

# Professionals' perceptions of type 2 diabetes in primary care during a service redesign

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## Introduction

It is estimated that globally there will be 380 million people with diabetes mellitus by 2025<sup>1</sup> of which 80% of people will have type 2 diabetes (T2DM). A scoping exercise in the United Kingdom (UK) showed the importance of care organisation and delivery for people with diabetes,<sup>2</sup> and a consensus statement stated that an integrated approach to care is essential, with a single accessible site recommended as the preferred model.<sup>3</sup> Within the UK, care is delivered through different models developed according to local health boards, community and population needs based around the National

## Summary

The purpose of this study was to survey primary health care professionals' perceptions of type 2 diabetes, an evaluation during a service redesign. Management of people with type 2 diabetes has been led by hospital based secondary care. The objective of the service redesign was to transfer the management of the majority of people with type 2 diabetes from secondary care to general practitioner (GP) led, multidisciplinary primary care (comprising the GP, practice nurses, dietitians and podiatrists) delivered closer to the patients. Prior to implementation, all primary health care professionals undertook accredited educational preparation and there was infrastructure development by the creation of new posts and streamlining of IT systems to support the planned change.

The study aim was to examine health care professionals' perspectives of diabetes, its management, the value of clinical guidelines and the impact of practice organisation.

A cross-sectional survey design was used. Primary health care professionals in one geographical area were sent the validated Perceptions of Diabetes Questionnaire (n=112).

The response rate was 34% (n=38). Professionals attached great importance to ongoing education of people with type 2 diabetes in essential areas of care. Type 2 diabetes was perceived as more difficult to treat than other chronic conditions. There was a high level of satisfaction with the workload associated with the service redesign and a team approach is valued. There is an association between diabetes-specific education and confidence in diabetes management. Professionals identified some barriers to using clinical guidelines.

Overall, professionals were satisfied with the new model of multidisciplinary, GP led care management and their workload with the support of additional education in diabetes.

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## Key words

professionals' perceptions; type 2 diabetes

Service Frameworks for each of the four nations.<sup>4–7</sup>

Globally, there are agreed standards for care<sup>8</sup> and the UK has clinical guidelines<sup>9,10</sup> and standards<sup>11</sup> for diabetes care. The application of clinical guidelines in diabetes has facilitated the management of diabetes in both primary and secondary care.<sup>11–15</sup> While standards and guidelines are pertinent for practice, their application and usage are dependent on the attitude of health care professionals (HCPs) towards diabetes and guidelines.<sup>14,16</sup>

There are various studies that have considered professionals' attitudes and perceptions regarding specific aspects of diabetes care, for example, compliance,<sup>17</sup> insulin initiation,<sup>18,19</sup> patient education,<sup>20</sup> attitudes to self-management<sup>21</sup> and gestational diabetes.<sup>22</sup> Our study focuses on professionals' perceptions

of T2DM as a total condition and we did not consider any aspect as more important than another.

A Cochrane review for routine surveillance for people with diabetes states that where there is suitable organisational support in primary care, clinical outcomes in relation to mortality and glycaemic control are as good as or better than hospital based care in the short term.<sup>12</sup> The effectiveness of specific interventions to improve the management of diabetes in primary care is less clear: for example, interventions targeted at health professionals, organisation of care and patient education.<sup>23</sup> The diagnosis of T2DM predominantly occurs in primary care<sup>24</sup> therefore professionals need the knowledge, skills and competencies to support ongoing management.

There is an increasing need for professional education as primary

health care teams become more involved in managing diabetes. Kinmonth *et al.*<sup>25</sup> undertook a study to assess the effect of training of practice nurses (PNs) and GPs in patient centred care on lifestyle, psychological and physiological status of people newly diagnosed with T2DM compared with routine care. From their study, Kinmonth *et al.* recommended that professionals should remain focused on the management of diabetes while also adopting a more patient centred approach to the consultation process.

There are mixed reports on the efficacy of education on clinical practice for professionals in relation to life support training,<sup>26–30</sup> educational materials,<sup>31</sup> shared decision making<sup>32</sup> and interprofessional education.<sup>33</sup> However, it is the current philosophy of all professional groups in the UK that we are engaged in life-long learning. Hence, to include an educational component of a service redesign meets with our professional requirement as well as ensuring that all HCPs are up to date in their knowledge of diabetes prior to assuming greater responsibilities for its management.

The new model of care implemented for the service redesign was based on the Chronic Care Model<sup>34</sup> that has since been adopted by the Scottish government in the management of people with long-term conditions.<sup>35</sup> This model focuses on six evidence-based areas of practice associated with improved outcomes in the management of people with a chronic condition. The domains are:

- A partnership between well-informed people with the condition and motivated multiprofessional teams.
- An integrated health care system across all sectors.
- A decision support system utilising evidence-based practice, clinical guidelines and the development of the workforce.

- Clinical information systems that support shared data.
- Self-management support.
- The design of the delivery system through national performance frameworks.

### The Glasgow Diabetes Project

In 2003, the Scottish Executive Health Department financially supported the then Greater Glasgow Health Board (GGHB) to introduce a new, integrated service for people with T2DM based in primary care. Key components of the service redesign were: annual recall and review of people with T2DM; being proactive to improve diabetes control and manage risk factors; referral onto specialist services according to clinical need; all HCPs in primary care undertaking an accredited educational course in diabetes that must be at the minimum of degree level. HCPs selected an accredited educational course in diabetes care and management that met their own learning needs: some undertook an online course while others participated in a day release course. A key preliminary consideration was that participants had to undertake assessment of their learning that had academic credit and that the course was not only for continuing professional development but must also be assessed. HCPs were directed towards available courses by the project team, experts in the field, the health board and higher educational institutions.

GGHB comprised 14 local health care co-operatives (LHCCs) of which one LHCC commissioned an evaluation study of the impact of the service redesign on care management, health status, working practices and patient satisfaction. The evaluation study was conducted during the roll-in transitional period of approximately 18 months utilising a before and after survey design to capture various parameters.<sup>36,37</sup>

Both patient perspectives of the new service and quality of life issues relating to clinical parameters have been reported.<sup>38,39</sup> Patients appreciated the one stop shop of a new service, had confidence in their educated health care team and were assured that they would be referred to specialist services on the basis of clinical need.<sup>38</sup> Quality of life and distress associated with diabetes remained the same before and after the new service was initiated except that bodily pain worsened.<sup>39</sup> These findings, however, did not take account of the impact the new service design had on HCPs' working practices. This paper explores HCPs' experiences and views of working practices during the service redesign.

### Aim

To examine HCPs' perspectives of T2DM, its management, the value of clinical guidelines and the impact of practice organisation in the light of the new service design.

### Methods

**Design.** A cross-sectional survey design was adopted utilising a valid and reliable postal questionnaire for data collection during the implementation phase.<sup>37,40</sup>

**Sample.** The commissioning LHCC comprised 14 general practices with differing numbers of GPs, and 63 028 patients of whom 1402 (2.2%) had T2DM. All professionals in the LHCC were approached to participate (n=112). In each general practice, at least one GP led diabetes care with one or two PNs. For the whole LHCC, there was a team of five community based podiatrists and two dietitians dedicated to this new service.

We negotiated access to professionals through the Lead GP for the LHCC. The outcome was that all practice managers were sent copies of the questionnaire, a letter of introduction, an outline of the study

and participant information sheets for distribution among the HCPs. Practice managers were asked to distribute the questionnaire to HCPs working within their practice surgery. Stamped, self-addressed envelopes were included for return of anonymised questionnaires. There was no second mailing of the questionnaire.

**The questionnaire.** The questionnaire was developed for this study; its face and content validity and reliability have been previously reported<sup>40</sup> (Appendix 1; available via EDN online at [www.onlinelibrary.wiley.com](http://www.onlinelibrary.wiley.com)). Development of the questionnaire utilised four stages. First, an in-depth literature review identified nationally agreed standards of care. Criteria for the questionnaire were developed from this and, for the second stage, a national panel of diabetes experts was consulted. The nominal group technique consensus approach was employed to rank the criteria. The third stage was to interview a sample of HCPs on a one-to-one basis using the 'talk through' technique. Finally, the questionnaire was piloted with a different group of HCPs working in community care. Through this detailed process, face and content validity was assured.<sup>40</sup> Participants were asked to respond in relation to their own professional views and perceptions of diabetes care for people with T2DM, including their own attitude towards and confidence in managing diabetes. A Likert scale was used (1–5) with clear definitions for each score according to the questions asked. There were also options for open responses where appropriate.

**Procedure.** Ethics permission was granted from the GGHB Primary Care Research Ethics Committee. Codes of ethical practices were adhered to.<sup>41</sup> All participants were fully informed of the study and the return of the completed

questionnaire was possible in an anonymised manner.

**Data analysis.** Data were entered into an Excel spreadsheet and later transferred to Minitab for analysis. Results are presented as numbers and percentages. Not all respondents answered all questions, therefore the number of respondents varies from question to question.

For responses on 5-point Likert scales, a chi-square ( $\chi^2$ ) test was used to compare the percentage of responses at points 1 and 2 on the scale against the percentage at points 4 and 5 on the scale to evaluate whether the respondents' views were significantly more 'positive' or 'negative'.  $\chi^2$  tests were also used to test for association between responses to different questions, after grouping categories with small numbers. In 2 x 2 tables with small numbers, Fisher's exact test was used instead.

## Results

**Characteristics.** Thirty-eight people (nine male, 29 female) returned questionnaires; a response rate of 34%. There were six different professional groups who responded, comprising 14 GPs (37%); 12 PNs (32%); five podiatrists (13%); four district nurses (11%); two practice managers (5%) and one dietitian (3%). The majority had qualified prior to 1991 ( $n=28$ , 74%); with four each (11%) between 1991–1995 and 1996–2000; two people (5%) did not respond. Twenty-four HCPs (63%) had undertaken at least one diabetes specific educational course; the remainder had no specific additional education in diabetes management. No district nurse (DN) had undertaken any specific diabetes educational course. We analysed the results by professional group but, due to the small numbers in each profession, the results were not statistically valid.

**Screening for diabetes.** The majority of HCPs thought that the method of screening for diabetes was very important and these were using a fasting blood glucose (92%) or a random blood glucose (81%). The following methods of screening were supported: urine testing (46%); oral glucose tolerance test (41%); and blood glucose test two hours after a meal (27%).

**Ongoing education and advice.** All HCPs rated the ongoing education and advice for people with T2DM as important or very important ( $p<0.001$ ) with the exception of education about urinary glucose ( $p=0.71$ ). All professionals rated ongoing education regarding smoking as important or very important. Detailed breakdown of those who scored topics as not at all important (1) to equivocally important (3) found that it was mainly GPs who used all three scoring levels when compared with the other professional groups. All management issues in relation to diabetes, annual monitoring of clinical parameters and referral onto specialists were viewed as important except for urinary glucose monitoring. All of the HCPs viewed the medical notes and practice diabetes registers as important. HCPs do not hold strong views either way in relation to patient held records.

**Attitudes to type 2 diabetes.** HCPs view T2DM as significantly harder to treat when compared with other chronic diseases except for heart failure and arthritis. HCPs view T2DM as a serious condition regardless of how it is treated although demonstrating increasing perceptions of severity according to treatment type. There is a spread of responses in relation to HCPs' confidence in managing T2DM. HCPs were asked to self-assess their confidence levels. Overall, they are confident in their management and that their own actions improve

patient outcomes. Those who feel they have enough training tend to be more confident in managing T2DM (65% vs 41%), but the association is not statistically significant ( $\chi^2 p=0.17$ ). Those who feel they have enough training are significantly more likely to be confident that their therapeutic actions and advice have an impact on care (76% vs 35%;  $\chi^2 p=0.02$ ).

HCPs feel strongly that a team approach is valued and that patient centred care can improve adherence to recommended health care. There was no significant association (Fisher's exact test,  $p=0.32$ ) between HCPs'

views on patient centred care and the importance of recording results on patient held records.

**Clinical guidelines.** HCPs neither agree nor disagree that guidelines affect the degree to which consultations affect patient care. HCPs rate the level of organisational support from the practice towards using guidelines as high (Table 1). HCPs rated several benefits of clinical guidelines with only four GPs and three PNs not agreeing with all of the benefits. Barriers to using clinical guidelines were identified (Table 1), and the

majority feel that a lack of reading time is the greatest barrier along with lack of time to implement new ideas on the job. Guidelines were perceived not to adversely affect the professional-patient relationship, although the majority of individuals held no strong views on this aspect. There were almost no variations in responses according to professional group.

**Practice organisation.** The majority of practices had combined clinics of GP and PN (53%) or GP, PN, podiatrist and dietitian (23%) with 71% spending 30 minutes with each client. The

Perceptions of Diabetes Questionnaire concept	Severity rating: number (%)					P-value
	1	2	3	4	5	
Organisational support	(very little) 1 (3)	1 (3)	8 (23)	14 (41)	(very high) 10 (29)	<0.001*
Effect on patient care	(strongly agree) 3 (9)	7 (21)	14 (42)	8 (24)	(strongly disagree) 1 (3)	0.82
<b>Benefits of guidelines</b>	<i>(not a benefit)</i>			<i>(very much a benefit)</i>		
Up to date with research findings	0 (0)	0 (0)	4 (12)	17 (50)	13 (38)	<0.001*
Access to research findings	0 (0)	1 (3)	10 (29)	14 (40)	10 (29)	<0.001*
Demonstrates how to apply research in practice	1 (3)	0 (0)	11 (31)	15 (43)	8 (23)	<0.001*
Aid to clinical decision making	0 (0)	0 (0)	6 (17)	18 (51)	11 (31)	<0.001*
Saves time reading research papers	1 (3)	4 (11)	7 (20)	16 (46)	7 (20)	0.001*
<b>Barriers to using guidelines</b>	<i>(not a barrier)</i>			<i>(very much a barrier)</i>		
No time to read	7 (20)	1 (3)	3 (9)	16 (46)	8 (23)	0.005*
Lack of time to implement new ideas on the job	3 (9)	0 (0)	16 (46)	10 (29)	6 (17)	<0.003*
Little understanding of statistics	4 (11)	4 (11)	14 (40)	6 (17)	7 (20)	0.28
Ability to evaluate quality of research	5 (14)	3 (9)	13 (37)	7 (20)	7 (20)	0.20
Adverse effect on relationship with patient	5 (14)	8 (23)	19 (54)	2 (6)	1 (3)	0.01*
Facilities are inadequate for implementation	3 (9)	8 (23)	14 (40)	8 (23)	2 (6)	0.83
Relevant literature not accessible	6 (17)	5 (14)	17 (49)	6 (17)	1 (3)	0.35
Organisation will not cooperate with implementation	7 (20)	10 (29)	9 (26)	6 (17)	3 (9)	0.12

Not all respondents completed the questionnaire tick boxes, hence numbers are variable. \*P-value statistically significant.

**Table 1.** Responses to the questions asking about the use of clinical guidelines

majority of HCPs are satisfied with the care delivered, although two podiatrists are not satisfied. GPs hold mixed views on the workload associated with diabetes, while the other professions hold equivocal views or else that the workload veers towards being too much. There is no significant association ( $\chi^2 p=0.80$ ) between workload attributed to diabetes and adequacy of time and resources.

### Discussion

The questionnaire aimed to determine the perceptions and views of HCPs towards the condition of diabetes and its management regardless of the model of care or country in which the HCPs were working.

HCPs attach great importance to essential areas of practice that is in keeping with national standards.<sup>9–11</sup> The areas of practice noted included: the annual recording of clinical parameters; management issues around medications prescribing; assessing cardiovascular risk and proactively managing risk factors, referring people onto clinical experts according to need and recording findings and results.

HCPs' perceptions of methods of screening for diabetes are in line with current thinking,<sup>24</sup> although a more current study recommends that HCPs need to adapt their screening programmes to fit their own local circumstances.<sup>42</sup> It was surprising to note the percentage of respondents who supported urinary testing and the oral glucose tolerance test (OGTT) as screening tools for diabetes. As respondents were members of the primary health care team, it could be that they are used to the opportunistic screening for diabetes undertaken when urine testing for routine screening for many other conditions. Likewise, the OGTT may be conducted to diagnose diabetes in primary care and participants may have responded on how the test is used for diagnosis of,

as opposed to screening for, diabetes. The recent SIGN guidelines<sup>9</sup> make no mention of the most appropriate method for screening for diabetes.

HCPs' views on urinary glucose testing to monitor diabetes showed great variation. All HCPs rated urinary glucose testing, using the Likert scale, across the spectrum of options; in other words, there were quite varying views from all HCPs as to the importance or otherwise of urinary glucose monitoring in diabetes. At the time of the study, there was ambivalence about the role of urinary glucose testing and HCPs' responses to urinary glucose testing indicate uncertainty about the advice or education to give people about monitoring their diabetes. More recently, SIGN<sup>9</sup> does not recommend urinary glucose testing for any form of diabetes self-monitoring, advising instead that blood glucose monitoring is restricted to those people using insulin or sulphonylureas.

All HCPs rated advice about smoking cessation as important, supporting recommended practice and indicating that smoking cessation remains an ongoing health issue.<sup>43</sup>

It is mainly GPs who rate certain elements of ongoing advice or education as not important when compared with other professional groups. It is unclear why GPs might rate education or advice as not important. It may be that they do not consider education to be their responsibility or else they address these issues on an individual needs basis.

Diabetes is considered more difficult to treat in comparison with hypertension, hyperlipidaemia, angina, heart failure or arthritis, which concurs with other research. Previous studies found that professionals considered T2DM to be a 'mild' condition.<sup>44,45</sup> HCPs in our study were asked to rate how severe they thought T2DM was according to treatment options. The reported scores imply that HCPs do not

concur that T2DM is a 'mild condition' and have embraced the impact of T2DM *per se*, regardless of the treatment regimen.<sup>44–46</sup>

Studies and policies promote further education of professionals in caring for people with diabetes.<sup>47–50</sup> Our study has shown that following educational preparation, in addition to their baseline knowledge, not only do HCPs have current knowledge of diabetes management but also their knowledge has positively affected their confidence in managing the condition, and they perceive that both increased knowledge and confidence affect patient outcomes.

HCPs are all members of professional bodies who embrace the concept of personal accountability and responsibility for professional practice as well as 'keeping oneself up to date' with evidence-based practice. Therefore, to report that the lack of reading time and time to implement new ideas are barriers to using clinical guidelines seems surprising, although it may not be unexpected knowing the competing demands on HCPs. Most guidelines publish a user-friendly record or flow chart to assist with ease of use and reference to attempt to overcome information overload or reading fatigue, and there may be a need to signpost HCPs to the specific guidelines for each country.

There was ambivalence expressed about whether or not guidelines promote patient centred care or affect the professional–patient relationship (Table 1). HCPs could have answered questions related to patient centred care strongly one way or another. However, the lack of strong perceptions may indicate two things. Either HCPs already practise patient centred care or else they do not. In the latter situation, they may view people as a condition, e.g. 'a diabetic' who needs to be treated according to published guidelines, and not as an individual for whom recommendations of care are to be followed.

Our study describes a group of HCPs who follow guidelines, undertaking care management without feeling strongly that what they do is actually benefiting the patient. As attitudes and perceptions of HCPs affect the care delivered,<sup>14,15</sup> they would be worthy of follow up at a later date. Guidelines have been shown to be effective in harmonising care in cardiac patients and there is no reason why harmonisation in terms of HCPs contributing to effective management is not transferable to people with diabetes.<sup>51</sup>

Education of professionals was a central support to the delivery of the new service although the lack of educational support for DNs may reflect their limited input to caring for people with T2DM. The educational preparation of DNs may change as it is predicted that their workload will increase as more people will be treated with insulin at home.<sup>52</sup> We conducted the survey during the roll in of the new service and hence not all HCPs had completed their educational preparation, which may account for the fact that not all HCPs had undertaken an accredited diabetes course.

HCPs seemed to be satisfied with their workloads which may be due to several factors. There is more team working as the service redesign aimed to grant people access to all members of the primary care team at a one stop shop. Also, as each GP practice set up specific procedures for care, the majority were able to allocate 30 minutes for each person. A previous study showed that individuals with multiple problems required an increased consultation time.<sup>53</sup> Our study supports these earlier findings.

While a team approach to diabetes care was highly valued, a small number of non-medical professionals strongly disagreed. The service redesign promoted more collaborative working; however, it would appear that, while structures are in place,

further processes need to be *in situ* to strengthen team working. It could be that those individuals, who strongly disagreed, perceive that they are not working as part of a team due to the uni-professional focus of their own care, e.g. podiatry or dietetics. It could be that there were no multidisciplinary meetings whereby the whole team considered and collaborated on particularly challenging care aspects.

While the HCPs viewed record keeping as highly important, they did not hold such strong views on patient held records. Two core tenets of the Chronic Care Model<sup>34</sup> are of partnership working between professionals and patients, and supporting people in self-management of their condition. Core to any self-management is information and, in the current climate of information technology, people are accessing the worldwide web for details about their condition.<sup>54</sup> Therefore, for HCPs not to strongly support patient held records goes against evidence-based practice of the Chronic Care Model<sup>34</sup> and the whole ethos of patient empowerment<sup>55,56</sup> for self-management.

HCPs concur that a patient centred approach can improve adherence to treatment; however, their earlier views negate this fact which may be due to concordance factors from individuals with diabetes. A more recent study has identified that concordance by patients to treatment is perceived as an issue by HCPs.<sup>17</sup>

Self-reporting may be a limitation as it is known to have potential bias depending on individuals' perspectives and their fear of divulging a lack of knowledge or of confidence. However, the research method was open and objective to allow free expression of people's views without any leading questions, and participants had the opportunity to record their own perceptions anonymously without judgements being made on them as individuals.

The survey was limited by being conducted once only and would have benefited from being repeated. On reflection, we relied on practice managers only to distribute the invitation envelopes to the GP practice staff. This may not have been the most effective way in which to recruit staff given the overall workload for them in the context of significant changes to practice delivery being undertaken. Recruitment may have been improved if we had been able to send people a personalised, named envelope containing the questionnaire, the letter of introduction, outline of the study, participant information sheets and consent form. Likewise, if we had been able to employ several prompts we may have recruited more. However, the response rate was not markedly lower than rates reported elsewhere in research that involved survey questionnaire completion.<sup>37,57,58</sup>

Responders are more likely to be interested in care of people with diabetes and so may be the more motivated HCPs, therefore generalisability to all HCPs may be limited.

### Conclusion

HCPs overall were satisfied with the care management under the new service redesign. HCPs reported that care management was supported through further education in the management of diabetes, reinforcement of practice in accordance with current guidelines, and an overall increased confidence in their own actions.

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### Declaration of interests

There are no conflicts of interest declared.

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PERCEPTIONS OF DIABETES QUESTIONNAIRE (PODQ)

The purpose of this questionnaire is to measure *your own professional views and perceptions of diabetes care for people with Type 2 diabetes.*

Where any of the questions do not apply to every person with Type 2 diabetes please try to rate the importance you would attach to these aspects of care where they do apply. For example, 'inspection of injection sites' is only relevant for those people with Type 2 diabetes who have progressed to taking insulin, but how important would you rate this aspect of care for those to whom this does apply?

Thank you for taking the time to complete this questionnaire.

SECTION A. Diabetes

<p><b>1.</b> How important do you <i>rate</i> these <i>methods of</i> screening to detect diabetes in general practice? (Please score 1=not at all important, to 5=very important)</p>						<p>Blood Samples Taken 1 2 3 4 5</p> <p>Testing Urine For Glucose 1 2 3 4 5</p> <p>Testing Urine For Ketones 1 2 3 4 5</p> <p>Testing Urine For Protein 1 2 3 4 5</p> <p>Testing Visual Acuity 1 2 3 4 5</p> <p>Retinal Screening 1 2 3 4 5</p> <p>Testing For Neuropathy 1 2 3 4 5</p> <p>Inspection of Feet/Footwear 1 2 3 4 5</p> <p>Inspection of Injection Sites 1 2 3 4 5</p> <p>Impotence/Sexual Functioning 1 2 3 4 5</p>					
<p>Urine Testing 1 2 3 4 5</p> <p>Fasting Blood Glucose 1 2 3 4 5</p> <p>Random Blood Glucose 1 2 3 4 5</p> <p>Oral Glucose Tolerance Tests 1 2 3 4 5</p> <p>Glucose 2hrs After a Meal 1 2 3 4 5</p>											
<p><b>2.</b> How important do you <i>rate ongoing education and advice</i> of the person with Type 2 diabetes with regard to: (Please score 1=not at all important, to 5=very important)</p>						<p><b>4.</b> How important do you rate the following management issues for people with Type 2 diabetes? (Please score 1=not at all important, to 5=very important)</p>					
<p>Diet 1 2 3 4 5</p> <p>Oral Hypoglycaemic Agents 1 2 3 4 5</p> <p>Insulin Administration 1 2 3 4 5</p> <p>Insulin Dose Adjustment 1 2 3 4 5</p> <p>Hypoglycaemia 1 2 3 4 5</p> <p>Hyperglycaemia 1 2 3 4 5</p> <p>Blood Glucose Monitoring 1 2 3 4 5</p> <p>Urinary Glucose Monitoring 1 2 3 4 5</p> <p>What To Do When Sick 1 2 3 4 5</p> <p>Social Eating 1 2 3 4 5</p> <p>Alcohol 1 2 3 4 5</p> <p>Exercise 1 2 3 4 5</p> <p>Foot Care 1 2 3 4 5</p> <p>Smoking 1 2 3 4 5</p> <p>Psychological Aspects 1 2 3 4 5</p> <p>Employment 1 2 3 4 5</p> <p>Sexual Function 1 2 3 4 5</p> <p>Contraception/Pregnancy 1 2 3 4 5</p> <p>Driving &amp; The DVLA 1 2 3 4 5</p>						<p>Optimise HbA<sub>1c</sub> Levels 1 2 3 4 5</p> <p>Optimise Blood Pressure 1 2 3 4 5</p> <p>Treat Abnormal Lipid Profile 1 2 3 4 5</p> <p>Return Appointment 1 2 3 4 5</p> <p>Discuss Individual Targets 1 2 3 4 5</p> <p>Sources of Help 1 2 3 4 5</p> <p>Diabetes UK 1 2 3 4 5</p>					
<p><b>3.</b> How important do you <i>rate an annual</i> undertaking of the following parameters for people with Type 2 diabetes? (Please score 1=not at all important, to 5=very important)</p>						<p><b>5.</b> How important do you <i>rate referring</i> people with Type 2 diabetes to other professionals? (Please score 1=not at all important, to 5=very important)</p>					
<p>Weight 1 2 3 4 5</p> <p>Body Mass Index 1 2 3 4 5</p> <p>Height 1 2 3 4 5</p> <p>Dietary Assessment 1 2 3 4 5</p> <p>Blood Pressure 1 2 3 4 5</p>						<p>Dietitian 1 2 3 4 5</p> <p>Specialist Diabetic Team 1 2 3 4 5</p> <p>Retinal Screening Team 1 2 3 4 5</p> <p>Exercise Referral 1 2 3 4 5</p> <p>Nephrologist 1 2 3 4 5</p> <p>Other, please specify ..... 1 2 3 4 5</p>					
<p><b>6.</b> How important do you <i>rate</i> recording findings and results in any of the following sources? (Please score 1=not at all important, to 5=very important)</p>						<p>Medical Notes 1 2 3 4 5</p> <p>Practice Diabetes Register 1 2 3 4 5</p> <p>Patient Held Records 1 2 3 4 5</p> <p>Other, please specify ..... 1 2 3 4 5</p>					

(Continued on next page)

Appendix 1. Perceptions of Diabetes Questionnaire, PODQ. © McDowell JRS, et al. (2007)

SECTION B. Attitudes to Type 2 Diabetes																															
<p><b>Diabetes mellitus is defined as a metabolic disorder of multiple aetiology characterised by chronic hyperglycaemia with disturbances of carbohydrate, protein and fat metabolism resulting from deficits in insulin secretion, insulin action or both. (Scottish Diabetes Framework, 2002)</b></p> <p><b>We are interested in your feelings about Type 2 diabetes and its treatment in primary care.</b></p>	<p><b>5.</b> I feel confident that my therapeutic actions/advice result in improved diabetic outcomes. (Please score 1=strongly agree, to 5=strongly disagree)</p> <p style="text-align: center;">1   2   3   4   5</p>																														
<p><b>1.</b> How do you feel the treatment of Type 2 diabetes compares to other chronic diseases? (Please score 1=diabetes is easier to treat, to 5=diabetes is harder to treat)</p>	<p><b>6.</b> I have enough training to care for people with Type 2 diabetes. (Please score 1=strongly agree, to 5=strongly disagree)</p> <p style="text-align: center;">1   2   3   4   5</p>																														
<table border="0"> <tr> <td>Hypertension</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Hyperlipidaemia</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Angina</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Heart Failure</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Arthritis</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </table>	Hypertension	1	2	3	4	5	Hyperlipidaemia	1	2	3	4	5	Angina	1	2	3	4	5	Heart Failure	1	2	3	4	5	Arthritis	1	2	3	4	5	<p><b>7.</b> I have adequate time and resources to effectively treat people with Type 2 diabetes. (Please score 1=strongly agree, to 5=strongly disagree)</p> <p style="text-align: center;">1   2   3   4   5</p>
Hypertension	1	2	3	4	5																										
Hyperlipidaemia	1	2	3	4	5																										
Angina	1	2	3	4	5																										
Heart Failure	1	2	3	4	5																										
Arthritis	1	2	3	4	5																										
<p><b>2.</b> How would you rate the severity of Type 2 diabetes treated by: (Please score 1=not at all serious, to 5=very serious)</p>	<p><b>8.</b> Diabetic care requires a team approach. (Please score 1=strongly agree, to 5=strongly disagree)</p> <p style="text-align: center;">1   2   3   4   5</p>																														
<table border="0"> <tr> <td>a) Diet Alone</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>b) Tablets</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>c) Insulin</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </table>	a) Diet Alone	1	2	3	4	5	b) Tablets	1	2	3	4	5	c) Insulin	1	2	3	4	5	<p>'Patient-centred care' has been identified as care which explores patients' concerns, seeks an understanding of the patients' world, finds common ground on what the problem is and mutually agrees on management, enhances prevention and health promotion and enhances the continuing relationship between the patient and health professional (Little et al., 2001).</p>												
a) Diet Alone	1	2	3	4	5																										
b) Tablets	1	2	3	4	5																										
c) Insulin	1	2	3	4	5																										
<p><b>3.</b> Type 2 diabetes is difficult to treat because people with diabetes do not adhere to recommended health care. (Please score 1=strongly agree, to 5=strongly disagree)</p> <p style="text-align: center;">1   2   3   4   5</p>	<p><b>9.</b> Patient-centred care can improve adherence to recommended health care of patients with Type 2 diabetes. (Please score 1=strongly agree, to 5=strongly disagree)</p> <p style="text-align: center;">1   2   3   4   5</p>																														
<p><b>4.</b> How confident do you feel in your management of Type 2 diabetes? (Please score 1=very confident, to 5=not confident)</p> <p style="text-align: center;">1   2   3   4   5</p>																															
SECTION C. Use of Clinical Guidelines																															
<p><b>We have defined clinical guidelines as any of the systematically developed statements to assist practitioner and patient decisions about appropriate health care for people with Type 2 diabetes.</b></p> <p><b>We are interested in your level of usage of guidelines for people with Type 2 diabetes.</b></p>	<p>(Please score 1=very little support, to 5=very high support)</p> <p style="text-align: center;">1   2   3   4   5</p>																														
<p><b>1.</b> Please rate the level of organisational support you feel your general practice provides for the use of guidelines.</p>	<p><b>2.</b> Clinical guidelines affect the degree to which your consultations are patient centred. (Please score 1=strongly agree, to 5=strongly disagree)</p> <p style="text-align: center;">1   2   3   4   5</p> <p style="text-align: right;"><i>(Section C continued on next page)</i></p>																														

**Appendix 1.** PDOQ (continued from previous page). © McDowell JRS, et al. (2007)

*(Section C continued from previous page)*

**3. Which of the following do you feel are benefits to using clinical guidelines?**  
*(Please score 1=not a benefit, to 5=very much a benefit)*

Keeps you up to date with research findings	1	2	3	4	5
Access to research findings	1	2	3	4	5
Saves time reading research papers	1	2	3	4	5
Shows how to apply research in practice	1	2	3	4	5
An aid to clinical decision making	1	2	3	4	5

**4. Which of the following do you feel are barriers to using clinical guidelines?**  
*(Please score 1=not a barrier, to 5=very much a barrier)*

No time to read	1	2	3	4	5
Relevant literature not accessible	1	2	3	4	5
Lack of time to implement new ideas on the job	1	2	3	4	5
Facilities are inadequate for implementation	1	2	3	4	5
Organisation will not cooperate with implementation	1	2	3	4	5
Ability to evaluate quality of research	1	2	3	4	5
Little understanding of statistics	1	2	3	4	5
Adverse effect on relationship with patient	1	2	3	4	5

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**SECTION D. Practice Organisation**

**1. Does your practice run a diabetic clinic?**  
*(Please tick the appropriate box)*

Yes   
 No   
 Don't know

If yes, who runs the clinic?  
*(Please tick the appropriate box[es])*

Practice Nurse   
 GP   
 Health Visitor   
 Don't know   
 Other, please specify .....

**2. What is the average length of time you as a professional spend with your client during their clinic appointments? (Or in their own home, if relevant):**  
*(Please tick the appropriate box)*

10 mins   
 20 mins   
 30 mins   
 Other, please specify .....

**3. How satisfied are you with the care delivery system in place for people with Type 2 diabetes in your practice?**  
*(Please score 1=not at all satisfied, to 5=very satisfied)*

	1	2	3	4	5
--	---	---	---	---	---

**4. How do you perceive the workload that is attributed to diabetic care in your own practice?**  
*(Please score 1=too much, to 5=not enough)*

	1	2	3	4	5
--	---	---	---	---	---

**5. What types of care does your practice provide for each of the following client groups?**  
*(Please tick the appropriate boxes)*

Client groups	Does not provide care		Sole care provider		Shared care	
	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2
Children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teenagers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adults	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elderly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**6. Does your practice provide leaflets for people with diabetes?**  
*(Please tick the appropriate box)*

Yes   
 No

*(Continued on next page)*

Appendix 1.PDOQ (continued from previous page). © McDowell JRS, et al. (2007)

SECTION E. About You	
<p><b>Finally we would like to ask you some questions about yourself.</b></p> <p><b>1.</b> What gender are you? (Please tick the appropriate box)</p> <p>Male <input type="checkbox"/></p> <p>Female <input type="checkbox"/></p>	<p><b>5.</b> What diabetes-specific education have you undertaken? (Please tick all that apply)</p> <p>Bradford course <input type="checkbox"/></p> <p>University of Warwick course <input type="checkbox"/></p> <p>Other(s), please specify .....</p> <p>.....</p>
<p><b>2.</b> In what year did you qualify as a health care professional? (Please write in the box)</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div>	<p><b>Finally, please note down any other issues which you think this questionnaire may not have fully covered.</b></p>
<p><b>3.</b> Please indicate your position within primary care: (Please tick the appropriate box[es])</p> <p>General Practitioner <input type="checkbox"/></p> <p>Practice Nurse <input type="checkbox"/></p> <p>District Nurse <input type="checkbox"/></p> <p>Diabetes Nurse Specialist <input type="checkbox"/></p> <p>Dietitian <input type="checkbox"/></p> <p>Podiatrist <input type="checkbox"/></p> <p>Practice Manager <input type="checkbox"/></p> <p>Other, please specify .....</p>	
<p><b>4.</b> What professional qualification(s) do you hold?</p> <p>MBChB <input type="checkbox"/> RN <input type="checkbox"/></p> <p>MRCGP <input type="checkbox"/> SEN <input type="checkbox"/></p> <p>FRCGP <input type="checkbox"/> DN <input type="checkbox"/></p> <p>DRCOG <input type="checkbox"/> HV <input type="checkbox"/></p> <p>Practice Nurse Qualification <input type="checkbox"/></p> <p>Other, please specify .....</p> <p>.....</p>	
<p><b>THANK YOU FOR COMPLETING THIS QUESTIONNAIRE</b></p>	

**Appendix 1.** PDOQ (continued from previous page). © McDowell JRS, *et al.* (2007)