degree to which interventions delivered in the general practice setting are accessible to patients working full-time hours. Although a detailed investigation of the mediators, moderators and contextual variables that may influence behaviour change is beyond the scope of the present study, such factors merit further exploration (Mâsse et al. 2011).
Patients described the support of their provider as being of great importance. However, there appeared to be a difference in the way in which patients engaged with this support. Whilst many male patients referred to the provider as a source of monitoring and accountability; the female patients seemed to regard praise and encouragement from their provider as being particularly positive. The findings of chapter seven illustrated that praise and encouragement were delivered in the majority of sessions. Such non-specific treatment effects may be potentially important active ingredients in HBC interventions and therefore merit further study.

Some patients considered that they should be providing particularly interesting responses that would be useful for the research and were not clear of the applicability of tasks to themselves. This was particularly problematic with the first motivational task in Session One, where, rather than engage the patient and build rapport with the provider, patients felt the questions were obvious. Therefore, in order to enhance delivery of HBC interventions as a means of enhancing receipt by patients, providers should be explicit about the purpose of tasks. This may be particularly important during the early part of the intervention where patients may require additional support to facilitate their understanding of, and engagement with specific intervention techniques.

It is suggested that some motivational techniques may be better placed at the start of Session Two, where patients are asked to describe their walking in the last week. Rather than simply describe their walks, patients could be encouraged to reflect on, for example what they most enjoyed about their recent walks and how they felt during and after their walks. Such reflections may enhance their motivation to continue to walk and also to help them to consider the more immediate outcomes they may experience which may help to sustain longer term behaviour change and the realisation of longer term health goals such as weight loss.

Engaging patients and encouraging active participation has been found to be a key factor in improving outcomes (van Dam et al. 2003). Patients described a number of instances where they were particularly surprised, uncertain or dissatisfied with certain aspects of the intervention. It is illuminating that the
majority of these occurrences appeared to stem from provider mis-communication which may have arisen from possible misunderstanding of the overall philosophy of the intervention or were examples of not adhering to the intervention protocol. The fact that patients recalled these instances and were prepared to share them during the interview may illuminate the strength of their feelings. If patients are not satisfied with aspects of an intervention it may disengage them and so mechanisms to minimise such occurrences in future interventions should be developed (Speight 2005). Provider training should also emphasise the importance of not including additional techniques and ensuring providers are clear about the theoretical underpinnings or overall philosophy of the interventions they are delivering.

Mechanisms to enhance treatment receipt are commonly undertaken during delivery of an intervention by the provider. In the walking intervention, asking patients to elaborate on their completed tasks, Summarise the Session and their Plans for Walking and complete the Diary at home particularly aimed to enhance receipt of, and engagement with the intervention. From the coding of intervention sessions in chapter seven, some of these techniques, particularly those encouraging patients to elaborate and summarise, were delivered by providers less commonly than for example, techniques that involved asking the patient to complete a task. This may be as a result of such techniques differing from providers’ usual way of working. However, where patients were encouraged to elaborate, they appeared to engage with the task to a greater extent. Therefore, provider training should emphasise the importance of encouraging elaboration following completed tasks.

In the present study, patients placed considerable emphasis on the pedometer, perceiving it to be key intervention resource. This seemed to reduce patients’ perception of the value of the Diary as a tool for monitoring their walking, and in some cases reduce the motivation and commitment of patients to their walking when not monitored by a pedometer. This is problematic as monitoring walking through completion of tasks at home such as the Diary can enhance treatment receipt and in turn treatment enactment (Bellg et al. 2004 and Borrelli 2011). Furthermore, completion of Diaries by patients may support delivery of the
intervention; providers in chapter eight described the benefits of patients using their completed Diaries to facilitate feedback on their walking at the start of Session Two.

During the baseline session patients were given a pedometer and asked to wear it for a week and return it when attending walking intervention Session One. This constituted a pre-intervention assessment of patients’ walking (French et al. 2011). However, it was evident that a number of patients had increased their walking following the baseline session. This seemed to be linked to the patient being given a pedometer and is an example of how measuring people can change their behaviour (French and Sutton 2011). This further illustrates the importance of explaining each resource and its purpose, which may have served to emphasise the value of the Diary and reduce the significance of the pedometer.

Unanswered questions and future research
Future studies could further explore the degree to which certain techniques were received by certain groups of patients, which may be used to develop strategies to facilitate treatment receipt targeted at specific populations.

The patients in the present study were not included in the RCT of the walking intervention in order to avoid the interviews resulting in an intervention effect. However, the results may be used to illuminate the findings of the RCT by offering possible explanations or hypotheses for findings.

There is significant potential in further illuminating the influences on treatment delivery and receipt by triangulating the findings of different sources of data. Whilst the findings of the present study have been illuminated to a certain degree by the previous studies (see chapters seven and eight); assessing completion of permanent products, such as the Diary may further illuminate the findings of the present study with no additional burden on providers.

Analysis of the interviews carried out with the same cohort of patients three months post intervention will be undertaken. These interviews will be analysed in two ways; (i) as a cross-sectional study to explore the extent to which patients use...
the behavioural skills and techniques of the walking intervention during their daily lives and (ii) longitudinally, for each patient to explore the extent to which their understanding and experience immediately after receiving the walking intervention influenced their use of the skills and techniques of the intervention three months post intervention.

The final chapter presents the overall implications of the research presented in the thesis.
CHAPTER TEN

DISCUSSION
The research undertaken in this thesis investigated treatment fidelity of health behaviour change (HBC) interventions delivered in general practice by practice nurses (PNs) and health care assistants (HCAs). Each of the five studies reported included a detailed discussion, including the strengths and weaknesses of the study, the relation of the study to other studies and the implications of the study; therefore this chapter will consider the overall implications of the research.

**Summary of principal findings**

The systematic review and meta-synthesis (see chapter three) of primary qualitative studies illustrated that there are a range of factors influencing nurses’ delivery of HBC interventions. The study findings were that, to enhance delivery of future HBC interventions, researchers should actively engage nurses in delivering the intervention and clarify roles and responsibilities of the nurse, and where appropriate other members of the practice team and patients. Furthermore, as the impact of the general practice as the context in which the intervention was delivered appeared to be a key influence on delivery of the intervention by the nurse, developing strategies to actively engage the practice may also be central to enhancing delivery of the intervention; this may include the clear communication of aims and outcomes of the intervention.

An interpretative phenomenological analysis of PNs’ and HCAs’ experiences of delivering HBC interventions found that providers appeared to be striving to achieve congruence between what they perceived their patients and the practice expected of them, and what they felt skilled, confident and had the time to deliver (see chapter five). The experience of most of the PNs in study 2A was that facilitating HBC as part of routine care was challenging and could result in feelings of frustration and dissatisfaction. Study 2B used a longitudinal case study approach which illuminated considerable divergence between the experiences of the three providers both before and after delivery of the same walking intervention. This suggested many factors that may influence delivery of a HBC intervention such as the effect and expectations of the general practice context and the extent to which the intervention was similar to providers’ present way of working. Furthermore, the extent to which patients were perceived to understand and engage with the intervention impacted on providers’ delivery of the intervention.
order to enhance delivery of HBC interventions, a 'best fit' concerning the interplay of the intervention with these factors appeared to be important to the providers.

Chapters seven, eight and nine were undertaken in association with Phase Three of the walking intervention research, where two PNs and six HCAs delivered the walking intervention to their patients. The quantitative assessment of fidelity of delivery of the walking intervention (see chapter seven) showed that the trained providers generally delivered the specified techniques of the intervention with high fidelity. Delivery of essential techniques was slightly better than delivery of intervention components in the correct order. The mean time of delivery of both intervention sessions was less than had been recommended to providers, which may have been due to limitations of time within the general practice or as a result of providers spending less time than suggested on encouraging patient elaboration. There were a number of instances of inclusion of additional techniques, especially making suggestions about ways in which patients could increase their walking. Based on the interviews reported in chapter eight, these additional techniques may have been delivered because they are consistent with providers’ usual HBC consultations.

Chapter eight reported on interviews undertaken with the providers of the walking intervention reported in chapter seven. There were a number of factors that providers considered particularly helped them to adhere to the walking intervention protocol, including their training and preparation to deliver the intervention. Factors concerning the general practice within which they worked were also described as impacting on their delivery. For example, all providers perceived that delivery of the intervention to increasing numbers of patients increased their confidence and skills; therefore difficulties in recruitment of patients to receive the walking intervention were perceived to negatively impact on delivery of the intervention. A number of providers expressed their discomfort at not feeling suitably prepared to answer patients’ queries about the walking intervention research or questions concerning walking as the target health behaviour.

Providers were enthusiastic about the positive approach of the intervention, perceiving that it encouraged their patients to be positive and in turn enhanced
their delivery of the intervention. Providers were enthusiastic about the value of such an approach in their future work. Furthermore, skills and/or techniques used during the intervention that consolidated providers’ existing skills or were similar to techniques they had used previously such as the Diary were described favourably and in some cases were delivered with greater fidelity.

The findings of chapter nine reported on interviews undertaken with patients who received the walking intervention. The majority of the patients reported that their participation in the walking intervention research had increased their confidence that they could increase their walking, and also reported their intention to walk more, at least in the short-term. Patients valued being invited to participate by their general practice and acknowledged the importance of a supportive provider in facilitating them to increase their walking. However, the study found patients’ understanding of, and engagement with, specific intervention techniques varied. The majority of patients comprehended and engaged with the planning techniques to a greater extent than they did with the motivational techniques. It appeared that this was primarily because the majority of patients had difficulty understanding the rationale of some of the motivational techniques and the applicability of some techniques to themselves.

**Strengths and limitations**

The National Institutes of Health–Behavior Change Consortium (NIH-BCC) present five areas or domains of treatment fidelity and recommend that each area should be given attention in order to provide information about the reliability and validity of behavioural interventions (Bellg et al. 2004 and Borrelli 2011). However, the treatment fidelity recommendations of the NIH-BCC are not provider or context specific. Therefore, developing knowledge around the strategies that may be used to enhance and assess treatment fidelity in HBC interventions delivered by PNs and HCAs in general practice is both important and timely. There is an increasing awareness of the importance of behaviour change to improve public health and well-being (National Institute for Health and Clinical Excellence (NICE) 2007, HM Government 2010 and House of Lords 2011). However, the development of evidence concerning efficacious interventions necessitates attention to treatment fidelity in interventions delivered in research studies. Furthermore, attention to
treatment fidelity can support the translation of efficacious interventions into routine practice through, for example, the specification of intervention techniques (Glasziou et al. 2010).

Few studies have undertaken a detailed investigation of treatment fidelity using PNs and/or HCAs who delivered HBC interventions to their usual patients alongside their routine work in general practice. The focus on general practices is important as this is a key setting for delivery of HBC interventions as the majority of the population receives health care from this setting (Department of Health (DoH) 2002 and DoH 2008). The focus on PNs and HCAs is also valuable as such providers are well placed to deliver such HBC interventions as part of their work in the management of long-term conditions (LTCs) and supporting people to lead healthier lives. Furthermore, such providers appear to be the primary source of support cited by patients when changing their health behaviours (Leijon et al. 2010).

However, when delivering HBC interventions as part of research studies, a range of challenges may face PNs and HCAs that are less likely to be experienced by providers who are specially employed and/or intensively trained. The findings of the studies presented in this thesis can therefore illuminate issues concerning treatment fidelity of HBC interventions delivered as part of research studies but may also be of relevance to providers, researchers and policymakers concerning delivery of HBC interventions within routine general practice. Such interventions are likely to be delivered by PNs and HCAs alongside their routine work; therefore issues such as the impact of competing demands and the existing provider-patient relationship on delivery of interventions, which have been explored in the thesis, may be better understood and managed. This may be particularly important given that interventions delivered in routine practice may not have the same level of supports that are available to providers delivering interventions as part of research studies (Absetz et al. 2007).

Although all five areas of treatment fidelity were attended to in the NIH-BCC studies (see chapter two), the authors of these guidelines acknowledged that investigating all areas of treatment fidelity required significant resources (Bellg et
al. 2004, Borrelli 2011 and Resnick et al. 2005a). In addition, Bellg et al. (2004) identify that where providers are delivering interventions alongside their usual work that more pragmatic and flexible fidelity plans may be necessary. In the studies reported in the thesis, given the demands on general practice settings and providers working within them, considerable effort was made to minimise inconvenience to the general practices, providers and patients who were involved (i.e. undertaking interviews at participants’ convenience). Furthermore, although the NIH-BCC recommends attention to five areas of treatment fidelity, the present research focussed on delivery and receipt of HBC interventions. However, focussing on two areas of treatment fidelity enhanced both the quality and quantity of data collected which enabled an in-depth investigation and greater understanding of factors influencing delivery and receipt of HBC interventions and also the interaction between the two areas.

As an example of the benefits of an in-depth investigation, the present research illustrated that delivery and receipt of HBC interventions are inextricably linked. The existing roles, relationships and responsibilities of providers and patients were central factors impacting on both delivery and receipt of HBC interventions. Leventhal and Friedman (2004) argue that by considering the five areas of treatment fidelity recommended by the NIH-BCC separately, the potential interaction between, for example provider and patient may be given insufficient attention.

A key strength of this research is that each of the five studies was designed and undertaken to investigate a particular aspect of delivery or receipt of HBC interventions in general practice. Each study used different data sources and/or methods of analysis that were each selected as the most appropriate to achieve the aims of individual studies (Phillips-Salimi et al. 2011), which in turn would achieve the aims of the thesis.

The use of mixed methods is increasingly recognised as a valuable approach to enhancing knowledge as it can achieve a ‘whole is greater than the sum of the parts’ level of understanding (Barbour 1999: 39). Such an approach was particularly beneficial given the dearth of research concerning fidelity of delivery
and receipt of HBC interventions by PNs/HCAs in general practice. Study one reported a review and synthesis of primary studies and study two, an in-depth exploration of PNs’ and HCAs’ experiences of helping patients to change their health behaviours. Study two also included longitudinal case studies of providers’ experiences of training and delivery of a HBC intervention. Studies three, four and five were undertaken alongside the exploratory trial undertaken in Phase Three of the associated walking intervention research (see chapter four and French et al. 2011). These studies used quantitative and qualitative data from the same providers delivering the same walking intervention to the same patients, to investigate the process of delivery and receipt of the walking intervention.

Triangulation of the findings of delivery and receipt of the walking intervention in Phase Three (reported in chapters seven, eight and nine) facilitated a more complete understanding of the intervention process (Saunders et al. 2006). Two examples will be given of factors influencing delivery and receipt of HBC interventions that were particularly illuminated through triangulation of these studies.

The first example concerns the importance of providers’ understanding the techniques they are delivering and communicating the rationale for techniques to their patients to enhance their engagement with the intervention. Analysis of the audio-recorded intervention sessions reported in chapter seven found that Zara was particularly good at explaining the rationale for tasks and did so in every session she delivered that was coded. Zara explained to a patient in one session:

Writing everything down and repeating it, just kind of re-iterates it to you and gets you reflecting more about walking and that’s the whole purpose, to get you to reflect that walking does make me feel really great.

In chapter eight, although Zara reported that she found some of the intervention techniques to be repetitive, she understood the value of these techniques, and the importance of getting patients to elaborate. When explaining the purpose of these tasks to patients, she may have consolidated her own understanding of the intervention, and also facilitated the patient to engage with the intervention to a
greater extent. For example, one of Zara’s patients who was interviewed (Maggie) appeared to have a particularly strong understanding of the intervention, a strong sense of self-efficacy and cited her intention to increase her walking in the longer term.

The second example illustrates the importance of engaging providers in the intervention they will deliver, and the potential importance of this in engaging their patients. In chapter eight, Lindsay explained that, prior to recording the intervention sessions, she apologised to patients about the way in which she had to deliver the intervention. Furthermore, she explained that after the recording of the intervention session was complete she talked more freely to her patients. In chapter nine, one of her patients who was interviewed explained that he was not convinced that his provider was convinced by the intervention. Furthermore, whether directly influenced by the provider or not, he did not appear to engage with the intervention and was not convinced that it would help him to achieve his weight loss goals. The fact that the walking intervention was delivered by his usual nurse and that the approach differed significantly from what both provider and patient were used to, may have exaggerated the difficulties that both appeared to encounter in terms of their engagement with the intervention.

Triangulation was not undertaken to validate the findings of each individual study (Olsen 2004 and Tashakkori and Teddlie 1998). However, when considering the findings of the each of the studies in light of the other completed studies, there was a high degree of consistency of findings, which enhances the quality of the findings of these studies (Creswell and Plano Clark 2011 and Mays and Pope 2000).

As reported in chapter six, recruitment to studies two, three, four and five was through an invitation to a wider sample of general practices, providers and patients. Those who participated in the walking intervention research self-selected to be involved. It is probable that, as a result these practices, providers and patients may have been more motivated with regards to HBC. The fact that the findings of the thesis may have come from practices, providers and patients that were more enthusiastic concerning HBC, further emphasises the importance of
developing strategies to enhance delivery and receipt of future HBC interventions. Additional strategies may need to be developed to enhance delivery and receipt of HBC interventions where those involved are less engaged.

As the research in the present thesis was undertaken in general practices from a single region of England, it is unclear of the applicability of the findings to general practices in other countries, particularly concerning the organisational issues that may influence treatment fidelity. However, there was considerable variability in the demographic characteristics of the participating practices, providers and patients involved in studies three, four and five, which may enhance generalisability.

It was beyond the scope of the research presented in this thesis to explore all the factors that may impact on delivery and receipt of HBC interventions such as non-specific treatment effects. However, the extent to which teachers deliver interventions according to protocol in educational settings has been found to be associated with characteristics such as past education and training, confidence to deliver the intervention and/or the extent to which they are convinced of the benefits of the intervention (Detrich 1999, Dusenbury et al. 2003 and Rohrbach, Graham and Hansen 1993). Consequently, this may merit further research with PNs and HCAs.

A limitation of the thesis was that there were insufficient participants and data available to undertake a fully powered assessment of the extent to which fidelity of delivery was associated with study outcomes in the Phase Three exploratory trial. An assessment of the association between the independent and dependent variables necessitated analysis of a fairly complete set of data (i.e. recordings of both walking intervention sessions, and pre and post intervention measures for each patient) from a large enough sample of patients to have sufficient power to detect changes in the dependent variable(s). Unfortunately, given that the likely effect size of such a relationship was likely to be small and the sample size correspondingly large, this was not feasible within the present thesis.
Implications of this research

The implications of the programme of research undertaken in the present thesis will be considered in terms of (i) the implications for the author and (ii) the implications for fidelity of delivery and receipt of HBC interventions. These will be considered in turn.

Implications for the author

The author recognises that during and following the programme of research, her skills and knowledge developed considerably and the process of continued reflection and critical thinking throughout the research was a central part of her development. It is recognised that the experiences and reflections of researchers are likely to be influenced by their prior experiences. For example, prior to commencing the research, the author had worked in the field of Public Health within the National Health Service (NHS). This had heightened her awareness to some of the possible challenges of working with front-line HCPs to facilitate them to support patients with HBC as part of their routine care. For example, having previously been involved in the co-ordination of an exercise referral scheme that PNs could refer their patients to, the author was aware of the importance of minimising administrative functions that may be associated with delivering and evaluating HBC interventions as part of routine care.

The issue of the author’s ‘pre-conceptions’ was particularly considered during study two, where the role of the author in interpreting the participant’s accounts forms a central part of an Interpretative Phenomenological Analysis. The author’s prior experiences of working in the NHS and with PNs may have resulted in her interpretations differing from those of another researcher, due to this previous work producing insights into the challenges of general practice which then influenced the interpretations. Furthermore, during the research undertaken in the present thesis, the first study, the systematic review and synthesis of primary studies highlighted some of the challenges that may be faced by HCPs when delivering HBC interventions. Therefore, by having some understanding of the challenges reported by PNs when facilitating HBC, the author may have been more sympathetic towards some of the experiences and perspectives of the providers, both during the process of data collection and analysis. However, as a result of the emphasis on phenomenology, every attempt was made to ensure that the analysis remained true to the participant’s accounts.
Chapter ten: Discussion

As the author shared some demographic characteristics with many of the HCPs that were involved in phase two and three of the walking intervention research, this may have enhanced rapport with the participants, which was central to the process of data collection in the qualitative studies involving HCPs (study two and four). The shared characteristics included being female, of a similar age and experience of work in the NHS. Furthermore the participants may have felt more comfortable sharing their experiences with a researcher who they may have perceived to be interested in their perspectives and experiences but sufficiently detached from their day-to-day work.

A further factor considered to significantly contribute to the recruitment of participants and therefore the process of data collection in studies two, four and five, was the author’s commitment to ensuring that participants could determine the date, time and venue for their interview. For example, all HCPs who had delivered the walking intervention in phase three agreed to be interviewed in study four, as did all the patients who were contacted for study five. Furthermore, all the patients who were interviewed immediately post intervention in study five also agreed to be interviewed three months later. Although this resulted in significant travelling for the author, it is also likely to have been a key factor in engaging the participants when undertaking the interview, as participants may have felt more at ease in a familiar setting. Through detailed explanation of the aims of the interview and the research by the author, participants may have also felt that they were making a real contribution to understanding the process through which HBC interventions are delivered and received.

Many of the studies in the thesis were qualitative, which was appropriate given the dearth of knowledge and understanding concerning fidelity in HBC interventions delivered in general practice by PNs and HCAs. However, the fact that qualitative research was of particular interest to the author is likely to have contributed to maintaining enthusiasm and commitment to the research throughout its duration. Furthermore, the fact that the author was actively engaged and extremely interested in the main areas/subjects of the thesis is likely to be a significant contributor to her continued commitment to the research process.
The thesis was undertaken alongside the Medical Research Council (MRC) funded walking intervention research (see chapters four and six). This presented numerous opportunities but also some challenges. For example, it was agreed that the author should use her skills to contribute to a number of aspects of the walking intervention research, such as supporting the development and facilitation of training for the PNs and HCAs to deliver the walking intervention and undertaking many of the assessments of competence. Given the time needed to support these additional tasks, it was agreed that some of the audio-recorded interviews undertaken by the author would be transcribed by an MSc student or support staff. Whilst this enabled the author to contribute to the wider walking intervention research and gain many additional skills, had time permitted, transcribing all of the interviews may have enabled her to become more familiar with the raw data which would have supported the early stages of analysis of the qualitative studies.

There were two aspects of the research that were particularly challenging. The first concerned the difficulties of recruitment of HCPs to deliver the walking intervention. This was most challenging during phase two and three of the walking intervention research and resulted in delays in undertaking phase two, three and four of the research. However, recruitment materials were improved in order to “sell” the benefits of participation in the research to both the HCPs and the general practice which enhanced recruitment to phases three and four. Two providers from phase two also recommended the research to colleagues, as a result of which two providers were recruited to subsequent phases of the research. This demonstrates the potential for word of mouth recruitment to research studies.

The second significant challenge concerned the difficulties encountered when attempting to contact HCPs who had been trained to deliver the walking intervention. This particularly related to attempts to establish their progress in terms of delivery of the intervention in phases two and three and when arranging to undertake their assessments of competence in phase three. However, as a result of the delays in undertaking the assessments of competence in phase three, some of these challenges were partly overcome during phase four. For example, at the end of the provider training, the research team scheduled appointments into the diaries of the HCPs to undertake the assessment of competence. This contributed greatly to
speeding up the process of undertaking the assessments which, in turn contributed to the HCPs commencing delivery of the walking intervention within a few weeks of their training. The author also established that telephoning HCPs at the end of their morning surgery maximised the chances of being able to speak to them directly.

The author believes that her learning and critical thinking developed enormously during the process of working on the thesis. The opportunity to work in the Applied Research Centre for Health and Lifestyle Interventions and alongside a wider research team, facilitated discussion and reflection with colleagues about various aspects of research. The research was also presented at a number of conferences and events, which provided a valuable opportunity to focus on the key messages, conclusions and implications of studies and communicating these to a wider audience. The questions posed by colleagues proved to be a useful means of reflecting on aspects of the research. Such opportunities are considered to have enhanced the process of developing and analysing the studies by facilitating researcher reflexivity and self-monitoring and also to enhance the outcome of the studies, through increasing the transparency and credibility of the results, discussion and implications.

The author was also fortunate to have two supervisors, working in different fields: one being a Professor of Health Psychology, the other a Professor of Primary Care and General Practitioner. As a result of the differing areas of expertise and experiences of the supervisors, this encouraged broader critical thinking by the author throughout the period of research.

The author has now returned to work in Public Health and is able to draw on much of her experience and learning during the thesis as a result of her work with frontline HCPs and patients. The importance of attempting to achieve a ‘best-fit’ when working with HCPs who are delivering HBC interventions to their patients within general practice is likely to be a central part of enhancing engagement with interventions delivered as part of routine care. Front-line HCPs commonly have little time or desire to undertake extensive administrative duties and so provision of resources or support that facilitate them to work directly with their patients appears to be central. Such knowledge has been drawn upon to support HCPs in Warwickshire to deliver the NHS
Health Checks Programme in general practice. Resources to support the PNs and HCAs have been provided, such as a ‘Your results’ leaflet which can be used to document the results of the Health Check and then to facilitate the patients to consider and set goals for HBC. A resource folder has also been developed, detailing local services that the HCP can refer or recommend the patient to. These services can offer the patient longer-term support with HBC in their local community, which may not be possible in general practice. The PNs and HCAs who, at the time of writing have received these resources have been extremely positive about their potential to support them in their delivery of the Health Checks programme.

As a result of the recruitment process to the primary studies in the thesis, it is likely that the participants in the reported studies were particularly motivated and enthusiastic about HBC. This emphasises the importance of developing strategies, such as those outlined above, to engage providers and patients in HBC as part of routine care. In such circumstances, resources and time may be limited and motivation for HBC may be less than in research studies.

The implications of the research presented in the present thesis also concern the importance of developing strategies to enhance and assess fidelity of delivery and receipt of HBC interventions. This is essential in order to illuminate both the process and outcomes of HBC interventions.

**Implications for fidelity of delivery and receipt of HBC interventions**

As a result of the focus on HBC interventions delivered by PNs and HCAs to patients within general practice in the present research, recommendations are made that may enhance fidelity of delivery and receipt in future HBC interventions delivered by these providers in general practice. Furthermore, enhancing delivery and receipt may necessitate attention to, for example, provider training and design of the study:

**Intervention protocols and associated resources**

To enhance delivery and receipt of HBC interventions, it is recommended that intervention protocols detail the specific techniques to be delivered, which if possible should be the same for all patients and therefore will not require providers
to select or tailor techniques to individual patients. Furthermore, a personal folder for each patient, combining the intervention protocol with all intervention tasks and trial resources to be used collaboratively between provider and patient is recommended. This may facilitate the patient to engage with the intervention, which is likely to enhance provider delivery. Provision of all resources will also minimise time necessary for providers to undertake administrative duties, which may in turn enhance providers’ adherence to the protocol.

Intervention resources that have been completed by patients as part of the intervention (i.e. Diaries) are known as permanent products. If photocopies are retained by providers these could later be used to assess both delivery and receipt of HBC interventions (Bellg et al. 2004 and Borrelli 2011). The advantage of such resources is that, as a result of being completed as part of the intervention, they place little or no additional burden on providers or patients, and should be available for all patients.

**Provider training**

In order to enhance delivery of HBC interventions according to the protocol, it is recommended that provider training is based on the intervention protocol so that presentations and practice sessions follow the order and content of specified delivery. Ensuring that providers understand the aims of techniques, and that they communicate these to patients when delivering the intervention may be central to enhancing delivery and receipt, especially in the case of unfamiliar techniques such as elaborating on experiences or plans. Furthermore, explicating the links between components of HBC interventions by the provider may be important to engage patients.

Balancing the amount of initial and on-going training in order that providers understand and are skilled to deliver all aspects of the intervention with what is feasible for general practice is challenging. Two half-day training sessions a week apart were generally acceptable to the providers delivering the walking intervention. However, arranging training to accommodate providers was difficult, given the competing demands of their schedules within the practice. It appeared that, although practices had signed up to the walking intervention research, that
they may not have been fully engaged with the requirements of the research and the support the providers would require from the practice in order to deliver the intervention. The perceived support from colleagues and managers has been found to influence delivery of HBC interventions by teachers (Detrich 1999 and Dusenbury et al. 2003), which illustrates the importance of engaging both the provider and the organisation in which they will deliver the intervention.

Given sufficient time during provider training, in order to enhance providers’ skills and confidence to deliver the intervention, it is recommended that providers practice delivery of techniques in simulated practice sessions. The inclusion of scenarios where the ‘patient’ expresses difficulties in understanding techniques and/or elaborating may increase providers’ skills to deliver the intervention. The inclusion of an assessment of competence through delivery of the intervention to a member of the research team or a practice colleague is also recommended as a means of enhancing the skills and confidence of providers to deliver the intervention according to the protocol.

Providers delivered the intervention with generally high fidelity to the specified techniques and consistency over the period of delivery, with no apparent drift of skills over the duration of the study. This suggests that the training and subsequent assessment of competence did equip providers to deliver the intervention according to the protocol. However, if resources are available and if acceptable to providers, the addition of a booster training session or on-going supervision may serve to further enhance delivery through formative assessment. This may be particularly important where providers are delivering an intervention that differs from their usual way of working and where the intervention is delivered alongside their routine work. In such cases the potential for inclusion of non-specified behaviours that are consistent with their usual work, such as making suggestions may increase.

**Study issues/procedures**

The number and timescales of recruitment of patients to a research study may impact on providers’ skills, confidence and enthusiasm to deliver interventions. Research teams may need to work closely with general practices to ensure
recruitment targets and timescales for delivery of the intervention are met where possible. Given the demands on general practice and to enhance engagement of the practice and provider with the intervention, it may be necessary for research teams to undertake some or all of these tasks; although the co-operation of the practice will still be necessary. In order to fit with the pre-existing mechanisms for booking appointments within general practice, delivery of intervention sessions according to a specified structure may need to be planned a number of weeks in advance of the completion of provider training and patient recruitment. Although delivery of intervention sessions within a clinic may enhance fidelity of delivery by the providers, it may not be possible within general practice. Furthermore, clinics may not be an accessible mode of delivery for patients, particularly those who work.

Treatment fidelity may be negatively influenced by the measures necessary to evaluate the efficacy of the intervention, particularly where these are administered by the providers delivering the intervention. It is possible that the rigour of the trial design in the walking intervention research may have negatively impacted on the providers and patients, who described feeling uncomfortable with the volume and content of trial paperwork they were asked to complete, which is consistent with the findings of Bird, Arthur and Cox (2011). It seemed that patients did not always differentiate between the trial paperwork and that used as part of the walking intervention which may have implications for their engagement with the intervention resources and for providers’ delivery of the intervention in situations where the patient was perceived to be disengaged. Given the experiences of the providers and patients reported in studies four and five respectively, it may be that research teams are best placed to administer trial questionnaires and measures.

The benefits of process evaluations
During Phases One, Two and Three of the walking intervention research extensive work was undertaken in line with the MRC framework to develop the walking intervention and associated study procedures and to maximise acceptability of the intervention to general practice patients and providers (see chapter four, Campbell et al. 2000, Craig et al. 2008 and French et al. 2011). Four of the studies presented in the thesis were undertaken in association with the
walking intervention research and highlight some of the benefits of undertaking process evaluations during the pilot/exploratory studies of HBC interventions (Oakley et al. 2006).

For example, study five illustrated that patients’ circumstances in terms of their working status impacted on their engagement with, and receipt of the walking intervention. Five of the patients interviewed were retired and most of these wanted greater flexibility when planning their walks than that suggested through delivery of the Action Planning techniques during the intervention, where specific plans were encouraged. Furthermore, the fact that the walking intervention was delivered in general practice settings may have influenced the patients who self-selected to receive the intervention (only 30% of patients recruited to Phase Three of the walking intervention research were working full-time; Williams et al. 2011). This may be due to the fact that most general practices are open for similar hours to the average working week. Therefore consideration of the techniques that may be most acceptable to the targeted recipients or those most likely to receive the intervention as a result of the setting in which the intervention is to be delivered is central to enhancing engagement.

Nevertheless, for delivery of HBC interventions, the general practice setting was generally acceptable to most of the providers and patients. Patients reported that they particularly welcomed being invited to participate by their general practice and valued the support of the provider. Furthermore, the fact that patients usually live in close proximity to their general practice illustrates that it may be a promising setting for delivery of HBC interventions. Patients’ acceptability of these factors may enhance their engagement with the intervention, which may enhance both treatment delivery and receipt.

Undertaking process evaluations alongside randomised controlled trials is also important to interpret study outcomes. However, it is important for researchers to consider possible intervention effects of such evaluations; as a consequence, the studies reported in this thesis were not undertaken during the Phase Four explanatory trial of the walking intervention research (O'Sullivan et al. 2010). However, the walking intervention delivered in Phase Three was almost identical
to that delivered in Phase Four (see chapter four and French et al. 2011). It is likely that the demographic characteristics of the practice, provider and patient samples in Phases Three and Four will be similar as recruitment and procedures were the same for both trials. Therefore, the findings of the present thesis, with studies undertaken alongside Phases Two and Three of the associated walking intervention research have the potential to illuminate the process and outcomes of the walking intervention that will be reported following Phase Four.

For example, patients in Phase Three had increased their walking immediately post intervention (as objectively assessed by pedometer). Although minutes of walking had decreased by 6 weeks post intervention, walking remained higher than at baseline (Williams et al. 2011). However, from analysis of patient-completed questionnaires, there were no significant changes in self-efficacy from baseline to post intervention, or from post intervention to six week follow-up (Williams et al. 2011). Therefore, whilst the changes in objectively assessed walking were encouraging, these do not appear to be mediated through an increase in self-efficacy as expected (French et al. 2011). There may be a number of factors that may illuminate these findings, which whilst beyond the scope of the research presented in the thesis, illustrate the value of process evaluations.

Providers and patients appeared to be less engaged with the motivational tasks of the intervention than the planning tasks and patients were commonly unsure of the relevance of the motivational tasks to themselves. The motivational tasks were generally delivered less well than the planning tasks; it is possible that the difference between these techniques and the provider’s usual way of working influenced this. Nevertheless, in study five, the majority of patients interviewed post intervention described their increased confidence to walk more and an intention to do so. However, the fact that these patients were asked to participate in an interview may have produced an intervention effect which enhanced their enthusiasm and positivity concerning the intervention.

An alternative explanation for the lower than expected self-efficacy scores, given the patients increase in walking may be to do with the measures used. From triangulation of the data from the audio-recordings of intervention sessions,
provider and patient interviews, patients may have experienced difficulties in completing trial data and/or not been engaged in the process of doing so. This may have particularly been an issue post intervention where the patient had already completed a number of tasks during the intervention and so may have been disengaged when completing the trial questionnaire at the very end of Session Two. This may have been exacerbated if the provider was perceived to be running late, as patients were asked to complete questionnaire measures before they left the consultation. Furthermore, providers acknowledged they did not perceive they were sufficiently prepared to administer these measures. This may have implications for the reliability of such measures and suggests that research teams may be better placed to deliver these measures.

Maximising engagement with HBC interventions

Delivery and receipt of HBC interventions appear to be enhanced when providers and recipients understand the techniques. It seemed that patients were less clear of the purpose of the motivational components or the applicability of these tasks to themselves, possibly as a result of providers not explaining the rationale for the task. This may have been exacerbated as these techniques were delivered at the very beginning of Session One, where both provider and patient may have been less confident or comfortable with these techniques.

Techniques specified in the walking intervention protocol that aimed to enhance patients' receipt of and engagement with the intervention, such as patients elaborating on their past experiences and plans for walking were delivered by providers less frequently than for example, techniques that involved asking the patient to complete a task. This appeared to be as a result of providers and patients being unfamiliar or un-persuaded about the value of such techniques. Therefore, accurate communication to patients about the purpose of all intervention tasks, particularly those that may differ from what providers and patients are used to may help to overcome provider’s discomfort and may be essential to enhance receipt of the intervention.

Techniques that providers were familiar and/or comfortable with, such as the Diary, appeared to be delivered with high fidelity. The Diary may also have
facilitated patients to elaborate on their walking at the start of Session Two; which was particularly beneficial given providers’ reluctance and discomfort with asking patients to elaborate. However, the use of a pedometer to objectively assess trial outcomes in terms of patients’ walking seemed to reduce patients’ perception of the value of the Diary. This again illustrates the importance of accurate communication by providers concerning the rationale and aims of each technique.

Who should deliver HBC interventions to general practice patients in research studies?

Taken together, the findings highlight that, although HBC is perceived by many PNs and HCAs as an important part of their work and many are enthusiastic about supporting HBC, engaging such providers in delivery of HBC interventions as part of research studies may be difficult.

Recruitment of providers to all phases of the walking intervention research was challenging. Practices were reluctant to release providers to attend training and deliver the intervention given their existing workloads. Recruitment of PNs was particularly difficult and this is highlighted as only two PNs were recruited to deliver Phase Three of the walking intervention research whilst the remaining eight providers recruited were HCAs (although only six of these went on to deliver the intervention post training). During Phase Four, the majority of providers recruited to the walking intervention research were also HCAs. This may be associated with the increased costs of PNs compared to HCAs and possibly whether facilitating increased walking is perceived to be of sufficient importance to merit PNs attendance at training and time spent delivering an intervention, given their on-going responsibilities.

Arranging training and making arrangements to undertake the assessment of competence of providers was also difficult. However, it was more difficult for the PNs; the two PNs who delivered the intervention in Phase Three reported that they could not commence delivery of the intervention until after they had completed their Quality and Outcomes Framework (QOF) reporting, which was at least three months post training. This, as previously described may have implications for the maintenance of their skills.
The findings of all of the studies presented in the thesis illustrate that it is essential that general practice organisations are committed to, and providers engaged with the interventions they deliver. However, although the provision of financial incentives may engage the practice in the research study; other perceived or actual benefits may be necessary to initially engage and continue to engage providers. This may be achieved through, for example explicating the benefits of involvement in research studies of HBC interventions, such as through the acquisition of skills that can be used in future work. This may particularly engage providers who are not convinced of the value of new techniques and/or may perceive a new approach to delivering HBC interventions undermines their current way of working (Browne 2009). Convincing providers of the merits of interventions may also have important implications for enhancing treatment receipt, as patients who perceive their providers are not convinced may be considerably less likely to engage with the intervention.

Resnick (2006: 508) recommends the importance of 'closing the loop' of outcomes research through the provision of information obtained from studies to providers and publication of research findings. The majority of providers involved in the walking intervention research asked for feedback on the outcomes of the study. It seems that the provision of feedback to providers and practices may enhance satisfaction with their involvement in research studies and enhance engagement in future studies. This is immensely important given the difficulties in recruitment of practices and providers to research studies.

The impact of the general practice and the roles and responsibilities of the providers appeared to place a significant influence on the approach of providers when trying to change health behaviours as part of their routine work. The time-constraints that appear to particularly face PNs may influence their increased use of more traditional, advice-giving communication, which is likely to be shorter than communications in which they encourage patients to elaborate (Flocke, Miller and Crabtree 2002 and Rollnick et al. 2005). However, many HBC interventions adopt a patient-centred approach and use techniques such as elaboration and summarising that may be new for both providers and patients. Where providers and patients have a prior and on-going relationship, the use of a different
approach for the duration of delivery of a HBC intervention for a research study may exert considerable influence on the behaviour of providers and patients. Enhancing provider and patient engagement with such techniques may require a significant shift in approach to HBC interventions in general practice that necessitate interventions at provider, patient and organisational levels.

In order to assess the efficacy of HBC interventions, they must be delivered as specified. Adherence to the specified techniques of the walking intervention was generally high. This suggests that, even with the challenges they may experience, PNs and HCAs can be trained to deliver a HBC intervention according to the specified techniques of the protocol. However, the inclusion of a number of non-specified behaviours such as making suggestions, and the lack of explanation of the rationale for intervention techniques, may illustrate that the providers were not entirely confident or competent to deliver the intervention, or that the techniques differed too greatly from what they were used to delivering.

Furthermore, when assessing provider competence and adherence to the protocol, the focus was on delivery of specified techniques. The findings from studies three, four and five illustrated that providers rarely explained the aim of techniques or explicated the links between intervention techniques. However, including such communications may enhance the quality of delivery of the intervention and enhance patients’ understanding of, and engagement with the intervention, thereby maximising treatment receipt.

The findings of the studies presented in the thesis therefore highlight that, given the constraints of general practices and the consequential challenges experienced by providers, PNs and HCAs may not be the best placed providers of HBC interventions delivered within research studies. PNs appear to face particular challenges in terms of their existing responsibilities and demands on their time. The divergence between their usual approach and that necessary in a patient-centred intervention may also be considerable. As six of the eight providers in Phase Three were HCAs, it was evident that, although potentially facing less demands in terms of their time and possibly being able to adapt to patient-centred
interventions more easily than some PNs, HCAs’ delivery of HBC interventions also appears to be highly influenced by the context in which they work.

The majority of studies that have undertaken a detailed assessment of treatment fidelity in HBC interventions have employed and specially trained providers (i.e. Hardeman et al. 2008 and Harting et al. 2004). Employing and intensively training a small number of providers to deliver HBC interventions as part of efficacy studies may minimise the influence of the wide range of factors influencing delivery of HBC interventions that are experienced by PNs and HCAs within general practice. Furthermore, by using only a small number of providers which is more likely when providers are specially recruited and intensively trained, the variance that may occur when using a greater number of providers is minimised.

Bringing in providers for the specific purpose of delivering a HBC intervention may also be acceptable to the general practices who may perceive considerable value in the provision of an additional, beneficial service for their patients, but one that does not place additional demands on the practice. This may also be acceptable to the patients. The patients interviewed in study five described the importance of a supportive and encouraging provider, but did not state that the providers of HBC intervention needed to be health care providers.

The previous section presented the key factors that may influence fidelity of delivery and receipt of HBC interventions in general practice and the overall implications of the research. Recommendations for strategies to enhance fidelity of HBC interventions delivered in general practice will now be outlined that build on those presented following the systematic review and meta-synthesis of primary studies undertaken in study one (chapter three). Figure 3.2, presented in chapter three (on page 63) identified factors that may serve to enhance delivery of HBC interventions delivered by PNs in general practice. This figure is re-presented below as figure 10.1:
Figure 10.1: Recommendations for development of strategies to support delivery of HBC interventions by nurses in general practice, as presented following the synthesis of primary studies

The largest section of the triangle denoted macro factors such as the context, which may exert the largest influence on providers delivering HBC interventions but may also be the most difficult to change. The smaller areas of the triangle denoted where the greatest level of support may be developed to support design, training and delivery of interventions, but were the areas that may have less influence on actual delivery of the intervention.

Evaluating the relevance and validity of figure 3.2 (re-presented as figure 10.1) following the findings of the four primary studies undertaken in the thesis was considered to be appropriate for a number of reasons. Firstly, a number of studies included in the synthesis were undertaken in the late 1990’s and early 2000’s, and so the nurses’ experiences may pre-date some significant developments that may influence the current work of such providers within general practice, for example the introduction of the Quality and Outcomes Framework. Secondly, the inclusion of HCAs in the primary studies is also important as they are increasingly key providers of HBC interventions and so investigating their fidelity of delivery of a HBC intervention and experiences of doing so is timely. Thirdly, the primary studies in the present thesis included a range of methods to explore fidelity of...
Chapter ten: Discussion

delivery and receipt of HBC interventions with providers and patients. These studies also explicitly aimed to overcome the weaknesses of the earlier studies included in the meta-synthesis. Triangulation of studies three, four and five of the present thesis particularly supports a more complete picture of the process of delivery and receipt of a HBC delivered in general practice, which strengthen the recommendations that can be made.

The author considers that figure 10.1 remains a valid model to demonstrate the potential impact of recommendations to enhance delivery of HBC interventions, by PNs/HCAs in general practice. In particular, the significance of the general practice setting in terms of its potential influence on providers delivering HBC interventions and patients receiving such interventions remains. The importance of developing strategies to enhance treatment fidelity that focus on design of the intervention and provider training also remain as key recommendations for research teams as these are factors that may be more straightforward to influence. Furthermore, strategies to engage the providers and wider practice team and support delivery of the HBC intervention will be essential. However, the four primary studies reported in this thesis, have together further enhanced understanding of the process of delivery and receipt of HBC interventions by PNs/HCAs in general practice. Therefore, the author has slightly amended figure 10.1 to produce figure 10.2 to reflect the following differences between the findings of the synthesis and the empirical studies.

The issue of clarifying roles and responsibilities was a key theme generated through the synthesis of the primary studies presented in study one and therefore presented in figure 10.1. However, this was less evident in the primary studies conducted as part of the present thesis. This is likely to be due to the fact that the HBC intervention that was the main focus in the primary studies was an intervention to facilitate increased walking which was delivered by PNs and HCAs. As a result of the inclusion criteria for patients recruited to the walking intervention research, although some had long-term conditions, none were awaiting investigation or treatment or were being investigated or treated by secondary care specialists for the condition. Consequently, few of the patients had complex health care needs. Furthermore, walking is a health behaviour that can be undertaken by
most patients without need for consultation with a GP. Therefore the issues of the importance of ensuring close working relationships and clarification of roles and responsibilities with practice GPs was less evident and is not emphasised in figure 10.2.

Furthermore, through triangulation of studies three, four and five of this thesis, the importance of ensuring that providers understand the rationale for each intervention technique they deliver and that they explain the rationale for techniques to the recipient was evident. These findings go beyond those of the synthesis which found that communicating overall aims and potential outcomes of the HBC intervention may enhance delivery of HBC interventions. Therefore figure 10.2 has been revised slightly as these findings should form an integral part of future provider training and strategies to enhance both delivery and receipt of the intervention.

Figure 10.2 also summarises recommendations for development of strategies to support fidelity of delivery and receipt of HBC interventions by PNs/HCAs in general practice. As in figure 10.1, each of the levels of the triangle in figure 10.2 represent potential influences on delivery and receipt of HBC interventions (with the largest level representing the greatest influence) and therefore the degree to which recommendations at each level have the potential to enhance treatment fidelity are likely to differ. Therefore, it is recommended that research teams develop strategies that operate at all levels of the triangle.

For example, strategies developed in the smallest area of the triangle (level 1) may have less influence on actual delivery and receipt of the intervention. However these are also the strategies that may be the most straightforward for research teams to develop, as they are likely to be directly involved in the design of the intervention and associated research procedures and the development of provider training.

The second level down (level 2) represents the preparation and support for the provider to deliver the intervention. Research teams can develop a number of strategies to support the process of provider training that will directly enhance
delivery and receipt of the intervention. However, this level illustrates that a number of factors concerning the individual provider of the intervention may well influence the degree to which the intervention is delivered with fidelity.

The third level down (level 3) represents the actual process of delivery and receipt of the intervention and will involve both provider and recipient. There are potentially a number of factors concerning the individuals involved and the relationship or interplay between them that may be difficult to influence. Nevertheless, there remain a number of strategies that may enhance delivery and receipt of the intervention.

The largest section of the triangle (level 4) illustrates the context, which may exert the largest influence on providers delivering HBC interventions but may also be the most difficult to change or influence by research teams. However, although the influence of the general practice setting is significant, there are a number of strategies that research teams can develop in order to minimise the influence of the context on fidelity of delivery and receipt.
Figure 10.2: Recommendations for development of strategies to support fidelity of delivery and receipt of HBC interventions by PNs/HCAs in general practice

Specific recommendations that may be implemented at each level are documented in Table 10.1. Although these are based on evidence concerning delivery and receipt of HBC interventions delivered by PNs and HCAs in general practice, they are potentially relevant to any HBC intervention, delivered in a number of different settings, by different provider groups and to different recipient/patient groups.
Table 10.1: Recommendations for strategies to enhance fidelity of HBC interventions in general practice

<table>
<thead>
<tr>
<th>Level 1: Design of the intervention and development of training</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Design the intervention and research procedures to account for likely providers (i.e. skills, usual way of working, inclusion of techniques they may perceive to be beneficial in future work) &amp; recipients (demographic characteristics, i.e. employment status).</td>
</tr>
<tr>
<td>• Specify intervention techniques in a detailed protocol to support training, delivery &amp; assessment of delivery. Simplify techniques for use in an intervention resource for use by providers when delivering intervention.</td>
</tr>
<tr>
<td>• Develop provider training, accounting for provider views &amp; pragmatic issues concerning, e.g. time available for training.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level 2: Provider training and engagement of practice team</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Develop strategies to engage provider &amp; their wider practice team.</td>
</tr>
<tr>
<td>• Clarify roles &amp; responsibilities of all those involved in delivery of the intervention &amp; the associated research.</td>
</tr>
<tr>
<td>• Ensure providers are adequately prepared &amp; supported to deliver the intervention through training &amp; on-going support: training should be based on the intervention protocol and the rationale for intervention techniques should be communicated.</td>
</tr>
<tr>
<td>• Assess provider competence prior to delivery of the intervention; if necessary develop skills to achieve pre-determined level of competence.</td>
</tr>
<tr>
<td>• Emphasise to providers the importance of not delivering non specified behaviours.</td>
</tr>
<tr>
<td>• Provide ‘Frequently Asked Questions’ for providers to answer recipient’s questions about the intervention and the research.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level 3: Enhancing delivery and receipt of the intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Develop strategies to enhance actual delivery and receipt of the intervention, i.e. (i) providers should explain rationale for techniques &amp; how techniques relate to the recipient, (ii) providers should ask recipients to elaborate on tasks/complete action plans/diaries to enhance receipt and engagement.</td>
</tr>
<tr>
<td>• Providers should convey that they value the intervention; communicating aims/potential outcomes may support this.</td>
</tr>
<tr>
<td>• Provide an intervention resource (i.e. an intervention booklet) to support provider delivery &amp; enhance understanding/engagement by recipient of the intervention.</td>
</tr>
<tr>
<td>• Provide all resources necessary for delivery of intervention &amp; research measures, in a ready to use format.</td>
</tr>
<tr>
<td>• Assess fidelity of delivery &amp; receipt of the intervention. This may also enhance delivery</td>
</tr>
</tbody>
</table>
Assessments should minimise burden on providers/recipients.

- Ensure providers differentiate between intervention techniques & research procedures to avoid recipient confusion. Measures that may be used to monitor HBC for the purposes of the research (such as pedometers) should be differentiated from those used to support recipients to monitor their own HBC (such as diaries).

### Level 4: Minimising influence of the context

- Consider context in which intervention will be delivered when designing intervention; recruiting providers; planning provider training; developing intervention resources; supporting delivery of the intervention etc.
- Consider ideal provider and recipient recruitment targets & develop strategies to maximise these being met.
- Work with setting & providers to determine how appointments can be scheduled to ensure intervention is delivered as specified. Recommend that providers be permitted to work additional hours to deliver the intervention.
- Support recruitment of recipients to link with time-scales for provider training.
- Consider whether the research team should undertake research procedures to minimise burden on providers/setting & avoid confusion by recipients.

### Future research

The thesis has shown that there is great potential for investigating treatment fidelity using a range of methods. Triangulating the findings of multi-methods research can enhance understanding of the process of HBC and illuminate study outcomes. Analysis of ‘permanent products’, which has not been undertaken in the thesis, could further illuminate treatment fidelity.

Future research should focus on the extent to which fidelity of delivery and receipt of HBC interventions is associated with study outcomes. This is important as treatment fidelity can illuminate the extent to which studies provide a valid test of the theoretical basis of HBC interventions (Bellg et al. 2004 and Borrelli 2011). This would necessitate detailed analysis of data from a sample of patients with sufficient power to detect changes in the dependent variable(s). Investigating the mediators and moderators on the dependent variable is also important, as, in order to translate research to practice, interventions need to result in sustained HBC.
Non-specific treatment effects and the inclusion of non-specified techniques such as making suggestions about the ways in which patients can change their behaviours may have influenced delivery and receipt of the walking intervention. These factors and the extent to which they influence treatment fidelity should be further explored.

Future research should focus on the developing roles of both PNs and HCAs in delivering HBC interventions with a particular focus on their roles in secondary and primary prevention respectively. There were insufficient providers in the quantitative assessment of fidelity of delivery of the walking intervention (see chapter seven) to compare PNs’ and HCAs’ performance when delivering interventions according to protocol, but this merits further exploration.

Future studies should investigate the extent to which organisational factors impact on treatment fidelity. This may be particularly important given that the treatment fidelity recommendations of the NIH-BCC are not provider or context specific.

A longitudinal study to explore the longer-term impact of delivering HBC interventions for providers would be valuable. Investigating the skills and techniques used by providers following delivery of the intervention would illuminate the extent to which these skills may be transferable and used within their routine practice. This would also provide evidence to support the recruitment of providers and practices to future HBC studies.

A planned future study will explore the extent to which patients use the skills and strategies of the walking intervention in their daily lives. This will involve analysis of interviews undertaken with the same sample of patients with whom treatment receipt was investigated in chapter nine. A cross-sectional analysis will explore treatment enactment and longitudinal analyses will explore the extent to which patients’ receipt of the intervention may impact on their enactment of skills three months later.


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APPENDICES
APPENDIX ONE:

OVERVIEW OF NATIONAL INSTITUTES OF HEALTH - BEHAVIOR CHANGE CONSORTIUM (NIH-BCC) AND TREATMENT FIDELITY STUDIES
National Institutes of Health - Behavior Change Consortium (NIH-BCC)

The Behaviour Change Consortium was formed in 1999 in the United States with the support of the American Heart Association and the Robert Wood Johnson Foundation. The main aim of the NIH-BCC was to develop understanding of the associations between theories of health behaviour change (HBC), intervention strategies to support behaviour change and outcomes in three key health behaviours (tobacco cessation, diet and nutrition and physical activity/exercise) (Nigg, Allegrante and Ory 2002 and Ory, Jordan and Bazzarre 2002 ¹). This was undertaken through the development of fifteen NIH-BCC funded studies. Workgroups were also established to guide the developments of particular groups of studies, such as the Tobacco Dependence Workgroup, or to develop cross-cutting strategies and recommendations applied to all the fifteen studies, such as through the work of the Treatment Fidelity Workgroup.

Overview of fifteen NIH-BCC Studies

Each NIH-BCC study focussed on either changing multiple health behaviours or were developed from multiple theoretical approaches (Nigg, Allegrante and Ory 2002 and Ory, Jordan and Bazzarre 2002) but were otherwise heterogeneous. Each of the fifteen studies differed in terms of the target HBC, the intensity and duration of the intervention, and with regards to other factors such as the setting in which the intervention was delivered, the provider of the intervention, the target groups and the underpinning theory (ies).

¹References are cited in the reference list unless given in the appendix.
An overview of the fifteen studies is presented in the following table (see Ory, Jordan and Bazzarre 2002):

<table>
<thead>
<tr>
<th>Theoretical approaches to the interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The most common theories used were:</td>
</tr>
<tr>
<td>Self-Determination Theory</td>
</tr>
<tr>
<td>Social Cognitive/Learning theory</td>
</tr>
<tr>
<td>Motivational Interviewing</td>
</tr>
<tr>
<td>Social Ecological Theory</td>
</tr>
<tr>
<td>Transtheoretical Model</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target health behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>The health behaviour targeted was one or more of the following:</td>
</tr>
<tr>
<td>Dietary fat intake n = 7; fruit and vegetable consumption (5 a day) n = 7; physical activity/exercise n = 12; smoking n = 5; stress management n = 1; medication adherence n = 1; weight loss n = 2</td>
</tr>
</tbody>
</table>

In many cases more than one health behaviour was targeted, i.e. healthy eating interventions that also aimed to increase physical activity.

<table>
<thead>
<tr>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>The setting of studies was in one or more of the following:</td>
</tr>
<tr>
<td>Community n = 3; health facility (i.e. clinic, hospital) n = 5; participants home n = 8; school n = 1; workplace n = 1.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target group (participants)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The participants included:</td>
</tr>
<tr>
<td>Smokers with children with asthma; fire-fighters; angioplasty patients; middle school aged children; overweight, sedentary adults; cardiac patients; adult smokers; older adults aged 55+; low income minority postpartum women; women - post hip fracture; African American adults; adults; postmenopausal women with type 2 diabetes; adult smokers.</td>
</tr>
</tbody>
</table>

Focus on children or adolescents n = 2; focus on adults n = 10; focus on older adults n = 4 (one study focused on children and adults).

<table>
<thead>
<tr>
<th>Provider of the intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>The provider of the interventions included:</td>
</tr>
<tr>
<td>Exercise trainers; health counsellors; peer leaders – fire-fighters; smoking cessation counsellors; psychologists.</td>
</tr>
</tbody>
</table>
APPENDIX TWO:

ORIGINAL PAPER PUBLISHED FROM META-SYNTHESIS
APPENDIX THREE:
SYSTEMATIC REVIEW SEARCHES
**SCOPUS**

All terms were searched using ‘Article Title, abstract, keyword’.

1. Nurs*
2. Qualitative
3. Interview*
4. Finding*
5. Intervention*
6. Protocol*
7. Guideline*
8. Nursing assessment
9. Adhere*
10. Primary health care
11. Primary care
12. General practice
13. Preventive health services
14. Family practice
15. Primary prevention
16. Secondary prevention
17. Public health
18. Health promotion
19. Preventive medicine
20. Behaviour change
21. Behavior change
22. Health behaviour
23. Health behavior
24. Lifestyle change
25. Lifestyle changes
26. Diet*
27. Healthy eating
28. Walking
29. Weight loss
30. Physical activity
31. Physical activities
32. Exercise
33. Behavioural change
34. Behavioral change
35. Weight loss
36. Or/2-4
37. or/5-9
38. or/10-14
39. or/15-35
40. and/1, 36-39
Appendix

CINAHL (via EBSCO)
(C) denotes CINAHL HEADING. All other terms are keyword searches.

1. Adult Nurse Practitioners (C)
2. Practical Nurses (C)
3. Staff nurses (C)
4. Advanced Practice Nurses (C)
5. Registered Nurses (C)
6. Family Nurse Practitioners (C)
7. Nurses (C)
8. Nurs*
9. Qualitative
10. Interviews (C) (explode)
11. Qualitative studies (C)
12. Qualitative
13. Finding*
14. Interview*
15. Attitude of health personnel (C)
16. Nursing protocols (C)
17. Protocols (C)
18. Nursing interventions (C)
19. Practice guidelines (C)
20. Guideline adherence (C)
21. Intervention*
22. Protocol*
23. Guideline*
24. Adhere*
25. Primary Health Care (C)
26. Family Practice (C)
27. Preventive health care (C)
28. Primary health care
29. Primary Care
30. General practice
31. Preventive health services
32. Primary prevention
33. Secondary prevention
34. Public health (C)
35. Health promotion (C)
36. Lifestyle (C)
37. Lifestyle changes (C)
38. Health behaviour (C)
39. Risk reduction behaviour
40. Risk reduction behavior
41. Behavioral changes (C)
42. Walking (C)
43. Physical activity (C)
44. Exercise (C)
45. Diet (C)
46. Diet therapy (C)
47. Public health
Appendix

48. Health promotion
49. Preventive medicine
50. Lifestyle change
51. Lifestyle changes
52. Health behaviour
53. Health behavior
54. Behaviour change
55. Behaviour change
56. Behavioural change
57. Behavioral change
58. Walking
59. Physical activity
60. Physical activities
61. Exercise
62. Diet*
63. Weight reduction programmes (C)
64. Weight control (C)
65. Or/1-8
66. Or/9-15
67. Or/16-24
68. Or/25-31
69. Or/32-64
70. And/65-69
ASSIA (via CSA) 
(DE) denotes descriptors. All others terms are keywords. Advanced search option used.

1. Nurses (DE) 
2. Nurse practitioners (DE) 
3. Advanced nurse practitioners (DE) 
4. Advanced practice nurses (DE) 
5. Practice nurses (DE) 
6. Public health nurses (DE) 
7. Nurs* 
8. Attitudes (DE) 
9. Qualitative Research (DE) 
10. Qualitative 
11. Interview* 
12. Findings 
13. Interventions (DE) 
14. Guidance (DE) 
15. Brief interventions (DE) 
16. Adherence (DE) 
17. Intervention* 
18. Protocol* 
19. Guidance 
20. Adhere* 
21. Primary health care (DE) 
22. General practice (DE) 
23. Preventive health care (DE) 
24. Primary health care 
25. Primary care 
26. General practice 
27. Family practice 
28. Health behaviour (DE) 
29. Preventive programmes (DE) 
30. Exercise (DE) 
31. Diet (DE) 
32. Physical activity (DE) 
33. Public health (DE) 
34. Prevention (DE) 
35. Health promotion (DE) 
36. Health education (DE) 
37. Healthy food (DE) 
38. Lifestyle (DE) 
39. Health behaviour 
40. Health behavior 
41. Exercise* 
42. Diet* 
43. Physical activity 
44. Physical activities 
45. Public health 
46. Health Promotion
47. Health education
48. Lifestyle change
49. Behaviour change
50. Behavior change
51. Weight loss
52. Behavioural change
53. Behavioral change
54. or/1-7
55. or/8-12
56. or/13-20
57. or/21-27
58. or/28-53
59. and/54-58
Appendix

PSYCINFO (via EBSCO)
(DE) denotes descriptor term.

1. Nurses (DE)
2. Public health service nurses (DE)
3. Nurs*
4. Interviews (DE)
5. Qualitative Research (DE)
6. Qualitative
7. Findings
8. Health Personnel Attitudes (DE)
9. Interview*
10. Intervention (DE)
11. Nursing intervention
12. Nursing interventions
13. Intervention*
14. Protocol*
15. Adhere*
16. Guideline*
17. Primary Health Care (DE)
18. Primary health care
19. Primary care
20. General practice
21. Family practice
22. Preventive health services
23. Prevention (DE)
24. Preventive medicine (DE)
25. Health Promotion (DE)
26. Health Behaviour (DE)
27. Health Education (DE)
28. Walking (DE)
29. Lifestyle Changes (DE)
30. Physical Activity (DE)
31. Prevention
32. Preventive medicine
33. Health promotion
34. Health education
35. Health behaviour
36. Health behavior
37. Physical activity
38. Physical activities
39. Walking
40. Exercise
41. Lifestyle change
42. Lifestyle changes
43. Behaviour change
44. Behavior change
45. Behavioural change
46. Behavioural change
47. Diet *
48. Weight loss (DE)
49. Or/1-3
50. Or/4-9
51. Or/10-16
52. Or/17-21
53. Or/22-48
54. And/49-53
MEDLINE (via EBSCO)
(M) denotes thesaurus term.

1. Nurse clinicians (M)
2. Family nursing (M)
3. Health educators (M)
4. Public health nursing (M)
5. Nurses (M)
6. Nurse practitioners (M)
7. Nursing staff (M)
8. Nurs*
9. Qualitative research (M)
10. Interviews as topic (M)
11. Interview (M)
12. Interview (M) (find search terms)
13. Qualitative
14. Findings
15. Attitude of Health Personnel (M)
16. Interview*
17. Clinical protocols (M)
18. Protocol*
19. Intervention*
20. Practice guideline (M)
21. Practice guideline (M) (find search terms)
22. Practice guidelines as topic (M)
23. Nursing assessment (M)
24. Guideline*
25. Guideline adherence (M)
26. Adhere*
27. Primary Health Care (M)
28. Family Practice (M)
29. Preventive health services (M)
30. Primary health care
31. Primary Care
32. General practice
33. Primary prevention (M)
34. Secondary prevention (M)
35. Public health (M)
36. Health promotion (M)
37. Preventive medicine (M)
38. Lifestyle (M)
39. Risk reduction behavior (M)
40. Health behavior (M)
41. Walking (M)
42. Exercise (M)
43. Diet (M)
44. Diet therapy (M)
45. Primary prevention
46. Secondary prevention
47. Public health
48. Health promotion
49. Preventive medicine
50. Lifestyle change
51. Lifestyle changes
52. Risk reduction behaviour
53. Risk reduction behavior
54. Health behaviour
55. Health behavior
56. Behaviour change
57. Behavioural change
58. Behavior change
59. Behavioral change
60. Walking
61. Physical activity
62. Physical activities
63. Exercise
64. Diet*
65. Weight loss (M)
66. or/1-8
67. or/9-16
68. or/17-26
69. or/27-32
70. or/33-65
71. and/66-70
APPENDIX FOUR:

TABLE OF FIRST AND SECOND ORDER THEMES
DEVELOPED IN THE META-SYNTHESIS
Abridged version of the grid displaying first order themes for each study grouped within developing second order themes.

Italicised text denotes quotes from primary study participants and are nurses unless stated otherwise. Normal font is primary study authors.

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<tbody>
<tr>
<td>'agenda chart helpful with illiterate patients... 'It was seen as a useful way of getting patients to talk. (p. 1495). 'They (patients) have heard it all before' and tend to get 'rather fed up with the chart' (p. 1495).</td>
<td>'The assessment protocol and nurses' concern to complete it satisfactorily may have resulted in them missing patients' cues' (p. 183). 'enthusiasm ... tempered by a concern that appropriate skills and knowledge were needed, by a desire to have clear protocols...and by a stated need to feel that they were supported by the GPs' (p. 467). 'To learn the empowerment approach required time and training, but physicians and nurses believed in the approach and thought it was the ideal way to assist patients in their learning' (p. 321). 'gives patients information and choice. They then make the decision to make lifestyle adjustments, to enhance their quality of life' (p. 525). 'One of the principal factors... was whether they [practice] perceived the clinics to improve patient care or not' (p. 525).</td>
<td>'Standardisation and tailoring... of delivery to the needs of different practices, practitioners and patients' (p. 8). 'Resented the extra time they had to spend on record-keeping and paperwork' (p. 7). 'guideline described the procedural steps... stated which data were necessary for calculating effectiveness outcomes ' (p. 5). 'instructions remained open for the practice nurses interpretation and adaptation to the local organisational circumstances and needs ' (p. 5). 'positive about value and feasibility of the programme for use in primary care’ (a, p. 729). 'credibility of the programme important in engaging practices ' (p. i81) 'Successful programmes depend on sensible goals and expectations' (p. i84).</td>
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<tr>
<td>Preparation for delivery of intervention</td>
<td>'By asking nurses to really involve the patients in decisions about their own condition we forced them to reconsider the issue of the extent of their own professional responsibility, the nature of their relationship with their patients, and the balance they were striking between the technical, caring and educational aspects of their work' (p. 1498).</td>
<td>'It is rewarding that patients are actually looking to us for support and we can offer it because we have had the training' (p. 466).</td>
<td>'GPs and nurses agreed training was essential' (p. 525).</td>
<td>'It is assumed that PNs can apply the knowledge they learned during their education in an instant, organisational skills that is' (p. 4).</td>
<td>'training met their needs... felt confident on completion. They acknowledged that they had difficulty in recalling theory surrounding unfamiliar elements of care delivery...once they were back in the practice situation&quot; (b. p. 380).</td>
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<tr>
<td>Preparation for delivery of intervention</td>
<td>'Its knowing more than you need to know to tell the patient. You've got to know quite a lot to do your job properly' (p. 186). The frequency of missed opportunities for nurses to explore issues raised by patients indicate that more education in the skills to explore and challenge patients’ beliefs...may be warranted. This may help to enable nurses to provide information &amp; advice that engages with patients’ understandings'. (p. 186).</td>
<td>'enthusiasm… tempered by a concern that appropriate skills and knowledge were needed, by a desire to have clear protocols to work to and …supported by the GPs' (p. 467). 'It is rewarding that patients are actually looking to us for support and we can offer it because we have had the training' (p. 466).</td>
<td>'As facilitators they felt a need for more knowledge about the disease and its treatment in order to be able to focus on the empowerment approach' (p. 322).</td>
<td>'updated knowledge would improve confidence' (p. 6)</td>
<td>'very focussed' (p. 6)</td>
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<tr>
<td>Preparation for delivery of intervention</td>
<td>'conflict for physicians and nurses concerning how to implement the EGE with no experience of either the approach or group education' (p. 322).</td>
<td>'would be valuable to have some sort of training and updating process…’ (p. 526).</td>
<td>'Praised training provided at the start of the study but felt that updates were lacking' (p. 526).</td>
<td>'training short, focussed and integrated' (p. 6).</td>
<td>'case-based learning' (p. 7).</td>
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<tr>
<td>Preparation for delivery of intervention</td>
<td>'jump from theory to practice' (p. 7).</td>
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<td>Delivery of intervention</td>
<td>'Perceived conflict of priorities in the consultation' (p. 1495).</td>
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<td>'Time ...worry about feasibility of the method' (p. 1495).</td>
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<td></td>
<td>'agenda chart, using it as a check list to decide what to cover' (p. 1495).</td>
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<td></td>
<td>'Initial enthusiasm...followed by a self reported failure to maintain the change in consulting style' (p. 1497).</td>
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<td></td>
<td>'I don't think I have had the opportunity to use it in the way it was meant ...because of the time limitation' (p. 1497).</td>
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<td>Nurses...reluctant to explore concerns...might have unacceptably extended the length of the appointment' (p. 183).</td>
<td>'we have the protocols, we have the expertise but we don't have the nurse hours to take that on' (GP, p.465).</td>
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<td>'wanted us to go out and talk to the patients for an hour...discuss fears and anxieties...put them all at ease...lovely in an ideal world but we don't have time to do that sort of thing' (p. 465).</td>
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<td>'that you have the necessary training, education, protocols and guidelines' (p. 466).</td>
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<td>'difficult to handle problem solving, making a concrete plan and goal -setting' (p. 322).</td>
<td>'implementation of a new way of working requires both time and effort from the providers' (p. 322).</td>
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<td>'been easier to become a facilitator if they had received support from a supervisor for the workshop directly after or in connection with the first EGE session' (p. 322).</td>
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<td></td>
<td>'Time...needed to plan for [EGE] and to help participants to master...approach' (p. 323).</td>
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<td>'practicalities of implementing it' (p. 7).</td>
<td>'some used booklet in consultations as a prompt...others felt that it obstructed the flow of consultations' (p. 8).</td>
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<td>'desired function of intervention components fulfilled ...whilst tailoring' (p. 8).</td>
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<td>'It is good. It's just the initial workload' (p. 7)</td>
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<td>'nurses had different ways of collecting the required data...barrier for a uniform execution of the intervention...resolved by...providing them with a guideline (p. 5).</td>
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<td></td>
<td>'multidisciplinary protocols that encompass tasks, decision criteria and work procedures' (p. 6)</td>
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<td>'nurses...now able to structure the education components of their consultations...danger of passing the whole responsibility to the person with diabetes' (b, p. 378).</td>
<td>'nurses identified difficulties in recalling intervention components addressing unfamiliar elements of care delivery' (a, p. 729).</td>
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<td></td>
<td>'a lack of confidence in their ability to implement the programme with patients' (p. i81).</td>
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</table>
Nurse role / responsibility

'nurses found it

'feared that

'resource most

'problems helping

'Nurses...positive

'administration of

'assumed PNs

'positive impact

very difficult to 'let

exploring patients'

commonly cited

the patients who

about increased

the intervention

can apply

on the nurses' job

go' and fully

understandings...

as being the key

participated in the

time with

time-consuming'

knowledge in an

satisfaction...more

accept the

might result in

to expansion was

EGE if the

patients...enhanc

(p. 7)

instant' (p. 4).

confident and

implications of

issues being

PN hours.

patients needed

ed relationships

' time deliberating

skilled...extended

granting patients

raised to which

..'creating

more medical

with benefits for

and coming to

learning and

greater autonomy

they [nurses]

problems of

treatment' (p.

both patients and

'[nurses] saw

agreements with

practice

when they were

would not be able

conflicting

322).

professionals' (p.

some of the

your colleagues’

experience'

not conforming to

to provide

priorities' (p. 465).

'conflict for the

525).

positive effects of

(p. 4).

(b, p. 377).

conventional bio

adequate

'You know,

physicians and

it…really

'nurses were to be

medical wisdom'

responses' (p.

shuffling, robbing

nurses

'Practice nurses

personalising it

the coordinating

'what we are

(p. 1497).

183).

Peter to pay Paul'

concerning how to

are very well

and looking at it

axis of the

doing is having an

(p. 465).

implement the

suited to doing

where they are

implementation of

impact on their
life' (b, p. 377)

'You can only do

[nurses ] 'felt far

[GPs] 'expressed

EGE' (p. 322).

this sort of thing. I

and where they’re

the intervention,

so much' (p.

less confident in

confidence in and

'physicians and

mean it’s an

coming from' (p.

they were not

1496).

their role than

support for the

nurses felt secure

extension of the

7)

able to discard

assessment data

expansion of the

in the role of the

nursing role' (p.

'Nurses…motivate

indicated' (p.

PN role' (p. 466).

expert and felt

525).

'More

hierarchical

d to take part in

185).

'looking to the GP

they knew what

'For some GPs it

knowledgeable

positions of the

to validate the

was best for the

seemed to be

about their

GPs, peer health

the study and

the existing

willing to learn a

'having the

activities with

patients' (p. 322).

threatening, for

patients ... able to

educators and

new way of

confidence to

formal

'nurses felt it was

nurses to be

personalise...

assistants. In fact

dealing with

check things out

expressions of

easy to fall back

taking over ' (p.

lifestyle advice’

it complicated the

diabetes...

with the practice

support such as

into the traditional

526).

(p. 7).

implementation'

willingness did not

GPs and having

written protocols'

approach…used

'I think there are a

transform into an

good working

(p. 467).

to individual

lot of GPs who

ability to grasp the

relationships with

counselling...gave

are very wary of

spirit of the

them were very

advice &

what they hand

method' (p. 1497).

important' (p.

recommendations'

over’ (GP, p.

186).

p. 321).

526).

(p. 4)


<table>
<thead>
<tr>
<th>Patient role / responsibility</th>
<th>&quot;I feel it is important that they understand what we are trying to do&quot; (p. 1496).</th>
<th>&quot;helps to remind you that patients have an agenda too&quot; (p. 1495).</th>
<th>&quot;difficult patients... needing a firm hand rather than being allowed to determine what they were prepared to do&quot; (p. 1495).</th>
<th>&quot;actually encouraging the patients to make decisions and set their own targets proved to be more problematic than anticipated&quot; (p. 1497).</th>
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<tr>
<td></td>
<td>'nurse’s style in conducting the ...assessments varied between individuals and according to individual patients' reactions' (p. 183)</td>
<td>[Patients] ‘felt the assessments had been useful... motivating them to make or continue with lifestyle changes... patients... valued reassurance,' (p. 184).</td>
<td>‘the practice nurses’ ability to listen, explain in lay terms and empathise with patients was highly valued’ (p. 185).</td>
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<td></td>
<td>‘giving the patients opportunity to take responsibility and encouraging them to find solutions to their self-care problems’ (p. 322).</td>
<td>[of the traditional approach] 'the patients were also used to being treated in such a way' (p. 321).</td>
<td>‘Physicians and nurses...thought that the patients expected to have information and solutions “handed to them on a plate”’ (p. 322).</td>
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<td>‘I think it gives patients...information and choice. They then make the decision to make lifestyle adjustments, to enhance their quality of life’ (p. 526).</td>
<td>[patients] 'are all very positive... and like the idea that somebody is keeping a check on them’ (p. 525).</td>
<td>‘if people don’t come in you think...what's the point of this?’ (p. 6)</td>
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<td></td>
<td>‘They haven’t tried so why should we be wasting our energy?’ (GP, p. 6)</td>
<td>‘patients found it difficult to identify specific goals.’ (p. 7)</td>
<td>‘if people don’t come in you think...what’s the point of this?’ (p. 6)</td>
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<td></td>
<td>‘now they [patients] can do it for themselves’ (b, p. 378).</td>
<td>[patients need] 'clear understanding of programme goals and requirements’ (p. i82).</td>
<td>Poor understanding of programme goals and unrealistic expectations... contribute to patient dropout' (p. i83).</td>
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<td></td>
<td>[patients wanted] ‘a quick fix’ (GP, p. i83).</td>
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</table>
External factors impacting on general practices

- 'Nurses viewed exploring patients’ understandings...less important than some other aspects of assessment, particularly when time was limited' (p. 186).
- 'Most practice staff expressed a sense of overload brought about by increasing and diverse demands placed on primary care' (p. 468).
- 'There is very little governmental or well-structured support for the clinics' (GP, p. 527).
- 'Our GMS contract doesn’t allow us to do prevention. If we raise the issue and do it properly the amount of time and effort...it’s financially disastrous' (GP, p. 5).
- 'Many of the challenges facing practice nurses in the delivery of diabetes care; identifying patient need, and being constrained in meeting that need because of both internal (time and workload) and external (PCT policy) factors' (b, p. 380).
- 'It’s meeting the [GMS] contract quite well' (b, p. 380).
- 'Organisational factors important; less engaged practices reported...too intensive in time and resource, in absence of incentives' (p. i84).
<table>
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<tr>
<th>Infrastructure relating to individual general practices</th>
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<tr>
<td>'Time was frequently raised as a further worry about feasibility of the method' (p. 1495).</td>
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<tr>
<td>'Nurses may have been reluctant to explore concerns... might have unacceptably extended the length of the appointment' (p. 183).</td>
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<tr>
<td>'exploring patients' understanding... less important than some other aspects of assessment, particularly when time was limited' (p. 186).</td>
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<tr>
<td>'having the confidence to check things out with the practice GPs and having good working relationships with them were very important' (p. 186).</td>
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<td>[shortage of time] 'creating problems of conflicting priorities' (p. 465).</td>
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<td>'it's great as long as you have the back-up of a GP' (p. 466).</td>
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<td>'time must be taken from other parts of their schedule, which required understanding from the other providers' (P. 322).</td>
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<td>'Implementation can be facilitated if colleagues are integrated into the new way of working, understand the approach and are agreed about how to handle the disease' (p. 323).</td>
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<td>'great opportunity to co-ordinate our efforts... update everyone on the latest research' (p. 321).</td>
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<td>'implementation of a new way of working requires both time and effort from the providers' (p. 322).</td>
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<tr>
<td>'time must be taken from other parts of their schedule, which required understanding from the other providers' (P. 322).</td>
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<tr>
<td>'Implementation can be facilitated if colleagues are integrated into the new way of working, understand the approach and are agreed about how to handle the disease' (p. 323).</td>
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<td>'GPs and nurses viewed establishing clinics as a team building exercise... implementing and running clinics motivated and educated the practice team' (p. 526).</td>
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<td>'getting everyone to sing from the same hymn sheet' (p. 526).</td>
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<td>'not particularly well recompensed... they cost a lot more to run than we actually get for them...it's just because we think that its a good service to offer to our patients' (GP, p. 6).</td>
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<td>'The GPs consented to the project not really knowing what was being asked of them' (p. 4)</td>
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<td>'PN's...coordinating axis of the implementation... not able to discard the existing hierarchical positions ' (p. 4).</td>
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<tr>
<td>'The existing inter-professional relations and local circumstances prohibited the intervention from being implemented as planned...a lot of effort had to be put into harmonising different insights and conflicting values (p. 4).</td>
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<tr>
<td>'Many of the challenges facing Practice Nurses in the delivery of diabetes care; identifying patient need, and being constrained in meeting that need because of both internal (time and workload) and external (PCT policy) factors' (b, p. 380).</td>
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<td>'Successful practices were characterised by active GP participation and strong ownership' (p. i81).</td>
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<td>'All staff are encouraged to be involved in the decision on whether to implement the programme' (p. i84).</td>
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<td>'Clinicians’ expectations of weight management outcomes are often over ambitious' (p. i84).</td>
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<tr>
<td>Direct and indirect outcomes of the intervention</td>
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<td>'assessments did have useful outcomes... provision of support and reassurance' (p. 184).</td>
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<td>'opportunity to update patients' records...was also viewed as important' (p. 184).</td>
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<tr>
<td>'The physicians and nurses thought that the EGE, more than the traditional individual counselling, increased patients capabilities to learn about their disease and its treatment' (p. 322).</td>
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<td>'Well it's a good way to audit' (p.524).</td>
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<td>'that's the benefit of it...that frustration has gone - that sort of pressure that you're not achieving anything and actually now they can do it for themselves (b, p. 378).'</td>
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<td>'Using the techniques with other long term conditions' (b, p. 380).</td>
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<td>'developing skills were found to be useful for people with other chronic conditions, and they were positive about the value and feasibility of the programme for use in primary care' (a, p. 279).</td>
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</table>
APPENDIX FIVE:

OVERVIEW OF STUDIES THAT EXPLORED HEALTH CARE PROVIDERS’ EXPERIENCES USING INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS
Overview of cross-sectional IPA studies of healthcare professionals and practitioners (references follow the overview).

Carradice, Shankland and Beail (2002) employed semi-structured interviews with eight mental health nurses to explore the theoretical models used by mental health nurses to guide their assessments with carers of people with dementia. The rationale for the study was that assessments of carers should be based on theoretical understanding of the process of caring, but that nurse training does not provide guidance for this work. In this respect the nurses’ work in this area is often developed on a trial and error basis rather than through theoretical training. If there is limited understanding of the process of giving care then Carradice, Shankland and Beail (2002) ascertain that treatment may be poorly targeted and patient outcomes may be compromised. The analysis process resulted in the description of a model underlying the nurses work (developed from cross-case analysis of the group of eight nurses), which was then compared to the theoretical constructs of another model documented in the literature.

Epstein and Ogden (2005) explored the views of 21 general practitioners (GPs) on managing primary care patients with obesity. Semi-structured interviews were used to collect data. The results were largely centred on the issue of ‘responsibility’. The study found that GPs believe that the management of obesity is the responsibility of the patient, whilst recognising that, in many cases the patient regards obesity as a medical problem requiring management by the GP.

Golsworthy and Coyle (2001) explored the religious and spiritual dimensions of bereavement therapy from the perspective of 12 therapists through semi-structured interviews. The authors acknowledge both the role of the participant in influencing the direction of the interview and the role of the researcher and how their pre-conceptions may have influenced aspects of the study. Themes are presented that are shared ‘cross-therapist’, although diverging views are also presented to provide insights into the complexity of the topic.
Hughes and McCann (2003) used IPA to explore perceived inter-professional barriers between community pharmacists and general practitioners. The participants (22 GPs and 31 pharmacists) took part in a series of uni-professional focus groups (five focus groups of GPs; six focus groups for pharmacists). The results are presented separately for the GPs and pharmacists, identifying convergence and divergence between the views of each group.

Jarman, Smith and Walsh (1997) examined the experience of caring for patients with anorexia nervosa from the perspective of 14 paediatric nurses. Although the experience for each participant was explored, the size of the sample and focus on shared experiences resulted in a more detailed analysis at the level of shared experiences across the sample; resulting in the identification of one higher order theme (that of 'control') relevant to all participants.

Michie et al. (2004) investigated the reasons why general practitioners achieve national health targets in primary care to varying degrees. Sixteen general practitioners were recruited and had been identified as 'high' or 'low' implementers with regards to the achievement of Coronary Heart Disease milestones from the National Service Framework. The study used a theoretical framework (Michie and Johnston 2003) to attempt to compare and understand the differences between the two previously identified groups (high and low implementers); the aim being to increase the future implementation of clinical guidelines.

References


APPENDIX SIX:

ETHICAL APPROVAL FOR PHASE TWO OF THE WALKING INTERVENTION RESEARCH
Appendix

APPENDIX SEVEN:

SCHEDULE FOR INTERVIEWS UNDERTAKEN WITH PARTICIPANTS IN STUDY 2A
Interview Schedule used when undertaking interviews with participants in study 2A

Introduction and overview

1. Can you tell me a bit about your role as a PN/ HCA?

2. Can you tell me about your experience of working with patients to help them improve their lifestyle or change their health behaviours in Primary Care?
   What is your experience of trying to change health related behaviours in primary care? (An example of this type of work might be a well man or woman clinic / weight management clinics. Could be targeting a specific health behaviour or as part of self management / secondary prevention).
   Can you tell me more? / What was involved?

3. Can you tell me a bit about how you see the role of a PN/HCA in HBC and the role of the patient in HBC?

4. How long have you worked in primary care in this role?

5. How has your involvement in HBC work changed in this time?
   Can you tell me more?

6. What aspects of this work do you feel are positive or beneficial?
   For patients? / For nurses?
   Can you tell me more? / Can you give me an example? / Why is that?

7. What aspects of this work do you feel are negative or challenging?
   For patients? / For nurses?
   Can you tell me more? / Can you give me an example? / Why is that?
   If they have no experiences of HBC:
   Can you tell me a little more about why you have not been involved in this type of work?

8. How equipped do you feel now in terms of delivering health behaviour change work?
   Why is that? / Can you tell me more? / Skills / knowledge / training / resources

9. Can you tell me about your initial training / qualifications and whether they have included HBC?

10. What do you feel is important to equip you, or better support you to continue to deliver such work in the future?
    Why is that? / Can you tell me more?
11. Are there aspects of your HBC work or role that you find particularly easy (or have more confidence in)?
   What areas of this work do you feel most confident about?
   Can you tell me why?

12. What areas do you feel are more difficult / challenging?
   Can you tell me why?

13. What resources do you use to support you in your HBC work?
   Can you give an example of what this looks like? / How it is used?

14. Have you ever used a protocol / guideline / manual to guide health behaviour change work?
   How did you find this? Was it useful? / Can you describe it? What area of work was it linked to?

15. Are there any things to do with the Primary Care setting or context that help or hinder your work in health behaviour change?

16. Are there particular characteristics of patients that help or hinder your work in health behaviour change?
   Why is that? / Can you tell me more?

17. Before we move on to the final part of the interview, is there anything else you would like to add about changing health behaviour in primary care?

   *It would now be helpful to spend a short amount of time talking about the walking intervention that you have agreed to take part in.*

18. What made you decide to participate in the walking intervention research?
   What particularly made you want to get involved in the walking intervention research?
   What features of the walking intervention appealed to you?
   Can you tell me more about that?

19. What do you think might motivate other PNs/HCA's to get involved?

20. What would you like to get out of being involved in this research?
   What outcomes would improve your experience of being involved in the research?

21. You may not have given this much thought, but based on what you already know about the walking intervention research, what aspects of it do you like / find appealing or interesting?
   Can you tell me more about that? / Why is that?
   What parts of it do you think will be helpful to you to deliver it in Primary Care?
Appendix

Again, this may be hard to answer, but is there anything about the walking intervention research that you think may be difficult or pose problems?

Can you tell me more about that?
What parts of it will be unhelpful to you when delivering it?

22. **Can you describe what you feel will be important to equip you to deliver the walking intervention?**
What particular things do you feel you will need to be able to deliver the intervention in PC? / Why is that?

23. **Is there anything else you would like to add about changing health behaviours in Primary Care, whether generally or to do with the walking intervention research?**

Conclusion and thanks
APPENDIX EIGHT:

TABLE SHOWING EARLY STAGES OF DEVELOPING CROSS-CASE INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS IN STUDY 2A
### SUPER-ORDINATE THEMES FOR EACH PARTICIPANT

<table>
<thead>
<tr>
<th></th>
<th>ANNA</th>
<th>JENNY</th>
<th>VALERIE</th>
<th>JANE</th>
<th>MARGARET</th>
<th>CAROLINE</th>
<th>MARY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Educational</strong></td>
<td>Educational approach</td>
<td>Lost opportunities</td>
<td>Societal change</td>
<td>Educational / medical</td>
<td>Educational approach</td>
<td>A partnership approach</td>
<td>An educational approach</td>
</tr>
<tr>
<td></td>
<td>Nurse in control / nurse as expert</td>
<td>(influence of PC context)</td>
<td>approach</td>
<td>model</td>
<td>but needs support</td>
<td>Small steps necessary</td>
<td>Influence of primary care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Educational approach but</td>
<td>I can only do so much</td>
<td>Practice what I preach</td>
<td>HBC a secondary issue</td>
<td></td>
<td>context</td>
</tr>
<tr>
<td></td>
<td></td>
<td>needs support</td>
<td></td>
<td>HBC - a change for life</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### EMERGENT THEMES THAT WERE PARTICULARLY PREVALENT OR SALIENT ACROSS THE PARTICIPANTS

<table>
<thead>
<tr>
<th>Approach</th>
<th>Information-giving approach</th>
<th>Information + support necessary</th>
<th>Patient-centred Approach but acknowledges importance of wider influences to facilitate behaviour change.</th>
<th>Information-giving approach - but questions her credibility. Without experience / credibility the educational approach is questioned.</th>
<th>Educational approach - she raises issue in many cases but acknowledges support necessary. Does ask for patient to share issues but she determines content of consultation.</th>
<th>Patient-centred approach. Patient as expert</th>
<th>Information-giving approach Giving information should result in change. Nurse as expert - she cant help them if doesn't see them Approach due to context?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nurse / patient responsibility. Patient choice?</strong></td>
<td>Nurse is in control / is expert who determines course of action. Patients not always good at taking responsibility.</td>
<td>Patients have control over what they eat / exercise. Patient responsibility for HBC.</td>
<td>Patient needs to take some responsibility - but society should be supportive of HBC. Nurse can only do so much as a result of limitations.</td>
<td>If she gives info. patient should make changes. Frustrated by patients who don't.</td>
<td>Patient responsibility</td>
<td>Nurse gives information. When patients do not make changes, nurse assumes responsibility, esp. in LTCs.</td>
<td></td>
</tr>
<tr>
<td>Impact of external factors on patient - environment / Limitations restricting exercise</td>
<td>Societal change important Recognises limitations of some</td>
<td>Focus on importance of societal change</td>
<td>Yes - medical approach. If... do this... Recognises influence of environment on patient</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td></td>
</tr>
<tr>
<td>Influence of external factors / infrastructure</td>
<td>QOF does influence work. Time pressures</td>
<td>Lack of training/ HBC not a priority</td>
<td>Pragmatic about time/training</td>
<td>Large emphasis on template - it can restrict flow of consultation. Not keen on having to introduce issues that may not be central to patient</td>
<td>External influences from smoking cessation / structure help her. Time – lucky to have.</td>
<td>Time pressures impact on work. Emphasis on use of template</td>
<td></td>
</tr>
<tr>
<td>HBC - a long process. Follow up</td>
<td>Describes how she organises follow-up for patients.</td>
<td>Accountability / on-going support necessary</td>
<td>HBC - not a quick fix. But does not describe follow-up / ongoing support. Frustrated if patients don’t make changes</td>
<td>Describes bombarding pts with information - follow-up to check progress</td>
<td>Follow-up as demonstrating progress - which can be small steps. On-going support / motivation important.</td>
<td>Less emphasis on follow up. Change should happen if information is imparted</td>
<td></td>
</tr>
<tr>
<td>HBC - unstructured - difficult. Hard to &quot;measure&quot;, thus difficult to demonstrate the potential of small changes and progress to patient.</td>
<td>Smoking easier - black and white. Cause and effect - how poor HB's can cause problems and how good HB's can improve health</td>
<td>HBC Difficult to measure Physiological measures easier. Uses DoH resources to guide structure of her work</td>
<td>Use of a flow chart would be useful. Talks of cause and effect.</td>
<td>Unhappy at lack of resources to support her work and give to patient.</td>
<td>She (and nurses generally) value structured approach</td>
<td>Significant use of resources to give patient.</td>
<td></td>
</tr>
<tr>
<td><strong>HBC a secondary issue in many cases - but underpins most work. LTC offers route into HBC work; links to engaging the patient.</strong></td>
<td><strong>HBC underpins everything - but is not part of &quot;tick boxes&quot;, no formal training. Lost opportunities for this important work in PC.</strong></td>
<td><strong>HBC not prioritised in PC due to time pressures, esp. in healthy patients. Greater priority for LTCs. HBC is a secondary issue.</strong></td>
<td><strong>Yes - much of HBC as part of LTC</strong></td>
<td><strong>HBC as part of LTC</strong></td>
<td><strong>HBC often done as part of LTC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
<td>---</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Personal reflection and the influence of this on nurses work. i.e. “I should practice what I preach”</strong></td>
<td><strong>Mentions past health issues where exercise has helped. She shares this with patients to demonstrate value of HBC and how it helped her.</strong></td>
<td><strong>“I don’t do it” Recognises how hard HBC is - talks of difficulties for individual patients and then relates to wider populations</strong></td>
<td><strong>Practice what I preach. Questioning of her behaviours. Does not feel she can be effective at HBC if she has no experience.</strong></td>
<td><strong>Mentions has to do exercise to maintain weight - that works for her - uses this to advise patients (when asked) about finding a balance that works for them</strong></td>
<td><strong>Practice what I preach - had a negative experience of increasing weight (don’t want to be chastised- this impacts on her wish to be approachable, not wanting to upset patients)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX NINE:

OVERVIEW OF LONGITUDINAL STUDIES USING INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS
Overview of longitudinal IPA studies (references follow the overview).

Three studies explored the changing experiences during the transition to motherhood (Smith 1994, Smith 1999a and Smith 1999b), whilst three explored changing experiences of participants by generating data before and after involvement in an intervention (Cullen-Powell, Barlow and Cushway 2005, Doppler-Bourassa, Harkins and Mehta 2008 and Osborne and Smith 2008).

Smith (1994) aimed to compare the accounts of four women during the transition to motherhood. A comparison was made of the accounts of the participants' current experiences with those obtained retrospectively. Data were collected from the women at four time points; three during their pregnancies (at three, six and nine months) and once at five months post-partum. Data were collected from interviews with participants, diaries completed by participants and the use of repertory grids. Analysis was undertaken through a staged approach which involved constructing a draft case study for each woman, drawing on all of the data sources. The researcher returned to the women to seek their reactions to the material; this conversation was recorded and used in the development of the final case study. The author then used the case studies as a means of generating theory concerning self-reconstruction.

Smith (1999a: 409) developed data obtained in the previous study (Smith, 1994) to 'work towards a theoretical model of the relational self'. Three of the four participants included in this study were also included in Smith (1994). This study does not include the views of one of the participants, who is described in another study (Smith 1999b) as having diverging views. The analysis in Smith (1999a) is presented through four theoretical statements. The first statement is referred to as 'a generic, orienting statement derived from Mead' (Smith 1999a). The remaining three, more specific statements are described as being derived inductively from the case studies. Each of the statements are supported through data from the participants and interpretative accounts. Smith (1999b) again uses the detailed case studies developed in the aforementioned studies (Smith 1994 and Smith 1999a) to explore the development of identity during the transition to motherhood. The study presents a 'processual model of the transition' to motherhood by the
four women (p. 281). The study explores the development of identity at each of the time points of data collection, i.e. at three, six and nine months of the women's pregnancies and five months post-partum. Converging and diverging perspectives between the participants are presented at each of the time points.

Cullen-Powell, Barlow and Cushway (2005) explore how a massage intervention for parents and their children with autism affects bonding and attachment. Interviews with parents were undertaken at three time points, prior to participation in the massage intervention (n=14), immediately after the massage intervention (n=10) and 16 weeks from the first interview (n=9). The authors report that the final interview enabled clarification of the issues reported pre-and post-intervention and further exploration of the experiences and meaning of touch between parents and children. The results are presented at each of the three data collection points, for all of the participants.

Doppler–Bourassa, Harkins and Mehta (2008) undertook an IPA study of four preschool teachers, pre-and post-involvement in a community-based conflict resolution intervention. The aim of the study was to enhance understanding of the impact of the intervention on the teachers, through exploration of their experiences of conflict in their community before and after the intervention. Themes were developed which are presented both narratively and in table form. The tables include extracts from individual participants obtained before and after the intervention, related to each of the themes developed. The first theme focuses on the solutions the participants described using to encourage the children with whom they worked to resolve conflicts. The second theme describes the solutions the participants used when making decisions attempting to resolve conflict that did not involve the child. The third theme focuses on the outcomes of conflict and reflected a change in vision from negative outcomes pre-intervention to more positive outcomes post-intervention.

Osborn and Smith (2008) explored the personal experiences of managing chronic pain from the perspectives of ten participants, before and after participation in a hypnotic pain management relaxation exercise. Two main themes were presented: ‘The fearfulness of pain’ and ‘The containment of fear through a social connection’.
The first theme explores the participants' experiences of pain and the second focuses on experiences of pain following the intervention. The authors present extracts from most of the participants and are able to illustrate how the participants' felt little change in their descriptions of their pain, but they felt better able to manage the fear they experienced; this in turn, enabled them to feel a number of benefits.

References


APPENDIX TEN:

SCHEDULE FOR FOLLOW-UP INTERVIEWS UNDERTAKEN
WITH PARTICIPANTS IN STUDY 2B
Interview Schedule used when undertaking follow-up interviews with participants in study 2B

Introduction and overview

1. **What did you particularly like about the walking intervention?**
   Can you tell me more about that? / Why is that? / Anything else?

2. **What parts of it were helpful to you, as a PN / HCA delivering the intervention?**
   Can you tell me more about that?

3. **What features of the intervention are helpful in terms of delivering it in the Primary Care setting?**
   Can you tell me more about that?

4. **Is there anything about the intervention that you did not like?**
   Can you tell me more about that? / Why is that? / Anything else?

5. **What parts of it were less helpful to you delivering it in Primary Care?**
   Can you tell me more about that?

6. **How could these problems be overcome? (if problems were identified)**
   Can you tell me more about that?

7. **With the benefit of hindsight, do you feel you were suitably prepared to deliver the intervention?**
   If yes, what was particularly helpful?
   If no, what would have further helped?

8. **Can you describe how you used the intervention manual and resource folder in the sessions with your patients?**
   Can you tell me about your experience of using the intervention protocol?
   How did it feel to use these resources?
   What aspects of the manual / folder did you find particularly helpful / unhelpful? Why is that?

9. **How did your experience of delivering the intervention compare with your previous experience of doing work to change health behaviours?**
   Were any aspects of delivering the intervention similar or different to other work you have been involved in that aims to change health behaviours?
   What was similar / different? / In what way? / How did it feel?

10. **Can you describe your role (responsibilities) and the role of the patient when you delivered the intervention?**
    How would you describe generally what you did and what the patient did during the intervention sessions?
    How did you feel about this? / How do you think the patient felt about it?
    How did this compare to HBC work that you have undertaken previously?
11. **How is this similar or different compared to previous work you have done to help patients change their health behaviours?**
   Can you describe how it is similar / different to other work you do?
   Can you tell me a bit more about that?

12. **To what extent do you think patients engaged with this intervention?**
   Do you think your patients understood and fully participated in the intervention?
   What do you feel would help to increase patients’ engagement?
   Can you describe whether / how much the patient’s engagement influenced you?

13. **What particularly positive things do you think you will gain from involvement in this intervention?**
   Can you describe any aspects of either the process of being involved in the intervention that you or the patients found useful?
   What about positive things following actually being involved in the intervention – say, outcomes of participating that are helpful?

14. **What negative / difficult or challenging things did you experience in relation to delivering the intervention?**
   Was there anything that you found unhelpful?
   Was there anything that the patients seemed to find unhelpful or difficult?

Following your recent experience of delivering an intervention that aims to change health behaviours (the walking intervention), I am now interested in revisiting your opinions on health related behaviour change generally, although some of these may link to the walking intervention.

15. **What are your feelings about delivering HBC interventions in primary care generally?**
   Can you tell me more about that? /Why is that? /Anything else?
   Has this changed since you delivered the intervention? / In what way?

16. **What do you feel are the most important features of work to change health behaviours with patients in Primary Care?**
   What do you think HBC work should involve?
   Can you tell me more about that? / Why is that?

17. **How would you describe the type of things you used (activities etc) to do to help patients change their health behaviours?**

18. **Can you describe if this is different now that you have delivered the walking intervention?**
   If different, in what way? How is it different?
   If not different, did you learn any new skills or approaches through the walking intervention that you might use in the future/
19. Is there anything that, following involvement in the walking intervention you will build on or do differently with regards to your future HBC work with patients?

20. How prepared do you feel now in terms of your current skills and knowledge to deliver HBC interventions?
   Why is that? / Can you tell me more?

21. What do you feel is important to equip you to deliver such work in the future?
   Why is that? / Can you tell me more?
   What aspects of training do you feel are important?
   What about developing your skills?

22. Are there aspects of HBC work that you feel more confident in? Or find particularly easy?
   What areas of this work do you feel most confident about? /Why?

23. What areas do you feel are more difficult / challenging?
   Why is this?

24. Are there any things to do with the Primary Care setting or context that help or hinders your future work in HBC?
   Thinking about the context / setting in which you do this work and whether it has any impact on your HBC work?

25. Is there anything else you would like to add about the walking intervention or changing health behaviours in primary care?

Conclusion and thanks
APPENDIX ELEVEN:

DEMOGRAPHIC DATA ON GENERAL PRACTICES PARTICIPATING IN PHASE THREE OF THE WALKING INTERVENTION RESEARCH
Demographic data on general practices participating in Phase Three of the walking intervention research

<table>
<thead>
<tr>
<th>Location of practice</th>
<th>Practice Size</th>
<th>IMD Score</th>
<th>Rank</th>
<th>QOF Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coventry</td>
<td>3016 (Small)</td>
<td>30,573</td>
<td>94.12%</td>
<td>90.2%</td>
</tr>
<tr>
<td>Warwickshire</td>
<td>4487 (Small)</td>
<td>25,721</td>
<td>79.19%</td>
<td>95%</td>
</tr>
<tr>
<td>Warwickshire</td>
<td>11897 (Large)</td>
<td>23,138</td>
<td>71.23%</td>
<td>96.5%</td>
</tr>
<tr>
<td>Warwickshire</td>
<td>9718 (Large)</td>
<td>16,995</td>
<td>52.32%</td>
<td>89.6%</td>
</tr>
<tr>
<td>Warwickshire</td>
<td>5670 (Small)</td>
<td>16,819</td>
<td>51.78%</td>
<td>95.9%</td>
</tr>
<tr>
<td>Warwickshire</td>
<td>2,324 (Small)</td>
<td>13,299</td>
<td>40.94%</td>
<td>54.6%</td>
</tr>
<tr>
<td>Coventry</td>
<td>9730 (Large)</td>
<td>7,633</td>
<td>23.50%</td>
<td>98.6%</td>
</tr>
</tbody>
</table>

1 Practice names have not been given to preserve anonymity of participants.
2 Data on practice size was obtained from www.ppa.org.uk [May 2010]. Practices were designated large or small if the practice size was larger or smaller than the median practice size for the Primary Care Trust in which they were situated.
3 Data on IMD scores and rank was obtained from http://geoconvert.mimas.ac.uk/ [January 2010]. The rank is based on all wards in England.
APPENDIX TWELVE:

ETHICAL APPROVAL FOR PHASE THREE OF THE WALKING INTERVENTION RESEARCH
APPENDIX THIRTEEN:

CHECKLIST USED TO ASSESS PROVIDER COMPETENCE
### Assessment of competence: Session One: PN/HCA:

<table>
<thead>
<tr>
<th>COMPONENT OF SESSION</th>
<th>INCLUDED</th>
<th>COMPETENCY</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTRODUCTION</strong></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Brief summary of session?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ASSESSMENT OF CURRENT AVERAGE DAILY WALKING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Briefly establish patient’s average daily walking using pedometer?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Patient is told average daily walking figure?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WHAT MAKES IT EASIER TO WALK</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Patient asked to complete worksheet?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Discussion of high scores and eliciting reasons why from patient?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WALKING EXPERIENCES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Patient asked to complete worksheet?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Encourage patient elaboration - What helped the patient walk more and why?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GOAL SETTING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Patient offered goal of 10/20 mins?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Patient sets their goal?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ACTION PLANNING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Patient generated action plan, with all sections completed?</td>
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<td>- Patient describes their action plan?</td>
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<td><strong>CONCLUSION</strong></td>
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<td>- Patient summarises session and plans for next week?</td>
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<td>- Patient encouraged to complete diary?</td>
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General comments:

Outcome:

Research Team signature: ___________________________ Date: ________________
### Assessment of competence: Session Two: PN/HCA

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<td>- Brief summary of session?</td>
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<td>- Patient describes walking in last week?</td>
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<td><strong>FEEDBACK / GOAL RE-EVALUATION</strong></td>
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<td>- Praise / positive feedback given?</td>
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<td>- Patient to describe what helped / might help?</td>
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<td>- Patient decides to increase / decrease / maintain goal?</td>
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<td>- Patient identifies how they can improve their action plan, and completes accordingly?</td>
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<td>- Patient describes their action plan?</td>
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General comments:

Outcome:

Research Team signature: [Signature]  
Date: [Date]
APPENDIX FOURTEEN:

WALKING INTERVENTION SESSIONS DELIVERED, 
RECORDED AND CODED PER PROVIDER
## Walking Intervention Session One

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^1 Where more than five sessions were recorded by a provider, the numbers in brackets in 'Session Recorded' column denote the five sessions that would be coded for that provider.
## Walking Intervention Session Two

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**PROVIDER 2: MANDY**

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<td>SA0607</td>
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<td></td>
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<tr>
<td>SA0608</td>
<td>√</td>
<td>18</td>
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</tr>
<tr>
<td>SA0609</td>
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<td></td>
</tr>
</tbody>
</table>

**PROVIDER 6: JO**

<table>
<thead>
<tr>
<th>PROVIDER 6: JO</th>
<th>SESSIONS DELIVERED BY EACH PROVIDER IN ORDER OF DELIVERY</th>
<th>SESSION TWO RECORDED</th>
<th>INTERVENTION SESSION NUMBER ASSIGNED</th>
<th>ORDER TO CODE (RANDOMLY GENERATED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA0713</td>
<td>√ (1)</td>
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<td>SA0711</td>
<td>√</td>
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<td>SA0712</td>
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<td></td>
</tr>
<tr>
<td>SA0714</td>
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</tr>
<tr>
<td>SESSIONS DELIVERED BY EACH PROVIDER IN ORDER OF DELIVERY: JO CONTINUED</td>
<td>SESSION TWO RECORDESD (✓)¹</td>
<td>INTERVENTION SESSION NUMBER ASSIGNED</td>
<td>ORDER TO CODE (RANDOMLY GENERATED)</td>
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</tr>
<tr>
<td>---</td>
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<tr>
<td>SA0706</td>
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<tr>
<td>SA0707</td>
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<tr>
<td>SA0715</td>
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<tr>
<td>SA0708</td>
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<td>SA0710</td>
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<td>SA0702</td>
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<td>SA0703</td>
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<td></td>
</tr>
<tr>
<td>SA0704</td>
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</table>

PROVIDER 7: JUDITH

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<td>SA0804</td>
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</table>

PROVIDER 8: DENISE

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<td>SA1008</td>
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<td>SA1001</td>
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<td>SA1003</td>
<td>✓</td>
<td></td>
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<td>SA1004</td>
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<td>SA1011</td>
<td>✓</td>
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<tr>
<td>SA1012</td>
<td>Withdrew after session one</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA1013</td>
<td>✓ (5)</td>
<td>30</td>
<td>3</td>
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</table>

¹ Where more than five sessions were recorded by a provider, the numbers in brackets in 'Session Recorded' column denote the five sessions that would be coded for that provider.
APPENDIX FIFTEEN:

CODING FRAMES FOR WALKING INTERVENTION
SESSIONS ONE AND TWO
# Walking Intervention Session One

**Patient code:**

<table>
<thead>
<tr>
<th>Name of coder:</th>
<th>Date of coding:</th>
</tr>
</thead>
</table>

## INTERVENTION COMPONENTS / TECHNIQUES:

<table>
<thead>
<tr>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code 0 for not delivered.</td>
</tr>
<tr>
<td>Code 1 for delivered. Code 1 only if technique is definitely present.</td>
</tr>
<tr>
<td>Please assign a code: If unsure, make a note on the coding frame and note down the time on the recording for discussion.</td>
</tr>
<tr>
<td>If the patient elaborates on an activity on the coding frame without being asked, this scores a 1 as the technique is still present.</td>
</tr>
</tbody>
</table>

### INCLUSION:

<table>
<thead>
<tr>
<th>Yes = 1</th>
<th>No = 0</th>
</tr>
</thead>
</table>

### INCLUSION:

- Code 0 for not delivered.
- Code 1 for delivered. Code 1 only if technique is definitely present.

Please assign a code: If unsure, make a note on the coding frame and note down the time on the recording for discussion.

If the patient elaborates on an activity on the coding frame without being asked, this scores a 1 as the technique is still present.

## Times of components

Try to assign exact time that each component was completed (even if component was in wrong order).

In notes box - please try to enter time spent on study/trial procedures i.e. completion of study questionnaires.

In notes box please detail interruptions.

### Please note start time of intervention here:

### 1. INTRODUCTION

Score 1 if this is delivered before any other part of intervention

Does provider give an overview of the session?

Score 1 if overview of session is included

**Time on recording following component: (minutes / seconds)**

### 2. ASSESSMENT OF CURRENT AVERAGE DAILY WALKING

Score 1 if component immediately follows Introduction

Does provider inform patient of their baseline average daily walking figure (minutes / day)?

Score 1 if provider states patient's average daily walking

**Time on recording following component: (minutes / seconds)**

i.e. following provider informing patient of av. daily walking and any linked discussion

### 3. WHAT MAKES IT EASIER TO WALK (WMIETW)

Score 1 if component immediately follows assessment of average daily walking

Does provider ask patient to complete worksheet?

Score 1 if provider asks patient to complete worksheet and/or explains how to complete

Does provider elicit reasons for WMIETW from patient?

Score 1 if provider asks patient to elaborate on their high scoring situations and/or patient elaborates on WMIETW and emphasis is on WMIETW

Score 0 if provider just asks patient to read back the scores for each statement, or if provider reads out high scores but does not ask patient to feedback

Score 0 if the patient does not elaborate on WMIETW

**Time on recording following component: (minutes / seconds)**
<table>
<thead>
<tr>
<th>Appendix</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4. WALKING EXPERIENCES</strong></td>
</tr>
<tr>
<td>(Score 1 if component immediately follows WMIETW)</td>
</tr>
<tr>
<td>Does provider ask patient to complete worksheet?</td>
</tr>
<tr>
<td>Score 1 if provider asks patient to complete worksheet and/or explains how to complete</td>
</tr>
<tr>
<td>Does provider encourage patient to read back their examples / elaborate on their experience further?</td>
</tr>
<tr>
<td>Score 1 if there is discussion between provider and patient before/during/following writing of walking experiences where patient elaborates on their walking experiences</td>
</tr>
<tr>
<td>Score 1 if patient is asked to elaborate after completing and/or patient does elaborate</td>
</tr>
<tr>
<td>Score 0 if patient completes worksheet but nothing else happens or if provider reads back worksheet and patient does not elaborate</td>
</tr>
<tr>
<td>Time on recording following component: (minutes / seconds)</td>
</tr>
</tbody>
</table>

| **5. GOAL SETTING**  |
| (Score 1 if component immediately follows Walking Experiences; Score 0 if component follows assessment of average of daily walking) |
| Does provider offer a goal of 10 or 20 minutes increase in average daily walking?  |
| Score 1 if a goal of 10 or 20 minutes is offered  |
| Score 1 if a goal that includes both 10 and 20 minutes is offered  |
| Score 0 if any other goal is offered, or no goal is offered  |
| Does patient make final decision on goal?  |
| Score 1 if the patient makes the final decision (on the goal) (even if there is discussion about the goal before the final decision is made by the patient)  |
| Score 0 if provider suggests / decides on goal  |
| Time on recording following component: (minutes / seconds) |

| **6. ACTION PLANNING / CONCLUSION**  |
| (Score 1 if component immediately follows Goal setting) |
| Does provider ask patient to complete action plan?  |
| Score 1 if provider asks patient to complete worksheet and/or explains how to complete  |
| Does provider ask the patient to read back /elaborate on their action plan?  |
| Score 1 if there is discussion between provider and patient before/during/following writing of action plan (where patient elaborates on their plans for walking) and/or patient is asked to read back/elaborate after completing and/or patient does elaborate/read back after completing  |
| Score 0 if patient completes plan but nothing else happens or if provider reads back action plan  |
| Score 0 if provider prompts patient to help them complete but there is no elaboration from patient  |
| Time on recording following component: (minutes / seconds) |

| Does provider explain to the patient how to use the diary?  |
| Score 1 if provider gives instruction on how to complete diary, and/or encourages patient to do so and/or asks patient to bring completed diary to next session  |

| Does provider ask the patient to summarise what they did in the session?  |
| Score 1 if provider asks patient to summarise what they did in the session and/or patient summarises session - in which they refer to at least 1 intervention component (i.e. assessment of av. daily walking, WMIETW, walking experiences, goal setting, action planning)  |
| Score 0 if provider summarises session or if patient just says, to increase my walking  |
| Does provider ask the patient to summarise their plans for walking in the next week? | Score 1 if provider asks patient to summarise plans for walking and/or patient summarises plans for walking (i.e. that patient outlines goal they have set and/or details of action plan and/or refers to completing diary of extra walks they are planning)  
Score 0 if provider summarises plans for walking |
|---|---|
| Does provider end the session in a positive way? | Score 1 if at least one of following is delivered:  
- patient is encouraged to walk  
- patient is encouraged to display action plan (has to happen during last minute (i.e. end) of session - not just when instructing to complete diary)  
- patient thanked for coming to session  
- a general social exchange in which both provider and patient engage and which may enhance rapport  
- patient praised for their efforts during the session  
Score 0 if provider says 'good luck', or 'see you next week' |
| Time on recording following component: (minutes / seconds) |  |
| Total Score: Components / techniques of intervention:  
(White boxes - out of 20) |  |
| YES SCORES:  
Notes on the presence of the following by the provider, i.e.  
Encouragement / praise; Positive feedback; Criticism | NO SCORES:  |
| Time spent on; (note start and end time; no need to calculate time)  
study/trial procedures i.e. completion of study questionnaires; interruptions |  |
| Any other notes/comments; |  |
| Additional intervention components, i.e.  
- making suggestions  
- giving Government guidelines on physical activity  
- explaining moderate / brisk walking |  |
## Walking Intervention Session Two

**Patient code:**

<table>
<thead>
<tr>
<th>Name of coder:</th>
<th>Date of coding:</th>
</tr>
</thead>
</table>

### Content

Code 0 for not delivered.
Code 1 for delivered. Code 1 only if technique is definitely present.
Please assign a code: If unsure, make a note on the coding frame and note down the time on the recording for discussion.
If the patient elaborates on an activity on the coding frame without being asked, this scores a 1 as the technique is still present.

### Times of components

Try to assign exact time that each component was completed (even if component was in wrong order).
In notes box - please try to enter time spent on study/trial procedures i.e. completion of study questionnaires
In notes box please detail interruptions

### INTERVENTION COMPONENTS / TECHNIQUES:

<table>
<thead>
<tr>
<th>Content</th>
<th>TIMES OF COMPONENTS</th>
</tr>
</thead>
</table>

| **INCLUDED** | Yes =1 | No = 0 |

Please note start time of intervention here:

#### 1. INTRODUCTION

Score 1 if this is delivered before any other part of intervention

**Does provider give an overview of the session?**
Score 1 if overview of session is included

**Time on recording following component: (minutes / seconds)***

#### 2. REVIEW OF BEHAVIOUR CHANGE/FEEDBACK (Score 1 if component immediately follows Introduction)

**Does provider ask the patient to describe their walking experiences in the last week?**
Score 1 if provider asks patient to describe their walks in last week and/or patient describes their walks, giving details of at least one walk
Score 1 if patient describes their walks without being asked to
Score 1 if provider asks patient 'how did you get on?' and patient describes their walks in last week
Score 0 if provider asks patient 'how did you get on?' and patient does not describe their walks in last week

**Does provider inform patient of their average daily walking in last week?**
Score 1 if provider states patient's average daily walking
Score 1 if provider states whether patient has or has not met their goal

**Does provider give praise / positive feedback for meeting goal/efforts to increase walking?**
Score 1 if provider praises patient for meeting their goal / efforts to increase walking
Score 0 if provider does not praise efforts/achievements or if provider says 'never mind' if the patient has not been able to increase their walking
**MET Goal** - Does provider ask patient to discuss what in particular helped with their walking (if they met goal)?
Score 1 if the provider asks and/or the patient describes what has helped them to increase their walking (in this component )
Score 0 if provider does not ask but patient mentions what made it easier, but within another component, i.e. supportive plan
OR
**NOT MET GOAL** - If patient has not met goal, and patient describes reasons why they did not met goal, does provider ask patient how they might overcome any barriers/reasons they could not walk (if they did not meet goal)?
Score 1 the provider asks the patient to describe what might help them overcome barriers (should only happen if patient raises barriers)
Score 1 if patient does not mention barrier and provider does not mention barriers
Score 0 if provider asks about barriers without patient mentioning barriers
Score 0 if patient mentions barriers and provider encourages patient to dwell on these barriers; or does not ask how these might be overcome

<table>
<thead>
<tr>
<th>Time on recording following component: (minutes / seconds)</th>
</tr>
</thead>
</table>

**3. GOAL RE-EVALUATION / GOAL SETTING**
**Score 1 if component immediately follows review of behaviour change**

**Does provider offer patient a goal as per the protocol?**
Score 1 if;
good was achieved (or almost achieved, i.e. patient increased their walking and was only approx a minute off goal) –provider offers patient to either **maintain** goal or go for **harder goal** (of 5-10 minute increase)
good was not achieved recommend **maintain** goal or **easier goal** (decrease by 5 minutes)
Score 1 if provider raises issue of goal and patient decides on their goal before provider has chance to offer goal choices (as above) AND provider clarifies how this goal relates to last goal, i.e. ‘so you want to maintain?’, or checks that the patient feels their goal choice is realistic
Score 0 if any other goal is offered, or no goal is offered

**Does patient make final decision on their walking plans (goal) for next week?**
Score 1 if the patient makes the final decision (on the goal) (even if there is discussion about the goal before the final decision is made by the patient)
Score 0 if provider suggests / decides on goal
(The patients' walking plan / goal can be easier/harder or the same)

<table>
<thead>
<tr>
<th>Time on recording following component: (minutes / seconds)</th>
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</table>

**4. SUPPORTIVE PLANNING**
**(Score 1 if component immediately follows Goal Re-evaluation / setting)**

**Does provider ask patient to complete worksheet?**
Score 1 if provider asks patient to complete worksheet and/or explains how to complete

**Does provider ask the patient to read back/elaborate on their supportive plan?**
Score 1 if there is discussion between provider and patient before/during/following writing of supportive plan where patient elaborates on their supportive plan and/or patient is asked to read back/elaborate after completing and/or patient does elaborate/read back after completing
Score 0 if patient completes plan but nothing else happens or if provider reads back supportive plan
Score 0 if provider prompts patient to help them complete but there is no elaboration from patient

<table>
<thead>
<tr>
<th>Time on recording following component: (minutes / seconds)</th>
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</thead>
</table>
### 5. ACTION PLANNING / CONCLUSION
(Score 1 if component immediately follows Supportive Plan)

<table>
<thead>
<tr>
<th>Component</th>
<th>Score 1</th>
<th>Score 0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Does provider ask patient to complete action plan?</strong>&lt;br&gt;Score 1 if provider asks patient to complete worksheet and/or explains how to complete&lt;br&gt;Score 1 if provider asks patient to consider whether they want to keep the same AP (only if patient met goal and all aspects of their plan worked and they are keeping same goal this week)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Does provider ask the patient to read back/elaborate on their action plan?</strong>&lt;br&gt;Score 1 if there is discussion between provider and patient before/during/following writing of action plan (where patient elaborates on their plans for walking) and/or patient is asked to read back/elaborate after completing and/or patient does elaborate/read back after completing (this should happen even if patient is keeping same goal and action plan)&lt;br&gt;Score 0 if patient completes action plan but nothing else happens or if provider reads back action plan&lt;br&gt;Score 0 if provider prompts patient to help them complete but there is no elaboration from patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Time on recording following component: (minutes / seconds)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Does provider ask patient to complete the diary?</strong>&lt;br&gt;Score 1 if provider gives instruction on how to complete diary, and/or encourages patient to complete one diary each week until their follow-up session and/or asks patient to bring diary to next session and/or advises patient to review action plan before completing a new diary and/or gives patient 2 or more diaries</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Does provider ask the patient to summarise what they did in the session?</strong>&lt;br&gt;Score 1 if provider asks patient to summarise what they did in the session and/or patient summarises session - in which they refer to at least 1 intervention component (i.e. review of walking, goal setting, supportive planning, action planning)&lt;br&gt;Score 0 if provider summarises session or if patient just says, we've looked at how we can increase my walking</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Does provider ask the patient to summarise their plans for walking in the next week?</strong>&lt;br&gt;Score 1 if provider asks patient to summarise plans for walking and/or patient summarises plans for walking i.e. that patient outlines at least one of,&lt;br&gt;- the goal they have set&lt;br&gt;- details of their action plan&lt;br&gt;- that they need to record their extra walks on their walking diary&lt;br&gt;Score 0 if provider summarises plans for walking</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Does provider end the session in a positive way?</strong>&lt;br&gt;Score 1 if at least one of following is delivered:&lt;br&gt;- patient is encouraged to walk&lt;br&gt;- patient is encouraged to display action plan (has to happen during last two minutes (i.e. end) of session - not just when instructing to complete diary)&lt;br&gt;- patient thanked for coming to session&lt;br&gt;- a general social exchange in which both provider and patient engage and which may enhance rapport&lt;br&gt;- patient praised for their efforts during the session</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Time on recording following component: (minutes / seconds)</strong></td>
<td></td>
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</tbody>
</table>

**Total Score:** Components / techniques of intervention: (White boxes - out of 20)

**YES SCORES:**

**NO SCORES:**
### Notes on the presence of the following by the provider, i.e.
- Encouragement / praise
- Positive feedback
- Criticism

### Time spent on; (note start and end time; no need to calculate time)

### Time to complete trial questionnaire:

### Time for photocopying:

### Time for giving pedometer/instructions for pedometer:

### Time for booking next appointment:

### Any other notes/comments;

### Additional intervention components i.e.
- making suggestions
- giving Government guidelines on physical activity
- explaining moderate / brisk walking
APPENDIX SIXTEEN:

SCHEDULE FOR INTERVIEWS UNDERTAKEN WITH PROVIDERS WHO DELIVERED THE WALKING INTERVENTION
Schedule for interviews undertaken with providers who delivered the walking intervention

Introduction and overview

1. What did you particularly like about the walking intervention? Can you tell me more about that? / Why is that? / Anything else?

2. What parts of it were helpful to you, in terms of delivering the intervention? Can you tell me more about that? / Why is that? / Anything else?

3. Were there any features of the intervention that were particularly helpful in terms of delivering it in the general practice setting? The intervention itself or anything to do with delivering it? Can you tell me more about that? / Why is that? / Anything else?

4. Is there anything about the intervention that you did not like? Can you tell me more about that? / Why is that? / Anything else?

5. Were there any aspects of the intervention that you found unhelpful? Can you tell me more about that? / Why is that? / Anything else?

6. What features of the intervention were particularly unhelpful in terms of delivering it in the general practice setting? The intervention itself or anything to do with delivering it? Can you tell me more about that? / Why is that? / Anything else?

7. What parts of the intervention do you think patients most liked/found most useful? Can you tell me more about that? / Why is that? / Anything else?

8. What parts of the intervention do you think patients least liked/found least helpful? Can you tell me more about that? / Why is that? / Anything else?

9. Can you tell me whether you felt suitably prepared to deliver the intervention? Why is that? / Can you tell me more? / Anything else? What did you feel was most useful/least useful in terms of preparing you?

10. How do you feel about the training you received? Why is that? / Can you tell me more? / Anything else? What did you feel was most useful/least useful in terms of training?
11. **Now that you have delivered the intervention, is there anything else that, with the benefit of hindsight, you would have liked to help you to deliver the intervention?**
   Do you feel there are particular things that should have been included / provided **before** you started to deliver the intervention?
   Do you feel there are particular things that should have been included / provided **while** you were delivering the intervention?

12. **Do you feel that your skills to deliver the intervention improved over the time you delivered to your trial patients, stayed about the same or decreased?**
   Why do you think this is? / What helped / hindered?
   Were there any aspects of delivering this intervention that you felt particularly comfortable or confident in?
   Any where you felt less confident?

13. **Can you tell me about your experience of using the intervention protocol and accompanying resources? (i.e. the worksheets)**
   Can you describe how you actually used the protocol during the sessions?
   What aspects of the protocol / resources did you find particularly helpful / unhelpful?

14. **What are your thoughts about the format and usability of the intervention protocol?**
   Why is that? / Can you tell me more? / Anything else?
   Good bits / Bad / unclear bits

15. **How closely do you think you were able to deliver the intervention according to the intervention protocol?**
   Why do you think this is?
   What particularly helped you to use the protocol? / What hindered you?
   If you could change the format of the resources to make delivery of the intervention easier for you, what would you do?
   Can I ask how you structured the delivery of your sessions?
   How did you feel about this mode of delivery?
   Did it help/hinder your ability to deliver the intervention according to the protocol?

16. **Do you feel that the patients themselves in any way influenced the extent to which you were able to deliver the intervention according to the protocol?**
   Did the extent to which you feel the patient understood or engaged with the intervention affect how you delivered it?

17. **What are your feelings about using a manual or protocol to guide your future work to change health behaviours?**
   Why is that? / Can you tell me more?
18. **What positive / beneficial things do you feel you gained from delivering the intervention?**
   Can you tell me more?

19. **What negative / difficult things did you experience in relation to delivering the intervention?**
   Was there anything that you found unhelpful?
   Any challenges?

20. **How did your experience of delivering the walking intervention compare with your previous experience of trying to change health behaviours?**
    Were any aspects of delivering the intervention similar or different to other work you have been involved in that aims to change health behaviours?
    Can you describe how it was similar / different?
    How did you feel about this?
    How do you think the patients felt about it?

21. **Looking forward, do you envisage using what you have learnt during the training and delivery of the walking intervention in your future work to change health behaviours?**
    If yes, can you describe how you might do this?
    If no, can you tell me why not?

22. **How would you sum up your experience of being involved in the walking intervention research?**

23. **Do you have anything else you would like to add?**

**Conclusions and thanks**
APPENDIX SEVENTEEN:

SCHEDULE FOR INTERVIEWS UNDERTAKEN WITH PATIENTS WHO RECEIVED THE WALKING INTERVENTION
Patient Interview Schedule

Introduction and overview

General questions

1. Before you received the letter about the walking intervention, had you been thinking about doing more physical activity / walking?
   Can you tell me what you thought when you received the letter and information about taking part?
   What were your thoughts when you first got the letter about the study?

2. From the information you received can you describe what you expected from the walking intervention?
   Can you tell me what you thought would be involved in the walking intervention research?
   What were your expectations?
   What did you think you would have to do?
   Can you tell me what you were hoping to get out of taking part?

3. Now that you have had two walking sessions, can you tell me whether your experience was similar or different to what you were expecting?
   If yes, in what way?
   If no, why not? What was different about it? What did you think would be involved?

4. Thinking back, would you have liked any additional information about the intervention before you first saw the PN/HCA?

I am now interested in finding out more about what you thought of each of the two sessions: Session 1 then session 2.

SESSION 1:

5. Would you be able to briefly talk me through the first walking session you had with the nurse / HCA? What were the main things that you remember? / What particularly stood out for you?
   What happened in this session? / What activities did you do in the session?
   What bits did you find especially helpful / unhelpful?
   What bits did you especially like or not like?

6. Session one components/techniques
   It would now be helpful to consider each of the bits of the walking intervention:
   If we go through each part of the intervention, it would be great if you could tell me a little about how you found it?
Assessment of average daily walking - where your nurse/HCA used the pedometer to work out your average daily walking
Did you find this useful / not useful?

What makes it easier to walk? – this was the worksheet with 5 statements about what might make it easier to walk.
What did you think about this activity? / Can you describe how you found doing this activity? / How did you feel about using the worksheet?
Did you find the activity useful / not useful? / What was the main thing you think you got out of doing this activity?
Did you like / dislike the activity?

Walking experiences – this was the worksheet where you thought of a previous occasion where you had walked and identified what made it easy.
What did you think about this activity? / Can you describe how you found doing this activity? / How did you feel about using the worksheet?
Did you find the activity useful / not useful? / What was the main thing you think you got out of doing this activity?
Did you like / dislike the activity?

Goal setting – this was when you set your goal for the next week
How did you find this activity?
Did you select your own goal?

Action planning – when you completed your action plan for the next week
What did you think about this activity? / Can you describe how you found doing this activity? / How did you feel about using the worksheet?
Did you find the activity useful / not useful? / What was the main thing you think you got out of doing this activity?
Did you like / dislike the activity?

SESSION 2:

7. Would you be able to briefly talk me through the second walking session you had with the nurse / HCA? What were the key things that you remember?
What happened in this session? / What activities did you do in the session?
What particularly stood out for you?
What bits did you find especially helpful / unhelpful?
What bits did you especially like or not like?

8. Session two components/techniques

It would now be helpful to consider each of the bits of the walking intervention:
Review of behaviour change + feedback – where the nurse/HCA told worked out your average daily walking on the previous week and gave you feedback.
Did you find this activity useful / not useful?

Goal re-evaluation – when you decided whether to change your goal
Did you find the activity useful / not useful?
Did the activity make sense to you?
Did you like / dislike the activity?

Supportive planning - the worksheet where you considered what you would need to do to meet your goal in the next week
What did you think about this activity? / Can you describe how you found doing this activity? / How did you feel about using the worksheet?
Did you find the activity useful / not useful? / What was the main thing you think you got out of doing this activity?
Did you like / dislike the activity?

Action Planning – where you completed your action plan for the next week
What did you think about this activity? / Can you describe how you found doing this activity? / How did you feel about using the worksheet?
Did you find the activity useful / not useful? / What was the main thing you think you got out of doing this activity?
Did you like / dislike the activity?

Thinking about both the intervention sessions;

9. **Was there anything you particularly liked about the sessions?**
   Can you tell me a bit more about that?

10. **Was there anything you particularly disliked?**
    Can you tell me a bit more about that?

11. **What bits were the most useful?**

12. **What bits were the least useful?**

13. **What did you think about the resources from the sessions?**
    Did you particularly like or dislike any of the resources?
    What did you think about the presentation of the resources / how they looked?
    How useful did you find the resources?

We have talked a-bit about the intervention resources; it would be helpful if we could now explore the role of the nurse/HCA in delivering the intervention;
Appendix

14. How important do you think the PN / HCA is, in terms of delivering the intervention?  
Was there anything in particular that the PN/HCA did or said that you liked or found helpful? / Anything that was not so helpful?  
Do you think the intervention would work as well if you were given the resources to use by yourself?  
What do you think helped you most – the nurse /HCA, the intervention, or are both important? In what way?  

15. Can I just double-check; was there any point during the sessions where you felt you weren't clear what you were doing?  
Or why you were doing it?  
If you were unsure of anything, did the PN/ HCA explain the activity / clarify any bits of it for you?  
Did that help to make it clearer?  
Did the PN/HCA help you to complete any of the activities? In what way did she help?  

16. Can I ask how you would describe the intervention to a friend or family member in a sentence or two? What do you think the main aims of the intervention are?  

17. Do you have any further comments to add or questions that you would like to ask about the research?  

Conclusions and thanks
APPENDIX EIGHTEEN:

THEMATIC FRAMEWORK DEVELOPED DURING FRAMEWORK ANALYSIS
Appendix

Thematic Framework:

1. **Patient engagement - initial and on-going**

   1.1 Initial engagement (i.e. specific reason for getting involved, hopes of participation)
   1.2 Expectations / Information provision
   1.3 Engagement through personal circumstances (i.e. environment, links with work/retirement, dogs, walking for a purpose, part of routine, weather, age)
   1.4 Engagement through support and encouragement from others (i.e. support from family, walking with friends, awareness of others in study)
   1.5 Engagement through health outcomes (i.e. focus on health benefits, outcome focussed)
   1.6 Patient approach / attitude that may enhance engagement (i.e. accepting ups and downs, not feeling guilty, being realistic, flexibility)

2: **Patient understanding - intervention session 1**

   2.1 Assessment of average daily walking / Pedometer
   2.2 What makes it easier to walk
   2.3 Walking experiences
   2.4 Goal setting (refs to stepping stones/small steps)
   2.5 Action planning
   2.6 Diary

3: **Patient understanding - intervention session 2**

   3.1 Assessment of walking / feedback
   3.2 Goal re-evaluation
   3.3 Supportive plan
   3.4 Action planning (and longer term planning skills)
   3.5 Diary

4: **Provider and setting of delivery - influence on experience and understanding**

   4.1 Role of provider (i.e. providing support, encouragement, positivity)
   4.2 Provider making suggestions (i.e. that provider did or patient wanted this)
   4.3 Provider as source of longer term support
   4.4 Issues concerning general practice context (i.e. invitation coming from general practice, intervention being delivered in general practice)

5: **Positive Patient experience**

   5.1 General positive references (i.e. enjoyment, comfortable, value, pleased, personal challenge)
   5.2 Heightened self awareness (i.e. awareness of other lifestyle issue, 'it all adds up', sense of doing it for self, awareness of intensity of walking)
   5.3 Knock-on effects (i.e. additional health benefits, lifestyle changes)
   5.4 Walking as a behaviour
6: Negative patient experience

6.1 General negative references (i.e. difficult; hard; restricted)
6.2 Wanting / expecting more from provider (i.e. suggestions; encouragement)
6.3 Negative references concerning resources (i.e. repetition of questions; activities; not liking activities; uncertainty of what they should be doing)
6.4 Disappointment (i.e. not achieving goals/expected outcomes)

7: Direct references regarding understanding (receipt) and delivery

7.1 Direct references regarding understanding/expectations
7.2 Mis-communication or problems and impact of this i.e. with pedometer
7.3 Direct refs to do with delivery, i.e. feeling on the spot, provider suggestions
7.4 Patient suggestions to improve
APPENDIX NINETEEN:

THEMATIC CHART DEVELOPED DURING FRAMEWORK ANALYSIS
## Thematic Chart 2: Patient understanding of intervention techniques

<table>
<thead>
<tr>
<th>Participant</th>
<th>2.1 Pedometer</th>
<th>2.2 What makes it easier to walk?</th>
<th>2.3 Walking Experiences</th>
<th>2.4 Goal setting</th>
<th>2.5 Action planning</th>
<th>2.6 Diary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participant 1</strong></td>
<td>Female</td>
<td>52 years</td>
<td>Hypertensive</td>
<td>British white</td>
<td>Unemployed</td>
<td>GCSE equiv.</td>
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<td></td>
<td>67 - recalls baseline ped.</td>
<td>120/127 - struggles to recall activity</td>
<td>68 - recalls and describes goal setting</td>
<td>65 - planning was main recall</td>
<td>76/185 - reflects on value of planning walks (no blisters)</td>
<td>260 - has to consider when/where to walk as has asthma and lives near quarries</td>
</tr>
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<td></td>
<td>293 - ped. not working 'bit gutted'</td>
<td>12 - recalls past benefits of walking</td>
<td>130 - struggles to recall activity</td>
<td>76/185 - talks about how to increase walks</td>
<td>330 - found AP quite hard, couldn't think of ideas</td>
<td>30 - states she has become more aware of what she is doing - esp. due to diaries.</td>
</tr>
<tr>
<td></td>
<td>522 - describes int. using ped.</td>
<td>136- recalls walking as part of trying to lose weight</td>
<td>150- had to set goal as new job</td>
<td></td>
<td>170179-hard to plan; gets bored - so trying to vary route</td>
<td></td>
</tr>
<tr>
<td><strong>Participant 2</strong></td>
<td>Female</td>
<td>64 years</td>
<td>Diabetes; Asthma</td>
<td>Chronic kidney disease; Obesity</td>
<td>Hypertension</td>
<td>British white</td>
</tr>
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<td>321 - had increased her walking at base-line</td>
<td>220 - not keen on some questions</td>
<td>404 - reflected on weather, ambience. WFH walk in all weathers</td>
<td>329 - talked about how to increase walks</td>
<td>49/56 - has to consider when/where to walk as has asthma and lives near quarries</td>
<td>41 - states she has become more aware of what she is doing - esp. due to diaries.</td>
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<td>327 - worked out av. daily walking; pleased with result</td>
<td>353 - multiple choice question frustrating</td>
<td>432 - recognises when achieved a goal, it is not so appealing - cant see purpose – recognises it makes her heart rate go faster</td>
<td>332- set a target</td>
<td>102 - had planned to increase walking on shopping trip with friend</td>
<td>224 - did not expect diary - but found very positive</td>
</tr>
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<td></td>
<td>369 - v. frustrated with ped. little faith in them</td>
<td>390 - outcomes were she likes to walk in company and in nice surroundings - HCA picked out from listening to her talk.</td>
<td>435- setting goal - easy</td>
<td>330 - ideas to increase - walks after church</td>
<td>796 - diary very useful + to discuss with HCA. states does not always seem obvious to herself - so pleased HCA made suggestions!</td>
<td>227- HCA suggested spreadsheet of walking, food, sugar levels</td>
</tr>
<tr>
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<td>375 - had used ped. as part of WWH - had not worked, but she was interested in knowing walking</td>
<td>607 - had raised goal by 5 mins each week (But she increased walking at baseline)</td>
<td>437 - weather extremely hot - disappointed that did not feel able to increase goals as a result</td>
<td>334 - found AP quite hard, couldn't think of ideas</td>
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<tr>
<td></td>
<td>383 - ped. reading was more than she expected</td>
<td>441 - goals achievable - under normal circumstances</td>
<td>441 - has to consider when/where to walk as has asthma and lives near quarries</td>
<td>338 - trying to walk more briskly</td>
<td></td>
<td>338 - trying to walk more briskly</td>
</tr>
</tbody>
</table>
393- recognises when achieved a goal, it is not so appealing - cant see purpose – recognises it makes her heart rate go faster (may be why walking as part of routine and suggestions to do so were important to her) 404- WFH - walk in all weathers, had considered need to buy waterproofs 458- had walked, at end lovely pond, chance benches to get breathe back. 470- reflects on walking from wk. 1 to 2. steep hill so of value. States 'achieve' getting to top. 494- reflects on a number of barriers to her walking, request for church activities... 506 - but considers what she can do at other times 523- week 1 AP easier than wk 2, could see things to improve. 902 - where she struggled with ideas for AP, HCA made suggestions
<table>
<thead>
<tr>
<th>Participant 3</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 years</td>
<td>52</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Hypertension</td>
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<tr>
<td>Obesity</td>
<td>Obesity</td>
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<tr>
<td>British white</td>
<td>British white</td>
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<tr>
<td>Retired</td>
<td>Retired</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>Postgraduate</td>
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</table>

83- ref to ped. 140- HCA wouldn't tell him ped scores, when he asked, she said 'satisfactory'
367- HCA took ped. reading 'presume its less than 100 miles and more than 2)
367-Wouldn't tell me what it was 529 - hints he is disgruntled she would not share his ped scores - but nevertheless her role is good
163- struggles to recall, states because 'wasn't expecting it'
166- tries to answer honestly 417 - it was all very simple 453-460- can walk comfortably, but worksheets a little awkward. Struggles with why he is being asked the questions? 507/518- HCA explained study, briefly but clearly
202- considers HCA may not have asked about WE b/c of past accident 236-struggles to recall if he was or wasn't asked about WE
150/255- he was asked to walk 30 mins a day + to walk briskly 154- recognises slight flexibility about goals - some days spot-on (like adhering to regime)
37- not guilty about not walking, but key thing is occupying his mind whilst walking (implications of walking alone)
88- walking in pleasant surroundings not visited for a year. Bit of shopping.
111- reflects one of his chosen places to walk, he couldn't due to event
174-182- awareness of plans to suit him, and OK to try things (fitting walks with eating)
187- to occupy his mind when walking - recites five decades to rosary - takes a long time, so if doing with walks - multitasking 293/314-HCA left it up to him how he did walks
314- he is very specific about action plan - recognises completely up to him

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<th>Participant 4</th>
<th>Male</th>
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<tbody>
<tr>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Hypertension</td>
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<tr>
<td>Obesity</td>
<td>Obesity</td>
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<tr>
<td>British White</td>
<td>British White</td>
</tr>
<tr>
<td>Employed part time</td>
<td>Employed part time</td>
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<tr>
<td>A' level or equiv.</td>
<td>A' level or equiv.</td>
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</table>

47- expecting more ped monitoring 131- strongly recalls ped. ) not surprised at results but at variation over days)
138- surprised at not monitoring yourself, could not look at ped. 143- wanted to see ped. Outcomes
157- unsure of point of questionnaires; pretty obvious really
205- perceives blindingly obvious – nice weather, on holiday 215 -questionnaires – no surprising revelations – what causes people to want to walk, what stops them
221/230 - ped scores low, linked to 'sensible' goal. He cannot recall who suggested goal – but he went for 10 mins 266- in job, sets goals and has to break them down or will never get there (quote) 319- recognises AP, diary, goals all linked
241- useful to write down to enable review of actual walking with plan. Diary enabled measurement of walking – resulted in him thinking a bit more 250- plan a good idea 266- in job, sets goals and has to break them down or will never get
241- useful to write down to enable review of actual walking with plan. Diary enabled measurement of walking – resulted in him thinking a bit more 250- plan a good idea 263- surprised that ped. Was not used for monitoring
<table>
<thead>
<tr>
<th>Participant 5</th>
<th>Male</th>
<th>47</th>
<th>Diabetic</th>
<th>Indian</th>
<th>Unemployed</th>
<th>Postgraduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>175- PN fed back on ped scores – he did not find helpful in itself – wanted conversion to tangible outcomes 221- ped scores low, linked to ‘sensible’ goal 323- PN added up walks from diary – just mins per day) states ped gave him mins and steps) 410 – ped helpful - showed walking done 431- ped helpful - showed walking done</td>
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<td>84- knew he was already walking 115/183- recalls HCA giving av. walking 724- reflects useful for curiosity sake Daily walking; not surprising b/c walking already 136- reflects on not being given ped. At end of sess 1. Ped. Makes it tangible – sense of participation 149-getting ped to fit a problem + concern 285/293- feedback good, then set goals 301/469/754 – ped a focus, symbolic thing, b/c had thought ‘must do some walking’ (quote) 304- ped. Meant couldn’t blag it 730- ped won’t lie 347- not useful, questions were abstract; can’t recall wording 359- like a quiz, no eureka factor, didn’t really think about it, needs something to back it up 370- HCA looked at it, they moved on – no Freudian interpretation 375 – recalls 2 choices? Cant recall what put 381- later states it did make him think a bit – 385 useful for curiosity sake, not mind blowing 103-strong recall of setting targets – wanted to be realistic, went a bit under to look like he’d achieved more (quote) 293- good to get av. Daily walking and then set targets 323- liked setting target 390- male pride, he wanted to achieve goal, so aimed lower in order to achieve and linked with daily routine 403- goal increase by 10 mins 314- considered how to increase walking; specific plans to incorporate into daily routine 460- goal setting to AP 434/437/481/485- being realistic about plans and making them achievable</td>
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<tr>
<td>319- recognises AP, diary, goals all linked</td>
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<td>States – ‘left to own devices to make it up or not’ (quote) Ped. provides opportunity for checking 308- was told by PN that additional walk to Indian did not count – although 1 hour extra walking</td>
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<td>314- reflects completion of diary, in absence of ped. 184-recalls talking through diary 525- diary stayed in bag, home things took over 526/530- he forgot to complete diary so suggest online flag to remind him</td>
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<td></td>
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<tr>
<td>Participant 6</td>
<td>Male</td>
<td>33/46- strong recall being given ped. and feedback on walking</td>
<td>86/93- recalls completing questionnaires, but not specific details (use of term questionnaire - does not imply ownership)</td>
<td>178/186- reflects on holidays and morning walks 'dead easy in mornings', nice surroundings, but states '195- 'it was just a form to fill in'...207/216 - 'didn't mean anything' 205' its all automatic, I do it anyway'</td>
<td>34/47/57/96- strong recall of setting objectives 51/97/106/115- set large target 'lets go for it'; doubled target, otherwise may as well not bother 221/226/228/232/234/240- works in sales and marketing - influenced how he set target - aim high (quote) 'you set a target, you focus on it, and you do it'...'that's in bred in me' 245- HCA did query if he could achieve his goal, he was determined to do it 375 - has helped him set new target 389- likes challenges 505- best bit - being asked to set a goal 540 - what do I need to do to achieve target? 584 - when describing int. he focuses on setting objective</td>
<td>57/257- does not perceive needs help to do it, 'I just have to do it, just focus on it' (quote) 69- brochure in pack (Natural England) - is planning to join a walk 109- already walks in mornings; now walking in afternoons 119/268 -has doubled walking 'its as simple as that' 257/275 - he completed AP, because HCA asked him to, did not see value of doing it 'set my mind to it, do it' (quote)</td>
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<td>64</td>
<td>Pre-diabetic</td>
<td>British white</td>
<td>Self employed A' level or equiv.</td>
<td>309- when no ped. Pressure off – you were only witness, so could be lazy and said did it when didn’t. 327-thinks ped should be linked to outcomes 'something to fix it on' otherwise could say did it when hadn’t 828-when describing int. uses ped.</td>
<td>50- strong recall of completing walking log</td>
<td>512- most useful resource - walking log</td>
</tr>
<tr>
<td>Participant 7</td>
<td>Female</td>
<td>61 years</td>
<td>Hypertension</td>
<td>British white</td>
<td>Employment - other</td>
<td>Qualifications - GCSE or eqvi.</td>
</tr>
<tr>
<td>Participant 8</td>
<td>Female</td>
<td>39</td>
<td>Asthma ;Weight BP</td>
<td>British white</td>
<td>Employment - other</td>
<td>Quals - other</td>
</tr>
<tr>
<td>Participant 9</td>
<td>Male</td>
<td>62 years</td>
<td>High cholesterol</td>
<td>British white</td>
<td>Employment - other (retired)</td>
<td>Degree</td>
</tr>
<tr>
<td>Participant 10</td>
<td>56</td>
<td>Male</td>
<td>IHD</td>
<td>British white</td>
<td>Employed PT A level equiv.</td>
<td></td>
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<td>176 - interested in ped score - pleasantly surprised</td>
<td>221 - encouraging baseline figure, got something to build on 666 - ped a bit awkward - has fallen off</td>
<td>183 - found initial worksheets difficult; not very good at expressing myself 187 / 233 / 236 / 684 - doesn't find walking a problem - so found questionnaires a struggle - didn't know what to put (this means he struggles with some worksheets - does not seem to see rationale behind them) 210/ 214 - when leaving session he felt motivated - wonders if due to questions themselves; although struggled to answer them, dawns on him 245 / 261 - interesting; reflects walking was some time ago since went out for a walk. Went out for 2-3 hours, didn't really notice it - made him think harder about</td>
<td>187 - doesn't find walking a problem - so found questionnaires a struggle - didn't know what to put 210 / 214 - when leaving session he felt motivated - wonders if due to questions themselves; although struggled to answer them, dawns on him why doe she not just walk more</td>
<td>151- expected more assessment / objective setting - links to health outcomes i.e. weight loss</td>
<td>369 - had developed AP through week, when aware bits weren't working 411-knowledge of flexibility huge help 451- value of planning - more for others with random routines 452 - very aware of fitting his plans to his own routine; doing it for him 655- target setting pretty useful; helps you start 740 -this is my baby now, I own this; he took responsibility for changing his plans</td>
<td>369 - had developed AP through week, when aware bits weren't working 437 - expected to be measured by ped - paternalistic; assessing whether he did what he said he would 447 - filled in some days not others, to suit him 452 - very aware of fitting his plans to his own routine; doing it for him 456- diary - did not see as very useful; could see value for random plans</td>
</tr>
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why does he not just walk more
373 - session not what
he expected - thought
he would have a
medical, be told he was
overweight and told
what to do
future walks – lives in
nice place - useful
exercise
achievable plans -
wants to do it for life
Splits his week into
working and not
working days
323- pragmatic
attitude, we'll see if it
works; hadn't done it
before, so will try;
confidence about non
working days higher
than working days
349/355- he read back
plans 'sort of logged up
here'
352- Took ownership
'It's up to me now'
358- reading back
helped cement it in my
mind
358 - 'that's what I've
said, that's what I've
got to do'...like a
commitment

| Participant 11 | 172- shocked when ped. Was taken off her, felt it was like Big Brother watching her 185- ped as a supportive tool, monitoring her walks of moderate intensity. Recognises she walks a lot but not high enough intensity 233 – feedback from ped. Pt felt figures were not very high, because on the go all the while, but HCA confirmed it was good 558- ped. As a form of activity not too difficult, describes her walking experiences 341- initially panicked a bit, hard to recall, but recognises it helped her to appreciate her walks 357 – makes you appreciate walking; you can do it for yourself and feel better for it 375- was determined to carry on (had increased walking at baseline) 396- wanted to be realistic 398- goals linked to realism about darker nights; 413 – talks about making walking a habit (like brushing teeth) 439 – walking easier to fit into routine; any time of year; can fit in around colleagues at work 457- provider prompts | 145- living in country means she has to plan walks in day, as no street lights 159- planning to ensure she fits walks in 349- am making opportunities to walk 375- was determined to carry on (389 - had increased walking at baseline) 439 – walking easier to fit into routine; any time of year; can fit in around colleagues at work 550- recalls variation of route |
accountability, monitors what you have done; guilt thing if you don't do it (ties in with diary too) 999- likes ped; to do with monitoring; but felt positive without ped. That although not being monitored she was still walking 1006 – says she can always buy a ped. 1017- couldn't quite grasp WMIETW, something didn’t make sense and probes to help with AP 470 – being organised with AP-important 577- she is looking for reasons to walk, / opportunities to walk, rather than a set plan 1028- pt recognises she has to get organised, take control now input from HCA is lessening

**Participant 12**
- Female
- 65
- Diabetic
- Chronic kidney disease
- Hypertension
- British white
- Retired

102- links her walking with ped. It had been snowing so she was happy with what she had done 107- HCA was really pleased pt had walked (even in snow) 114-clear that she used baseline walking to develop goal 128- little recall of WMIETW - answers down the middle because that's how I felt, 'had to be truthful' 133- most useful bit - it makes you think; heightens self 153- reflected on some walks she had enjoyed (flat walks) 157 - WE - she reflected on walks she found hard and did not enjoy (hilly walks) 166- did not find it useful; made her realise how unfit she was 167 - she says she is very unfit, She reflects on fact she always drives a car; that she was fit as a child 202/207/209 - she cannot recall being asked about WE(either to do the activity or to feedback on it) - a time when she liked walking; she thinks because she does not like walking HCA did not ask her 217/221- recalls being offered a goal but that it was up to her; she chose to stay at 15 mins 238 - she was happy with goal 283- thinks goal setting is a good idea; 283- helps you aim for something but not over the top; its what you've chosen to do (287/289 - she ended up doing more than her goal) 337-biggest focus was knowing she had to walk for 20 mins a day – focus on goal 238 - she did her walks to suit her; did do some informal planning about when she would walk 244- struggles to recall completing activity but recalls when she would walk 258- she doesn't remember being given a copy of the AP 304 -elaborated on AP- HCA had suggested other routes to try (but pt does not like hilly walks) 106- had snowed but she made an effort to walk 268/277- she filled in diary but thinks HCA kept it
03 June 2009

Dr David French  
Reader in Health Behaviour Interventions  
Coventry University  
ARC-HLI, WF103  
Whitefriars,  
Priory Street, Coventry  
CV1 5FB

Dear Dr French

Study Title: Development of a brief walking intervention: an exploratory trial (Phase 3)  
REC reference number: 09/H1211/56  
Protocol number: 1

The Research Ethics Committee reviewed the above application at the meeting held on 27 May 2009. Thank you for attending to discuss the study.

Both Mike Graveney and Lucy Aphramor informed the committee that they knew the Chief Investigator professionally but had no involvement in this study. The committee agreed that they could take full part in the review.

Ethical opinion:

Discussion:

The Committee asked questions about the following issues to which you gave satisfactory answers:

- The committee asked for clarification on the funding. You stated that in Phase II the CRN had agreed to pay services forecasts and Coventry PCT had agreed to pay excess treatment costs. They were in the process of obtaining agreement from Warwickshire PCT. The Medical Research Council had already provided funding. It was further stated that there had been some delay in recruitment due to a bereavement.

- The committee wanted to know why they were excluding non English speaking people. You stated that this was for pragmatic reasons because the Practice Nurse needed to communicate with the participant. Translation services would be provided in the next Phase and these groups included.

- The committee wanted to know why there was an upper age limit of 65. You stated that there would be different issues for this age group and different interventions may be needed.

- The committee wanted to know the criteria for excluding people with mental illness. You assured the committee that only those with severe problems would be excluded.
- You confirmed that the 'Lone Worker' policy within the NHS would be adhered to.

**Questionnaire:**

- You agreed to change the reference 'e.g. park, oval or bushlands'

**Decision:**

The committee concluded that the study is given a favourable opinion with standard conditions.

**Observation:**

The committee strongly suggested that all steps should be made to include the upper age group. Every effort should also be made to recruit people whatever their language and provide translations services

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below.

**Ethical review of research sites**

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

**Conditions of the favourable opinion**

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk. Where the only involvement of the NHS organisation is as a Participant Identification Centre, management permission for research is not required but the R&D office should be notified of the study. Guidance should be sought from the R&D office where necessary.

Sponsors are not required to notify the Committee of approvals from host organisations.

It is responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site.
(as applicable).

Approved documents

The documents reviewed and approved at the meeting were:

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Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.
Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document “After ethical review – guidance for researchers” gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

09/H1211/56 Please quote this number on all correspondence

With the Committee’s best wishes for the success of this project

Yours sincerely

Mr Matthew Dunn
Chair

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments “After ethical review – guidance for researchers”

Copy to: Professor Ian Marshall
R&D office
11 March 2009

Dr David French
Reader in Health Behaviour Interventions
Coventry University
ARC-HLI
WF103 Whitefriars Building, Priory
Street, Coventry
CV1 5FB

Dear Dr French

Full title of study: Development of a brief walking intervention- assessing and improving acceptability of the intervention (Phase 2)

REC reference number: 09/H1202/13

The Research Ethics Committee reviewed the above application at the meeting held on 02 March 2009. Thank you for attending to discuss the study.

The Committee welcomed the opportunity to ask you for clarification on the following points:

The committee advised that they thought the study well thought through, methodical and presenting no major problems.

The committee asked what would happen if nurses only want to do part of the project.

You said that this may be a problem as the interview is at the beginning and end so would be less keen to use them. However, as long as they are willing to do training and delivery intervention.

The committee noted this would be a fair commitment and asked if you had engaged with managers to ensure they are available to do this.

The researcher said he had a verbal agreement but nothing in writing.

Ethical opinion

Members of the Committee present were content with your responses and gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below.
Ethical review of research sites

The Committee agreed that all sites in this study should be exempt from site-specific assessment (SSA). There is no need to submit the Site-Specific Information Form to any Research Ethics Committee. The favourable opinion for the study applies to all sites involved in the research.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission at NHS sites ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

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09/H1202/13

With the Committee's best wishes for the success of this project

Yours sincerely

Anne McCullough [Mrs] on behalf of
Dr Jeff Neilson
Chair

Email: brigid.davies@westmidlands.nhs.uk

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments
“After ethical review – guidance for researchers” [SL-AR1 for CTIMPs, SL-AR2 for other studies]

Copy to: Prof Ian Marshall
[R&D office for NHS care organisation at lead site]