

Perceptions, attitudes and beliefs among allied healthcare professionals managing people with Type 2 diabetes: an international cross-sectional survey

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Introduction: Many individuals with Type 2 diabetes (T2DM) do not achieve their glycaemic targets, and allied healthcare professionals (HCPs) have a central role in their care.

Methods: Allied HCPs who advise/treat people with T2DM completed a cross-sectional, Internet-based survey to examine clinical practice patterns and identify barriers to achieving glycaemic control. Responses from 280 allied HCPs from 51 countries were analysed.

Results: Participants were mostly from North America (46%), Australia/Oceania (17%) and Europe (16%). Many (65%) respondents reported that $\leq 60\%$ of their patients achieve their HbA1c targets. Lack of motivation by HCPs and patients, as well as poor patient adherence to therapy, were identified as major barriers to achieving glycaemic targets. Strategies most frequently selected by HCPs to improve glycaemic outcomes were patient-focused.

Conclusions: Greater awareness among HCPs of their role in supporting and motivating patients to self-manage their condition may improve rates of glycaemic control among individuals with T2DM.

Keywords: Survey, Diabetes management, Glucose control, Barriers, Attitudes, Allied healthcare professionals

Introduction

The International Diabetes Federation (IDF) estimates that 415 million adults currently have diabetes, which is set to rise to 642 million by 2040.¹ Of particular concern, data suggest that more than 45% of adults with diabetes remain undiagnosed,¹ while leading international diabetes experts propose that current figures underestimate the disease burden.² In addition, the prevalence and incidence of Type 2 diabetes mellitus (T2DM) are increasing, particularly in developing countries.^{1,3} Serious consequences of T2DM include cardiovascular disease, blindness, end-stage renal failure and amputations.⁴

Key to T2DM control is management of hyperglycaemia, with the United Kingdom Prospective Diabetes Study (UKPDS) establishing that early intensive glycaemic control in newly diagnosed patients significantly decreases the rate of microvascular complications.⁵ Analyses of long-term UKPDS data showed that intensive control of glycaemia also reduces cardiovascular disease and total mortality.⁶ Consequently, T2DM management guidelines now recommend early blood glucose control as an essential element of treatment.^{4,7–9} However, despite the known benefits of achieving glycaemic control early,^{10,11} management of glycaemia remains inadequate and insufficient numbers of patients achieve their glucose targets.^{12,13}

Several factors may contribute to unnecessary and prolonged periods of hyperglycaemia. These include a lack of knowledge of the benefits of early glycaemic control and glycaemic goals, clinical inertia — delayed or inappropriate responses to poorly controlled hyperglycaemia — and failure to implement new treatment strategies.¹⁴ Other aspects may include resistance to implementing new models of care, such as the multidisciplinary team (MDT) approach, or a failure to tailor management strategies.¹⁴ Insufficient time during the consultation may also lead to ineffective communication, misunderstanding and treatment goals being inadequately discussed or prioritised.¹⁴ In addition, suboptimal patient adherence to medication due to lack of understanding, the complexity of diabetes management regimens, cultural or economic factors or fear of adverse events may play a role.¹⁴ There is evidence that these factors are common and widespread,¹⁵ with variation observed across regions and specialties.¹⁶

Previous surveys of healthcare professionals (HCPs) involved in the management of T2DM have identified a need for improvement in patient self-management education,^{17,18} collaboration between team members and people with diabetes^{17,18} and HCP education.¹⁷ However, insight into how physicians and allied HCPs from different regions view and approach diabetes

management, and their perceptions regarding barriers to achieving glycaemic control, is limited. An improved understanding of these factors across multiple countries and specialties may help to focus management strategies on areas of unmet clinical need and identify opportunities for global education in the management of T2DM.

To this end, the *Global Partnership for Effective Diabetes Management*, a multidisciplinary group from leading institutions and diabetes organisations worldwide, has conducted surveys to evaluate current perceptions, attitudes and beliefs of physicians and allied HCPs involved in the management of people with T2DM with respect to their patients' levels of glycaemic control, self-monitoring and understanding of diabetes and its management. These surveys also assessed current clinical practice patterns across regions and roles and across a range of different numbers of patients treated per week. The primary objective of these surveys was to gather information on current clinical practice patterns in the management of T2DM to identify barriers to improving glycaemic control. Results from the *Global Partnership* survey of allied HCPs are reported here.

Methods

Design

This survey was an international, cross-sectional, Internet-based survey of allied HCPs involved in the management of people with diabetes, including diabetes specialist nurses, dietitians and researchers. Development of the survey was directed by the authors, in cooperation with the *Global Partnership for Effective Diabetes Management*. The survey consisted of 29 questions designed to provide insights into real-world management and included a mix of categorical, ordinal and Likert-type scale questions. Allied HCPs involved in the management of diabetes were invited to complete the survey, which was available in seven languages (Brazilian-Portuguese, English, French, German, Italian, Mandarin and Spanish), via stands at international diabetes meetings and emails to relevant HCP databases and society lists. The English language version of the survey is included as supplemental online material.

Data analysis

Only complete questionnaires were included in the analyses. Data were analysed in Excel and reported using descriptive statistics.

Consent and ethics

Consent and ethics committee approval were not required. The survey was fully anonymised with no identifiable patient data included. Participants were fully informed about the objectives of the survey, including the possibility of publication.

Results

Overall, 319 HCPs from 60 countries completed the survey. After excluding 20 responses from secondary care physicians/specialists, 9 responses from family medicine physicians and 10 responses from HCPs who do not advise/treat any T2DM patients in a typical week, responses from 280 allied HCPs from 51 countries were analysed.

Participants were mainly from North America (46%), Australia/Oceania (17%) and Europe (16%; [Table 1](#)), and almost half (47%) were nurses ([Table 1](#)). Most respondents treated up to 50 patients per week ([Table 1](#)).

When responses were analysed by region or number of patients treated per week, there appeared to be some differences, as described below. However, when analysed by role, survey findings were broadly aligned with overall responses (data not shown).

Frequency of HCP review

Although more than half of the respondents said they review their patients every 3 months, 31% of respondents only review their patients every 6 or 9 months and 17% review annually or less frequently ([Table 1](#)).

In Australia/Oceania, 35% of respondents review their patients every 3 months, whereas 58 and 55% of

Table 1 Survey demographics.

	Number and percentage of respondents
<i>Region</i>	
Asia	15 (5%)
Australia and Oceania	48 (17%)
Central America and the Caribbean	11 (4%)
Europe	45 (16%)
Middle East and North Africa	4 (1%)
North America	130 (46%)
South America	15 (5%)
Sub-Saharan Africa	12 (4%)
<i>Primary role</i>	
Chiropodist/podiatrist	2 (1%)
Dietitian	54 (19%)
Nurse	131 (47%)
Researcher (who sees patients)	11 (4%)
Other	82 (29%)
<i>Number of people with T2DM advised/treated in a typical week</i>	
1–10	96 (34%)
11–25	96 (34%)
26–50	65 (23%)
51–100	16 (6%)
> 100	7 (3%)
<i>One average, how often are patients reviewed?</i>	
At least every 3 months	146 (52%)
Every 6 months	85 (30%)
Every 9 months	3 (1%)
Annually	41 (15%)
Every 2 or more years	5 (2%)

Notes: Regional information was gathered by asking participants which country they worked in. Respondents were also asked to provide their primary role, the average number of patients reviewed in a typical week and the average frequency of patient review.

European and North American respondents, respectively, review their patients this regularly (data not shown).

In addition, an increase in the proportion of respondents who review their T2DM patients every 3 months was observed as the number of patients treated/week increased (Figure 1).

Glycaemic control

When asked what proportion of their patients achieves their HbA1c targets, 31% of HCPs responded 41–60%, 22% said 21–40% and 12% said $\leq 20\%$. A total of 14% said 61–80%, while just 2% answered $>80\%$.

Furthermore, most (80%) respondents agreed (or strongly agreed) that achieving glycaemic control is difficult for many of their patients, with only 9% disagreeing (or strongly disagreeing; Figure 2).

Patient understanding and self-management

Although 39% of HCPs agreed that most patients understand the serious nature of their disease, 45% disagreed (Figure 2). In addition, while almost a half agreed that most people with T2DM understand how to modify their lifestyle, around a third disagreed. In Australia/Oceania, the number of respondents in agreement was 58% versus, for example, 42% for Europe and 41% for North America.

While over half of the respondents agreed that most people with T2DM understand why or how to take their medications as advised, many did not agree (Figure 2). In addition, 31% of HCPs surveyed disagreed that their patients use blood glucose self-monitoring results effectively.

HCP management of T2DM

When asked about their own clinical experience, over half of HCPs said they have enough time to help patients achieve their glycaemic target, although a quarter disagreed (Figure 3).

Most (85%) respondents said they review patients' blood glucose self-monitoring record at every consultation, and 91% said they encourage all patients to access structured patient-centred diabetes education (Figure 3). In addition, 93% agreed that they feel equipped to answer patients' questions about T2DM, while 71% were confident that the lifestyle advice they give would be effective (Figure 3).

Barriers to achieving glycaemic control: motivation and adherence

Around three-quarters (77%) of respondents agreed that lack of motivation by the HCP is a major barrier to achieving glycaemic control, while 85% said that lack of motivation by the patient is a barrier (data not shown). Only 12 and 6% disagreed with these statements, respectively. A further four-fifths (80%) of respondents agreed that poor adherence to medications is a major barrier to achieving glycaemic targets, while 8% disagreed (data not shown).

When the results were analysed by region, 65% of respondents from Australia/Oceania thought that lack of motivation by the HCP is a major barrier to achieving glycaemic control, compared with 82% for Europe and 72% for North America. In addition, 65% of HCPs from Australia/Oceania said that poor adherence is a major barrier vs. 80% for Europe and 79% for North America (data not shown).

The most popular reasons cited for poor adherence were complex treatment regimens (18%), not understanding the consequences of suboptimal glycaemic control (18%), feeling overwhelmed by the diagnosis of diabetes (15%) and financial constraints (15%) (data not shown). When asked which changes would have the greatest impact on improving glycaemic control, 35% selected 'enhancing patient engagement and motivation through personal goal setting' (data not shown).

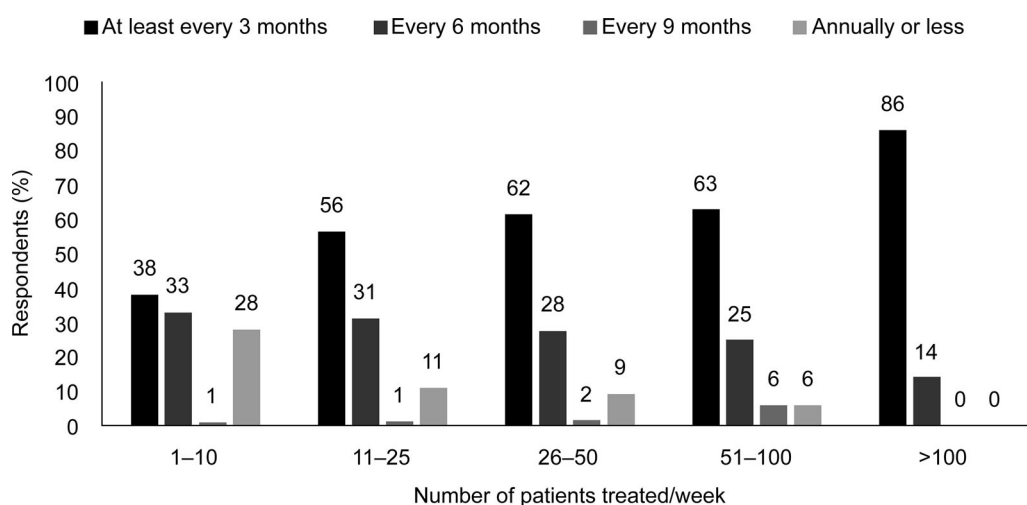


Figure 1 Frequency of patient review by number of patients treated/week. Participants were asked how frequently, on average, they review their patients with T2DM. Results were analysed according to the number of patients treated in a typical week.

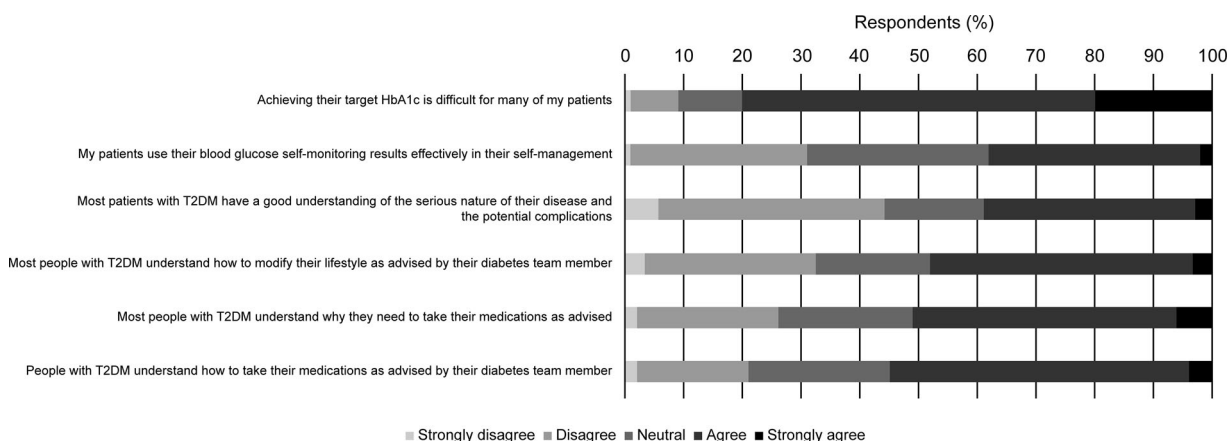


Figure 2 Patient self-management and understanding. Participants were asked whether they strongly agreed, agreed, were neutral, disagreed or strongly disagreed with each statement about their patients’ self-management and understanding of their condition.

Other changes that respondents thought would make an impact included improving structured patient-centred education (16%) and better integration of interdisciplinary care (14%).

Role of the individual with diabetes

Overall, half of the respondents felt that patients have a central role in glycaemic control, while 42% thought that all stakeholders (physician, nurse, dietician and patient) have a central role (data not shown). In Europe, only 36% of respondents agreed that patients have a central role compared with 58 and 55% in Australia/Oceania and North America, respectively.

Just over three-quarters of HCPs agreed that patients have a strong say in their management plan and 63% said that HbA1c targets are agreed between the patient and the rest of the diabetes team (Figure 4(A)). The proportion reporting that glycaemic targets are agreed between the patient and the rest of the team generally rose as the number of patients treated/week increased,

up to 85% in the case of those treating >100 patients/week (Figure 4(B)).

Team approach

The majority (87%) of HCPs surveyed agreed that their clinical opinion is valued by other members of the clinical team, while 71% of respondents said that the interdisciplinary approach works well in their clinic (Figure 4 (A)). A tenth of respondents said that their clinic does not use an interdisciplinary approach.

In Europe, 53% of respondents said the interdisciplinary approach works well in their clinic, compared with 71% in Australia/Oceania and 81% in North America (data not shown).

Discussion

Overall, the results of this survey indicate that more must be done to improve the current status of diabetes management worldwide. Despite the wide range of antidiabetic agents and T2DM management guidelines available, only 2% of HCPs surveyed reported that >80% of their

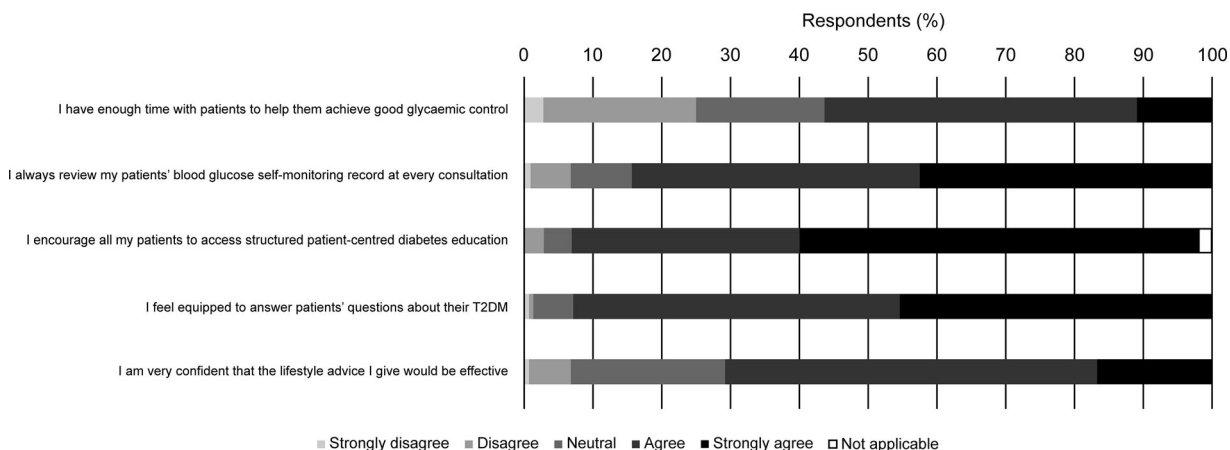


Figure 3 Clinical management of T2DM. Participants were asked whether they strongly agreed, agreed, were neutral, disagreed or strongly disagreed with each statement about their own clinical management of T2DM.

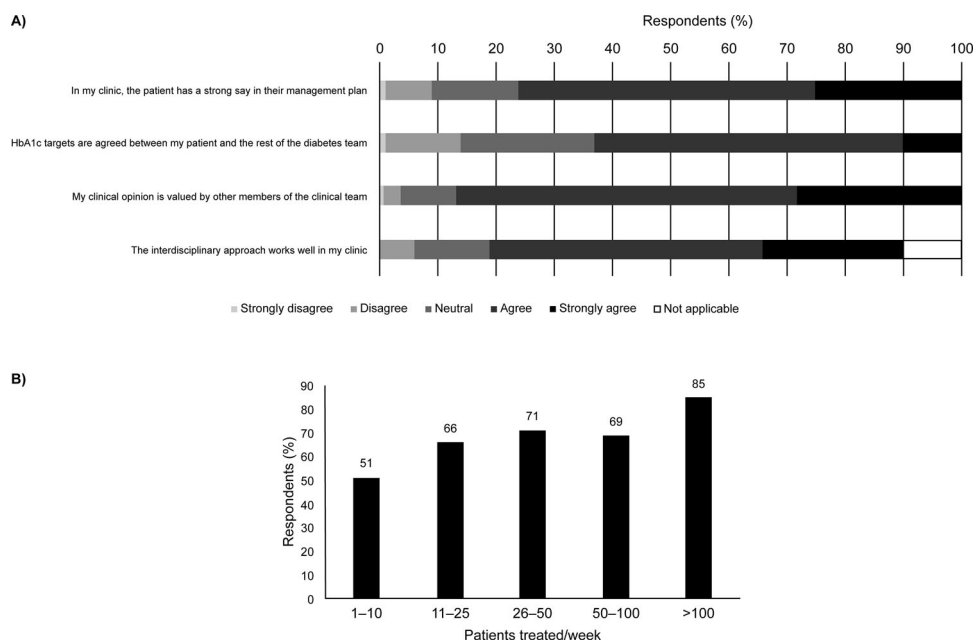


Figure 4 Role of the patient and the interdisciplinary team. (A) Participants were asked whether they strongly agreed, agreed, were neutral, disagreed or strongly disagreed with each statement about the role of the patient and the interdisciplinary team in managing T2DM. (B) Proportion agreeing HbA1c targets between patient and wider the diabetes team, analysed by number of patients treated/week.

patients achieve their HbA1c targets. In addition, four-fifths of HCPs responding recognise that achieving glucose control is difficult for their patients, despite more than half of HCPs saying they review their patients every 3 months.

Major barriers to glycaemic control identified in this study include lack of motivation from both HCPs and patients, as well as suboptimal patient adherence to medications. These results concurred with data from a previous survey,¹⁵ which identified reasons for clinical inertia in the management of T2DM in both adults with diabetes and treating physicians across six countries.¹⁵ The authors suggested that effective communication between HCPs and people with diabetes acting as a team, including the establishment of realistic shared goals, will lead to better outcomes.¹⁵ However, in the current study, more than three-quarters of surveyed HCPs agreed that their patients have a strong say in their management plan, while almost two-thirds said that HbA1c targets are agreed between the patient and the rest of the diabetes team. Inadequate adherence to medication is a major issue that needs to be overcome, by simplifying treatment regimens where appropriate. In addition, over a quarter of respondents said they do not have enough time to help their patients achieve glycaemic control, indicating that in some healthcare settings patient demand and/or limited resources may restrict consultation times and, consequently, the ability of HCPs to provide adequate support. Of note, strategies most frequently selected by HCPs as likely to have a positive impact on glycaemic control were patient-focused.

Although 80–90% of HCPs surveyed said that they review blood glucose self-monitoring records at every

consultation and that they encourage all of their patients to access structured diabetes education, almost a third said their patients do not use self-monitoring results effectively. Many HCPs also perceived that patients do not realise the seriousness of diabetes or its complications, understand how to modify their lifestyle or know why/how to take their diabetes medications. Lack of HCP motivation — identified as a barrier by 77% of respondents — could be a factor contributing to insufficient patient education in these areas.

These findings are consistent with results from other studies. For example, the Diabetes Attitudes, Wishes and Needs second study (DAWN2TM), identified the need for a major improvement in diabetes self-management education, as reported by 60% of HCPs.¹⁷ Respondents also indicated that major improvements were needed in terms of specialist nurse availability (64%), psychological support (63%) and communication between team members and people with diabetes (56%).¹⁷ In some countries, up to one-third of HCPs reported not having received any formal diabetes training.¹⁷ A Swiss survey that explored opinions on diabetes care in both HCPs and patients with diabetes¹⁸ also indicated patients' difficulties regarding self-management, as well as insufficient information regarding diabetes, and a lack of collaboration.¹⁸ Proposed solutions included developing self-management education, and focusing on comprehensive and coordinated care, communication and teamwork.¹⁸ Although many HCPs in the current study indicated that the interdisciplinary team approach works well in their clinic, this appeared to be more effective in certain regions (e.g. North America and Australia/Oceania Australia) versus others (e.g.

Europe), perhaps reflecting system barriers in certain countries.

There was also a tendency for HCPs in Australia/Oceania to review their patients less frequently, e.g. in comparison with North America and Europe, perhaps because they are more likely to think that patients are knowledgeable about how to manage their condition with lifestyle modification. In addition, fewer HCPs from Australia/Oceania felt that lack of motivation of the HCP or non-adherence to medication were barriers to achieving glycaemic targets.

As the number of patients treated per week increased, some improvements were observed e.g. an increased frequency of patient review and a rise in the number of HbA1c targets being agreed between patients and the wider diabetes team. This might suggest that HCPs' management of the condition improves with greater experience and patient contact, although this was not reflected in rates of glycaemic control.

In terms of survey limitations, quotas were not applied to control the number of HCPs solicited to complete the survey in terms of their region, role or number of patients treated each week, potentially resulting in selection bias. The total number of respondents was also relatively small. Nonetheless, the survey was comprehensive and reached out to HCPs from a wide number of regions and specialties.

Conclusion

This survey confirms previous findings that very few people worldwide are achieving their glycaemic targets, despite frequent patient review. This suggests that strategies to improve outcomes for people with T2DM should focus on improving the quality rather than quantity of contact time with patients. While both HCP- and patient-related barriers were identified, there appeared to be a bias towards selection of patient-focused strategies to optimise glycaemic control. A lack of patient motivation, knowledge and adherence were among the key barriers identified, indicating that improved understanding by HCPs of patients' attitudes and beliefs regarding self-management is important for enhancing outcomes. However, it is essential that HCPs recognise their own role in improving diabetes education and are motivated to work with patients to help them achieve their goals.

While this study indicates that some regions might benefit from better integration of multidisciplinary care, it should be recognised that management pathways are partly determined by the capabilities of country-specific healthcare systems. Further insights into the key components of effective MDTs in different regions might help to inform strategies for improved management of T2DM across the globe.

Acknowledgements

The authors, in cooperation with the *Global Partnership for Effective Diabetes Management*, conceived and

directed the development of the survey and approved the survey content, and were involved in the interpretation of the survey results. All authors reviewed the survey content and were involved in writing and/or reviewing the paper and had final approval of the submitted and published versions. The survey was administered and distributed by International Medical Press (London, UK) supported by an unrestricted educational grant from AstraZeneca. Ruth Wills of International Medical Press assisted with the analysis of the results and the writing of the manuscript.

Disclosures

The authors Anne-Marie Felton and Margaret McGill are members of the *Global Partnership for Effective Diabetes Management*, an independent multidisciplinary task force. Anne-Marie Felton has received honoraria/consultation fees from Ascensia, Sanofi, Lifescan and Novo Nordisk. Margaret McGill has received honoraria/consultation fees from AstraZeneca, MSD and Abbott and has participated on speakers bureaus for MSD, Novo Nordisk, AstraZeneca and Abbott.

Funding

This work was supported by AstraZeneca under educational grant number 69680. International Medical Press (London, UK) was the recipient of the grant.

Supplemental data

Supplemental data for this article can be accessed at [10.1080/20573316.2017.1409868].

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