Insight from health professionals on physical activity promotion within routine diabetes care

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Abstract
The aim of this qualitative study was to explore the views of health professionals on the current and future provision of physical activity promotion within routine diabetes care.

Responses were collected from participants (n=23) in two phases. An online survey (Phase 1, n=16) and semi-structured interviews (Phase 2, n=7) were used to explore the experiences of health professionals on the provision of physical activity promotion. Qualitative responses were analysed using interpretative phenomenological analysis and categorised into themes and sub-themes.

Three main themes were identified: (1) current physical activity promotion practices; (2) delivery of physical activity promotion by health professionals; and (3) future physical activity promotion. Findings demonstrated that a lack of structure for physical activity promotion and ineffective behaviour change training made physical activity promotion within routine diabetes care challenging. Health professionals struggled to prioritise physical activity within routine consultations. They were clinically driven to provide physical activity advice to patients; however, they lacked the skills to elicit significant behaviour change. Five recommendations were presented to improve physical activity promotion within diabetes care: (1) having a key member of staff responsible for physical activity promotion; (2) access to a referral route for physical activity support; (3) inclusion of diabetes-specific information in behaviour change training; (4) linking the delivery of physical activity promotion with clinical outcomes; and (5) using ‘champions’ to raise the profile of physical activity within the health service.

Incorporation of these recommendations by health professionals and health boards may significantly improve the provision of physical activity promotion within routine diabetes care.

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Key words
physical activity; diabetes; health professionals; qualitative; insight; routine care; implementation

Background
Health professionals play an integral role in promoting physical activity to adults with type 2 diabetes (T2D). Despite physical activity being known as one of the ‘cornerstones’ of diabetes management, research suggests that it remains an under-used component of routine care.1 Guidelines exist to support health professionals (HPs) promote physical activity;2–5 however, awareness of current recommendations may not reflect adoption of physical activity promotion within current practice.

Research has reported low rates of physical activity counselling by HPs within the general population.5–8 Barriers include lack of time, confidence, knowledge, training, and ongoing support.9,10 Similar findings have been reported by a small number of studies with diabetes health care professionals.11,12

Health professionals are often under time constraints and struggle to prioritise different aspects of care within diabetes consultations.10,13 There is often confusion regarding whose responsibility it is to discuss physical activity behaviour change. Importantly, HPs’ training needs were highlighted by several studies suggesting that, while HPs may achieve short-term behaviour change in their patients, they lack the experience, knowledge and confidence to support their patients in long-term change.11,12,14

While the focus of physical activity behaviour change research is often to determine which interventions are effective for people with diabetes, there has been little exploration of HPs’ views on which interventions are most appropriate and feasible for delivery.

Understanding the complex challenges faced by HPs is therefore necessary to develop future strategies and interventions that may be implemented in current diabetes care and
Insight on physical activity promotion within routine diabetes care

help to manage the growing burden of diabetes.\textsuperscript{15} The aim of this study was to gain insight from HPs involved in routine diabetes care to address the following research questions: 1. What are the experiences of HPs in providing physical activity promotion? 2. What insight do HPs have to inform the future direction of physical activity promotion within routine diabetes care?

Methods
The methodology for this study included both a nationwide online survey and qualitative interviews with diabetes health care professionals.

Phase 1: survey stage
An online survey was implemented to scope the current provision of diabetes care throughout the National Health Service (NHS) in Scotland. The survey was designed to gain insight from a range of HPs regarding their experience of providing physical activity promotion to people with T2D. Recruitment was facilitated via the Diabetes Managed Clinical Network, which involved two key diabetes HPs (primary care and secondary care) being identified within each of the 14 health boards in Scotland. They were invited to complete a short 5–10 minute online survey, providing their anonymous views and opinions on the role of physical activity in the current and future management of people with T2D. The online survey consisted of 12 questions relating to the current and future role of physical activity in routine diabetes care (Table 1). All countable responses were given a numerical score of 1 and are presented in the results section as a summative total. Questions 6 and 10, which asked participants to rate options in order of effectiveness, were analysed in a similar manner with the ‘most effective’ response having the lowest summative score and the ‘least effective’ response having the highest summative score. Descriptive comments were invited and analysed for trends and themes that could be utilised to inform the development of semi-structured interviews for the qualitative stage of the study (Phase 2).

Phase 2: qualitative stage
The aim of the qualitative stage was to gain further insight into the current and future provision of physical activity promotion within routine diabetes care. This was achieved using semi-structured interviews (designed based on the initial findings of Phase 1) and interpretative phenomenological analysis (IPA) – a qualitative method of understanding a group’s perception of a particular topic.\textsuperscript{16,17}

Participants
IPA studies use purposeful sampling by recruiting participants who share a common experience and can offer meaningful insight on a specific issue.\textsuperscript{18} A small sample size is recommended for use in IPA due to the in-depth nature of analysis.\textsuperscript{19} Seven HPs were therefore invited to represent diabetes care within NHS Scotland. This included input from: (a) primary care; (b) secondary care; and (c) health service management.

Health professionals were recruited through clinical networks and were informally invited to participate during a visit to their department. Health service policy makers were identified via public information domains and were invited to participate in the study via email. All interviews were conducted in a convenient venue for participants. If a face-to-face interview was not feasible, a telephone interview was offered. Informed consent was obtained prior to all interviews.

Data collection
Semi-structured interviews were deemed an appropriate method of data collection as they provided an opportunity for open dialogue between the researcher and participants.\textsuperscript{19} Interview questions were adapted for use with HPs and policy makers but were generally based around the four key topics outlined in Box 1. Interviews were of approximately a 30-minute duration.

Analysis
Interviews were recorded with consent using a digital Dictaphone and transcribed verbatim. The interview data were explored using IPA, a method of forming conclusions about a specific group’s perceptions of a particular topic.\textsuperscript{16,17} Interview transcripts were examined in detail, coded and analysed for emerging patterns of themes.\textsuperscript{16} Themes and sub-themes were cross-checked by two researchers (FMcM, JC) who each independently coded two interview transcripts. Two additional researchers (AK, NM) reviewed the final themes and sub-themes as a further measure of inter-rater reliability. Continuity of interpretation was ensured by one researcher (LM), being responsible for the data collection and analysis.

Ethics
Ethical approval was granted by the University of Strathclyde’s Ethics Committee and all aspects of the study adhered to the University of Strathclyde’s Code of Conduct for research.

Results
Phase 1: online survey
The online survey received a response rate of 57.1\% (n=16 of 28 potential responders), which represented 78.6\% of the available health boards in Scotland (n=11 of 14 potential health boards). The survey received responses from a range of HPs including management (n=2), consultant physicians (n=5), diabetes nurses/practice nurses (n=6), GPs (n=4) and one anonymous responder. Five specific HPs were identified as being part of routine diabetes care (Table 1, Questions 1–4). Primary care included GPs and practice nurses. Secondary care included consultant physicians, diabetes specialist nurses (DSNs) and dietitians, with some being involved in both primary and secondary care. Participants were also asked to report who, in their opinion, should have the main responsibility for physical activity promotion. Overall, practice nurses and DSNs (n=10) were considered to be the most important providers of physical activity advice.

Health professionals were provided with six potential factors that could improve physical activity promotion within their health board and were asked to rate these in order of effectiveness (Table 1, Question 6). Access to an exercise referral scheme (score=32) and an established route of referral (score=37) were rated as the most effective strategies for...
### Questionnaire on Physical Activity Promotion in Diabetes Care

**Question**

<table>
<thead>
<tr>
<th>1. Which health professionals are currently involved in routine diabetes care?</th>
<th>Choose from the following options</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Which health professionals currently provide physical activity information to people with diabetes?</td>
<td>Choose all that apply</td>
</tr>
<tr>
<td>3. In your professional opinion, which health professionals should be involved in physical activity promotion?</td>
<td>Choose all that apply</td>
</tr>
<tr>
<td>4. In your opinion, which health professional do you consider should have the main responsibility for providing physical activity information?</td>
<td>Choose (please specify)</td>
</tr>
</tbody>
</table>

**Question**

<table>
<thead>
<tr>
<th>What resources are currently used to facilitate current physical activity promotion in your department?</th>
<th>Choose all that apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate in order of effectiveness. Score 1 (most effective); score 6 (least effective)</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
</tr>
<tr>
<td>6. What would help to improve the effectiveness of physical activity promotion for type 2 diabetes in your department?</td>
<td></td>
</tr>
<tr>
<td>Choose one answer</td>
<td></td>
</tr>
<tr>
<td>Choose one answer per question</td>
<td></td>
</tr>
<tr>
<td>Rate options in order of effectiveness. Score 1 (most effective); score 6 (least effective)</td>
<td></td>
</tr>
</tbody>
</table>

**Question**

<table>
<thead>
<tr>
<th>What proportion of people with diabetes currently receive physical activity promotion in a typical week?</th>
<th>Choose one answer</th>
</tr>
</thead>
</table>

**Question**

<table>
<thead>
<tr>
<th>In your professional opinion, how often should people with diabetes receive physical activity promotion?</th>
<th>Choose one answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes (at occasional visits)</td>
<td>Frequently (at most visits)</td>
</tr>
<tr>
<td>Never</td>
<td>Rarely</td>
</tr>
</tbody>
</table>

**Question**

<table>
<thead>
<tr>
<th>In relation to type 2 diabetes how do you feel about your:</th>
<th>Choose one answer per question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very confident</td>
<td>Moderately confident</td>
</tr>
<tr>
<td>Slightly confident</td>
<td>Not confident</td>
</tr>
<tr>
<td>Not at all confident</td>
<td></td>
</tr>
</tbody>
</table>

**Question**

<table>
<thead>
<tr>
<th>Please rate the following strategies for physical activity promotion in order of effectiveness</th>
<th>Rate options in order of effectiveness. Score 1 (most effective); score 6 (least effective)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Please rate the following strategies for physical activity promotion in order of effectiveness</td>
<td></td>
</tr>
<tr>
<td>GP/consultant physician discussing physical activity at any visit</td>
<td></td>
</tr>
<tr>
<td>Diabetes/practice nurse discussing physical activity at any visit</td>
<td></td>
</tr>
<tr>
<td>Dietitian discussing physical activity at same time as nutritional advice</td>
<td></td>
</tr>
<tr>
<td>1 x 30 min session by a physical activity consultant tailored to the individual patient</td>
<td></td>
</tr>
<tr>
<td>Group education session with other patients</td>
<td></td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
</tr>
</tbody>
</table>

**Question**

| Please provide any other information that may help us collate data related to physical activity promotion for type 2 diabetes across Scotland. All additional insights are welcomed | [text response] |

**Question**

<table>
<thead>
<tr>
<th>What health board are you based in?</th>
<th>[text response]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you work in primary or secondary care?</td>
<td>[text response]</td>
</tr>
<tr>
<td>What is your job title?</td>
<td>[text response]</td>
</tr>
</tbody>
</table>

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**Table 1.** Online survey questions
improving local physical activity promotion. Identifying a key member of staff for physical activity advice (score=42) and staff training (score=46) were rated as being the next effective strategy, with access to additional resources collectively rated as the least effective strategy (score=60).

Health professionals were also presented with five potential strategies for future implementation of physical activity services and asked to rate these in order of effectiveness (Table 1, Question 10). A single 30-minute physical activity consultation, tailored to the personal circumstances of the individual, was collectively rated as the most effective strategy (score=27). Physical activity advice given by a practice nurse or DSN at routine visits was rated as the second most effective strategy (score=35), followed by group education (score=41) and physical activity promotion by dietitians (score=55). Physical activity advice by GPs and consultant physicians at routine visits was collectively perceived as the least effective method of physical activity promotion (score=56).

Additional data were obtained from Questions 7–9 (Table 1). These findings neither informed the design of the qualitative stage nor added sufficient detail to address the research questions of this study and are not reported here.

**Phase 2: semi-structured interviews**

Following analysis of the interview transcripts (n=7), three main themes were identified. Each main theme was divided into relevant sub-themes. Accompanying interview excerpts are presented in Appendices 1–5 [all Appendices are available online at www.practicaldiabetes.com].

**Theme 1. Current physical activity promotion practices.** This theme explored the current practices of HPs in relation to physical activity promotion for their patients with T2D.

- **Promotion of general physical activity advice.** Health professionals were aware of the benefits of physical activity for their patients with T2D (Appendix 1, Excerpt 1.1). They provided general physical activity advice that they perceived would encourage patients to increase their level of physical activity and encouraged appropriate activities, such as walking (Excerpt 1.2). The importance of using appropriate terminology with patients was highlighted (Excerpt 1.3).
- **Reasons why health professionals did not promote physical activity to patients.** Health professionals described the importance of individually assessing each patient’s ability to perform physical activity. Perceived barriers, such as impaired mobility and older age, were highlighted as reasons why HPs did not provide physical activity advice (Excerpt 1.4). In some cases, HPs assumed that other colleagues had discussed physical activity with the patient (Excerpt 1.5).
- **Confusion regarding access to resources.** An issue regarding awareness of departmental resources was identified. Some HPs believed that their colleagues had access to physical activity resources (Excerpt 1.6). However, their colleagues were unaware of any physical activity resources they could provide for patients (Excerpt 1.7).
- **Clinical focus on diabetes care.** Health professionals were aware of the clinical focus on diabetes management and diabetes outcomes, especially in relation to achieving optimal blood glucose control (Excerpt 1.8). However, the need to be proactive and add physical activity promotion to routine diabetes care was identified (Excerpt 1.9).
- **Image presented by health professionals.** Health professionals were aware that their appearance and attitude could influence patients. Some perceived their weight presented a negative image to patients (Excerpt 1.10). Other HPs actively attempted to present a positive image to their patients by engaging in an active commute to work (Excerpt 1.11).

**Box 1. Topic list for semi-structured interview questions**

- Knowledge of the relationship between physical activity and type 2 diabetes
- Personal/professional view on the role of physical activity in the management of type 2 diabetes
- Experiences of providing or receiving physical activity information for type 2 diabetes
- Insight on how a future physical activity service for type 2 diabetes should be developed, delivered and managed

**Theme 2. Facilitators and barriers to delivery of physical activity promotion.** This theme described the perceptions of HPs on the delivery of physical activity promotion within routine diabetes care.

- **Staff responsibility for physical activity promotion.** Health professionals believed that all staff involved in diabetes care had a shared responsibility to promote physical activity to people with T2D (Appendix 2, Excerpt 2.1). However, the benefit of an official route of referral or having a key member of staff responsible for regular delivery of physical activity information was highlighted (Excerpts 2.2 and 2.3). Dietitians and DSNs were identified as potential key members of staff (Excerpt 2.4). The provision of a key member of staff or specialist was not regarded as achievable by some HPs due to current staffing levels (Excerpts 2.5 and 2.6).
- **Identified need for behaviour change training.** Health professionals recognised their limited skills in delivering effective behaviour change consultations (Excerpts 2.7 and 2.8). Health service management provided behaviour change training for staff which aimed to build their capacity to effectively deliver physical activity advice. Training also focused on raising awareness of other support routes available to them, including knowledge of local resources and facilities (Excerpts 2.9 and 2.10).
- **Issues related to delivery of behaviour change training.** Issues were identified with the provision of training courses. Health professionals were noted as going on repetitive training days (Excerpt 2.11). There was disparity between the types of HPs attending behaviour change training (Excerpt 2.12). The provision of ‘general’ information was highlighted as a barrier to engaging HPs in the importance of physical activity. It was suggested that training should reflect the clinical focus of diabetes care by providing specific clinical examples (Excerpt 2.13). There was difficulty in engaging HPs in training sessions, perhaps due to training being compulsory (Excerpt 2.14).
- **Barriers to physical activity promotion.** Time constraints of consultations did not allow HPs to bring about significant changes in physical activity behaviour (Excerpts 2.15 and 2.16).
Within that limited time remit, HPs described the need to focus on a primary management goal (Excerpt 2.17). The format of some consultations, where large volumes of behaviour change data were collected on a computer system, was perceived as a barrier in itself (Excerpt 2.18). Limited information on available resources for HPs and patients was also identified (Excerpt 2.19).

- **Other facilitators for physical activity promotion.** Several factors encouraged the provision of physical activity promotion by HPs. Firstly, the need to achieve positive clinical outcomes was highlighted (Excerpt 2.20). Secondly, targeting physical activity promotion for the spring and summer months was suggested for patients contemplating behaviour change (Excerpt 2.21). Thirdly, knowledge of local physical activity opportunities may encourage HPs to provide physical activity information to their patients (Excerpt 2.22). Finally, having a champion for physical activity promotion within the health care staff may encourage colleagues to increase their rates of physical activity promotion (Excerpt 2.23).

**Theme 3. Future physical activity promotion.** Several issues were raised which related to the future promotion of physical activity in practice.

- **Avoiding information overload for patients.** The importance of balancing the quantity of information given to patients at each visit was highlighted by HPs. Although they discussed the potential for having patients see a dedicated member of staff for physical activity information at routine health visits (Appendix 3, Excerpt 3.1), they also acknowledged the need to limit the number of HPs a patient saw per visit (Excerpt 3.2). It was noted that previous behaviour change training provided by the health board aimed to limit the potential of information overload by training HPs to identify a priority behaviour for management in each visit (Excerpt 3.3).

- **Policies and strategies for physical activity promotion.** There was confusion and frustration regarding the numerous and overlapping physical activity strategies that had been published (Excerpt 3.4). The introduction of government targets for the NHS was also identified as a factor influencing the provision of physical activity promotion within practice. Local health boards were identified as being under pressure to achieve specific health-related targets which excluded physical activity (Excerpt 3.5). Although local policy makers ensured physical activity was included in health board planning frameworks, a lack of consistency across different health boards was identified (Excerpt 3.6). The capacity of health boards to provide adequate physical activity promotion was limited by a small budget allocation for physical activity (Excerpt 3.7).

- **Evaluation of physical activity promotion strategies.** The importance of effectively evaluating current physical activity strategies to inform the development of future strategies was discussed (Excerpt 3.8). In addition to large-scale evaluation, it was also highlighted that individual HPs should consider evaluating their current knowledge of available physical activity services (Excerpt 3.9).

**Discussion**

This study adds to the current literature on diabetes care by exploring the insight of HPs regarding the provision of physical activity promotion within everyday practice. The study addressed two research questions.

**Q1. What are the experiences of health professionals in providing physical activity promotion?** Three key findings were identified regarding the provision of physical activity information. Firstly, there was a lack of structure for physical activity promotion within routine diabetes care. Confusion from HPs – regarding access to resources, a lack of referral route for physical activity support, and ill-defined roles for HPs – created barriers for physical activity promotion. It was agreed that in an ideal health care setting all HPs should have the responsibility and skills to effectively deliver physical activity information. However, in practice, HPs were pressured by time constraints and the need to prioritise clinical matters. They identified the potential benefit of having an identified member of staff responsible for physical activity promotion. There was a mixed response regarding who the key staff member should be.

Research suggests that patients consider their GP to be the most trusted source of physical activity advice. However, our findings showed that physicians were perceived by HPs as the least effective source of physical activity information. Previous research has also found physicians to have less training in behaviour change than other HPs.

In contrast, our findings identified dietitians, practice nurses and DSNs as effective sources of physical activity promotion. Patients with T2D have previously reported finding it easier to manage dietary changes when in combination with physical activity. However, a training gap was highlighted by McKenna et al. who found that fewer than one in four dietitians had received formal training on physical activity promotion. With regard to other HPs, nurses have been identified as having a closer relationship and more person-centred approach with their patients than physicians. Despite their important role, minimal research has explored the feasibility of delivering physical activity promotion for people with diabetes via practice nurses and DSNs.

The second key finding was that the format of behaviour change training was ineffective. Firstly, HPs were required to attend disease-specific training courses where they were presented with repetitive physical activity information. Secondly, training workshops failed to engage HPs on the benefits of physical activity for their patients with diabetes. It was suggested that the delivery of more clinical information and specific diabetes examples would help engage HPs. Thirdly, behaviour change training was often attended by HPs with a reluctant and negative attitude. These findings do not compare with all data from our study. Results from the online survey found that the provision of behaviour change training was perceived by HPs as one of the most effective methods of improving physical activity provision in practice. This was echoed by the qualitative interviews where HPs acknowledged their lack of skill in eliciting significant behaviour change in their patients. Previous studies in the diabetes and non-diabetes population have also found that HPs, although motivated to promote physical activity
to their patients, lack the skills necessary to initiate or maintain behaviour change.\textsuperscript{9,11}

The third key finding identified that a clinical focus on diabetes care acted as both a barrier and facilitator to physical activity promotion. A focus on achieving clinical outcomes via medication and diet reduced the priority and time available for physical activity promotion. In contrast, HPs were more likely to discuss physical activity if they thought it would have a benefit on clinical outcomes for their patient. This compares with research undertaken in the general population where HPs in primary care were more likely to discuss physical activity with patients if it related directly to clinical outcomes.\textsuperscript{8} The current evidence base has shown that physical activity can achieve positive clinical outcomes in individuals with diabetes.\textsuperscript{22-24}

Q2. What insight do health professionals have to inform the future direction of physical activity promotion within routine diabetes care? Two issues were highlighted regarding future physical activity provision. Firstly, access to a behaviour change specialist was recommended. The delivery of effective physical activity interventions requires an understanding of the psychology of behaviour change.\textsuperscript{25} It is unfair to expect HPs to effectively change the behaviour of their patients in a single session of short duration. Behaviour change interventions, provided by trained professionals for patients identified as ready to change their behaviour, are known to be effective in increasing physical activity levels in individuals with diabetes.\textsuperscript{26} This links with the ‘identify and refer’ method of physical activity promotion recommended by health service management in our study. Health professionals require effective training to identify appropriate patients and direct them to appropriate services. The need for this training is supported by a recent review of services within NHS Greater Glasgow and Clyde, where, despite 72% of adults with T2D reporting they were ready to change their physical activity behaviour, only 1% were referred to the existing exercise referral scheme.\textsuperscript{27}

In our online survey, access to a physical activity consultant and/or exercise referral scheme was rated by HPs as the single most effective factor in improving the current provision of physical activity information. The effectiveness of exercise referral schemes within the general population is uncertain;\textsuperscript{26} however, we know of no research which has explored their effectiveness for individuals with diabetes. Some evidence exists to suggest that they can be effective for people with coronary heart disease\textsuperscript{29} and can elicit short-term increases in physical activity.\textsuperscript{28} In contrast, there is strong evidence to support the role of a ‘physical activity consultant’ in the delivery of individually tailored physical activity information.\textsuperscript{3,30,31}

Secondly, HPs identified the need to avoid information overload for individuals with diabetes. In particular, previous research has highlighted the importance of avoiding information overload in those patients who do not yet appear interested in behaviour change.\textsuperscript{32} Effective training should support HPs to identify the ideal timing and balance of information to provide their patients with diabetes. Finally, there was a need for the government to consider physical activity as a priority health service target. It was suggested that ‘champions’ for physical activity could help raise the profile of physical activity within the health service. Recent guidelines on the delivery of brief physical activity advice in primary care also recommended raising the profile of physical activity by linking it to current health frameworks (e.g. the NHS Quality and Outcomes Framework).\textsuperscript{33} Further recommendations and guidelines such as these may improve the delivery and funding available for physical activity within routine diabetes care.

### Conclusions

A lack of structure for physical activity promotion and ineffective behaviour change training for HPs have made the promotion of physical activity within current routine diabetes care challenging. Several recommendations were presented for improving future physical activity promotion to individuals with T2D. These included: (1) having a key member of staff responsible for physical activity promotion; (2) access to a referral route for physical activity support; (3) improved format of behaviour change training to engage HPs with diabetes-specific information; (4) linking the delivery of physical activity promotion with clinical outcomes; and (5) using ‘champions’ to raise the profile of physical activity within the health service and linking it with current policy frameworks. Incorporating these recommendations may significantly improve the long-term outcomes of individuals with T2D via increased levels of physical activity.

### Acknowledgements

Many thanks to our colleagues in the Physical Activity for Health Research Group for their valued input; Jennifer Connelly, Dr Freya MacMillan and Dr Ann-Marie Knowles. Thanks also to the Diabetes Managed Clinical Network and all health professionals for their participation in this study.

### Declaration of interests

There are no conflicts of interest declared.

### References

References are available in Practical Diabetes online at www.practicaldiabetes.com.
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116a

Original article

Insight on physical activity promotion within routine diabetes care

References

### Insight on physical activity promotion within routine diabetes care

<table>
<thead>
<tr>
<th>Excerpt no.</th>
<th>Interview dialogue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>We would give specific information on exercise if the patients were on insulin, talking about hypos etc… but otherwise it would just be general: why exercise is good for you; exercise is good for your heart; your blood pressure; good for your blood sugars; maintain better control; good for weight loss and things like that (Diabetes Specialist Nurse).</td>
</tr>
<tr>
<td>1.2</td>
<td>We try to stress to them, especially if they’re poorly controlled, the importance of a wee bit more exercise than they are doing; you know, walking the dog; walking around the room; just even gentle exercise. Walking is a good exercise I always say. You don’t have to join a gym; you don’t have to go running (Diabetes Specialist Nurse).</td>
</tr>
<tr>
<td>1.3</td>
<td>So I tend to encourage physical activity and I’m very conscious not to use the word ‘exercise’. Although I’m a very keen person for exercise particularly when I’m seeing new patients (Endocrinologist).</td>
</tr>
<tr>
<td>1.4</td>
<td>I mean a lot of them can be in wheelchairs or on walking sticks and physical activity would not be possible or a priority with them. So that would probably be the main reason why physical activity is not discussed (Dietitian).</td>
</tr>
<tr>
<td>1.5</td>
<td>Although I think I do it a lot [promote physical activity], it’s probably not as much as I’d like to. I guess part of it’s you assume that someone, sometime in the past, has discussed it with them (Endocrinologist).</td>
</tr>
<tr>
<td>1.6</td>
<td>We have some general leaflets about benefits of increased physical activity in diabetes. I would pass the patient on to the nurse to get that sort of information but nothing more specific than that that I’m aware of (Endocrinologist).</td>
</tr>
<tr>
<td>1.7</td>
<td>I don’t think we do [have resources]. I think it’s all just by mouth. We’re just telling them about it. They can get referred to exercise classes from their GP though, but we don’t tend to do that … as I say, we have no great resources to give to patients or anything (Diabetes Specialist Nurse).</td>
</tr>
<tr>
<td>1.8</td>
<td>Clearly, I’m aware of the broader health benefits of physical activity as well and the population benefits, but I think on a one-to-one it’s trying to get a target benefit with that particular patient. So it’s very clinically driven I’d say (Endocrinologist).</td>
</tr>
<tr>
<td>1.9</td>
<td>We probably should be more proactive [with physical activity promotion], and we’re not, probably not. We tend to concentrate on blood glucose levels and diet. And physical activity comes along probably next. So I think we should be more proactive (Diabetes Specialist Nurse).</td>
</tr>
<tr>
<td>1.10</td>
<td>I think personally they probably look at me being overweight and think ‘well what is she doing?’ A lot of them do. But then I say, ‘well I’m not diabetic’ (Diabetes Specialist Nurse).</td>
</tr>
<tr>
<td>1.11</td>
<td>Several of us do actually ‘walk the walk’ and ‘talk the talk’. So I think that does actually help as well … Several of us cycle and I think that does help. It kind of normalises increasing physical activity rather than it being something that only a funny group of people do and it’s done in a gym sort of thing (Endocrinologist).</td>
</tr>
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**Appendix 1.** Interview excerpts for Theme 1: current physical activity promotion practices
### Excerpt no. Interview dialogue

2.1 Physical activity and discussing it plays a big role in my job. Other members of my team also discuss it in their clinics and I think it is important that everyone does their bit. It should not be left to one person (Practice Nurse).

2.2 I am happy to advise but do not have the time to do the actual promotion myself. A dedicated service to which we can refer seems best (GP).

2.3 I actually believe that physical activity is as important as diet but we don’t have a physical activity specialist attached to clinics, whereas we do have dietitians. In a local team it would help if one person took a lead on it and had a bit more training on it (Endocrinologist).

2.4 Because we have the sort of overall [care of the patient] … we’re looking at the blood sugars; we can talk to them about how it’s [physical activity] affecting their blood sugars and everything. So, yeah, I think we could be the appropriate people, given the training (Diabetes Specialist Nurse).

2.5 There is limited staffing to designate one person to the job. It’s probably best done as it is at the moment with everyone promoting it in their own clinics (Practice Nurse).

2.6 I think there’s no harm in having a key member of staff who has got a particular knowledge or expertise or advisory function, but I wouldn’t want to create a dependency on one individual (Health Service Policy Manager).

2.7 I feel I am only able to give basic advice but use the pilot scheme [physical activity referral] as an option for patients to attend for more information (Practice Nurse).

2.8 I think we lack experience in training in teaching patients about physical exercise. Because we’ve no resources really (Diabetes Specialist Nurse).

2.9 If you ask the question you need to know what to do with the response and nurses and other practitioners may feel they haven’t got the information to provide. That’s why the capacity building is probably essential because it doesn’t need to be difficult. It’s just really highlighting the issue and then signposting the person to some supports near their home (Health Service Policy Manager).

2.10 The way it works is we try to get them [GPs and practice nurses] to refer them through to the exercise referral scheme as the number one choice. Because they are a behaviour change service around physical activity. They have the time and the capacity to sit down and actually have that detailed conversation with people that they won’t get within practice. So what we’re essentially saying to GPs and practice nurses is: ‘Identify people who need to increase their physical activity and want to increase their physical activity and then refer on.’ We’re kind of saying that’s your job done (Health Board Policy Manager).

2.11 The way they used to work was that each disease had its own training day. So you’d go along for diabetes and you’d go along for heart disease etc…. But what would happen would be it would be the same people that would go to them all… So the same people were sitting there thinking ‘we’ve seen the same slides two weeks ago this presentation’, apart from the two slides that are disease specific (Health Board Policy Manager).

2.12 We rarely get GPs attending the [behaviour change] training days. It’s mainly nurses (Health Board Policy Manager).

2.13 We’re not being clinical enough for the audience. For that particular audience I think what we need to do is make it a lot more specific to their patient, so for diabetes here is how specifically physical activity is going to benefit your patient. I think that’s the level that we need to go to (Health Board Policy Manager).

2.14 We’ve got loads of people coming along. We’ve also done specific training for practice nurses. So we’ve all had the training. The difficulty is before you start there’s attitude issues, because they’ll sit there and they’ll tell you: ‘we know all this!’ They are disengaged before you’ve even started the session (Health Board Policy Manager).

2.15 Time pressures. Remembering to do it with all the other checks which are required (GP).

2.16 I think though that in this clinic, which deals with complex cases, we don’t always have the time to bring about changes [in physical activity] (Dietitian).

**Appendix 2.** Interview excerpts for Theme 2: facilitators and barriers to delivery of physical activity promotion [continued on next page]
### Excerpt no. | Interview dialogue
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2.17 | We are time pressured in our interaction with patients so we can’t really cover all aspects of diabetes care with them in one visit, never mind the aspects of wider care. So it’s almost a focus thing: focusing it all on blood pressure, or focusing it on foot care or something like that (*Endocrinologist*).  
2.18 | The fact that we ask and collect so much data actually impacts on the consultation. It should be a conversation between the practice nurse or the GP and that individual, whereas we’ve got the practice nurse actually looking at the screen for the whole time that they’re in it because they have to click so much data (*Health Board Policy Manager*).  
2.19 | I’m not aware of where we can refer patients to. I sometimes say to the patients: you know, your GP could probably [give them information] … they probably get access to more resources than we have (*Diabetes Specialist Nurse*).  
2.20 | It’s usually to address specific needs, clinical needs of the patient. So it might be somebody whose HbA1c is slightly higher than we’d like. So then the benefits of increasing their physical activity might get them to their desired target (*Endocrinologist*).  
2.21 | But if they’ve been thinking about it, especially at this time of year when it should be getting warmer and drier, and people tend to be more active in the summer anyway, if they’ve been thinking about it then you can be giving them the health benefit information, then it’ll help. But I don’t think me saying it actually does it; it helps if the patient has been thinking about it (*Endocrinologist*).  
2.22 | I think proximity would help. If a member of staff is giving brief advice to somebody and there were other options for good walking routes in the area, cycling routes, if there was sport or leisure centre nearby, it allows the advice to be I suppose more real. Rather than saying there’s a place 5 miles away or what have you, because a person can immediately go to the setting as soon as they leave the consultation (*Health Service Policy Manager*).  
2.23 | If you can get the clinical directors and local champions, that have a credibility, like a peer. So instead of me from Health Improvement saying ‘you should be referring’, but if it’s Dr Such and Such the clinical director in that area, who they kind of respect, you know at that level there’s a kind of credibility that says ‘yeah we need to do something about this, we need to raise the profile of physical activity, it’s really important’. I think that credibility of someone they recognise kind of comes with it as well (*Health Board Policy Manager*).

**Appendix 2.** Interview excerpts for Theme 2: facilitators and barriers to delivery of physical activity promotion [continued from previous page]
<table>
<thead>
<tr>
<th>Excerpt no.</th>
<th>Interview dialogue</th>
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<tbody>
<tr>
<td>3.1</td>
<td>If they’ve [the patient] had quite an upsetting consultation with one of them [the health professional]; or if they’ve you know had to change onto insulin; or had major changes to their blood sugar control; and then having to see another person at that clinic [for physical activity advice], that would be too much. But I suppose if everything has been running quite smoothly [this would be an option] (Dietitian).</td>
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<td>3.2</td>
<td>So they did come in and get a dietary assessment, they saw me, they then saw a nurse specialist for blood monitoring advice. So they’d be processed through by the clinic nurse as well, so I think you can overload patients in a single visit, but I think you can certainly see two [health professionals] (Endocrinologist).</td>
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<td>3.3</td>
<td>So potentially that individual is walking out with five referrals. ‘I’m stopping smoking, I’m losing weight, I’m stopping drinking, I’m increasing my activity.’ So it’s how we manage that and that’s where we deliver training around behaviour change and prioritising a single behaviour (Health Board Policy Manager).</td>
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<td>3.4</td>
<td>We’ve got a national physical activity strategy and following that we’ve now got a kind of national cycling action plan and we’re now developing a walking strategy. Why do we need a walking strategy? We’ve got a perfectly good physical activity strategy that references walking (Health Board Policy Manager).</td>
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<td>3.5</td>
<td>We’ve now got HEAT targets, and physical activity isn’t a HEAT target. So if you’ve got a target that’s going to be measured by the government then all the focus will go on that. So that’s what the local health improvement teams will do; they’ll focus on the HEAT targets, the big things they are going to be judged against (Health Board Policy Manager).</td>
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<td>3.6</td>
<td>We do try and get it [physical activity] in planning frameworks so that there is a responsibility for the areas [Health Boards] to do something about physical activity. But it’s patchy [across the Health Boards] (Health Board Policy Manager).</td>
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<td>3.7</td>
<td>Our physical activity budget, we get within the Health Board, is about 3/4 million [GBP], so we put about GBP 750 000 into the physical activity, the core budget ... So that’s less than a pound per person spending on physical activity within the [Health] Board. The majority of that funding will go to our exercise referral scheme for the salaries of our [physical activity] advisors (Health Board Policy Manager).</td>
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<td>3.8</td>
<td>The need for further evidence and research and evaluation and dissemination of that [physical activity strategy] to ensure that the practice is maintained at all times. Then the whole communications media element and making sure we’re getting the right messages going out and no conflicting messages for members of the public (Health Service Policy Manager).</td>
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<td>3.9</td>
<td>So I think there are a few things [issues] for people referring. One, it’s the ease with which it is to refer? Two, is it going to benefit my patient? Three, do they have a confidence in the service they referring on to? Four, what do they know about the service? (Health Board Policy Manager).</td>
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Appendix 3. Interview excerpts for Theme 3: future physical activity promotion