# Chapter 9.
# Identifying and Overcoming Barriers to Guideline Implementation

Mesbah Sayed Kamel, Sulaf Ibrahim Abdelaziz, Mohamed Hassanein, Mohamed Sandid, Line Kleinebreil & Adel A El-Sayed

## 9.1 Introduction

Diabetes is a chronic disease requiring continuous management [1]. Optimal management relies on the patient and healthcare professional (HCP) working closely together to control the patient's blood glucose levels and reduce diabetes-associated risks. For the patient, this involves lifestyle changes, glucose monitoring and (in many cases) pharmaceutical interventions [1]. Patient self-management is therefore key, and a supportive healthcare service is necessary to facilitate this. A number of global and national guidelines for the management of diabetes have been created to aid effective disease management and to provide standards of care [1-4]. Furthermore, awareness of socio-cultural circumstances that may impact on diabetes management has increased. For example, several recommendations for the management of diabetes during the fasting period of Ramadan have been developed recently, along with educational programmes [5-7]. However, guidelines and educational resources, including the *IDF-DAR Practical Guidelines* presented in this booklet, are only of value if they are adhered to. Several barriers to guideline implementation have been identified across Muslim communities, in both Muslim-majority and Muslim-minority countries.

## 9.2 Identifying barriers to guideline implementation

Barriers may arise on an individual level (e.g. within the patient or HCP), or may originate within the wider cultures of the community or healthcare system (***Figure 1***).

**Figure 1. Barriers to guideline implementation span patients, healthcare professionals, healthcare systems and communities**


Modifying established behaviour to achieve guideline recommendations is difficult; it can require changing personal beliefs and practices, as well as reshaping complex

relationships within health services and within communities. A full understanding of these issues is critical for tailoring practical solutions. Some of the barriers to diabetes guideline implementation in Muslim communities, particularly during Ramadan, will be outlined below, alongside suggested strategies for overcoming them.

### 9.2.1 Community and patient barriers

***Injections and skin pricks***

It is believed by some Muslim communities that injecting insulin invalidates Ramadan fasting. Many also feel that pricking the skin, an integral part of the blood glucose test, breaks the fast [8]. In a retrospective observational study of glucose testing during Ramadan, 860 patients with diabetes were surveyed in Pakistan [8]. The survey revealed that 39.8% of respondents who were taking insulin for their diabetes did not perform blood glucose tests during Ramadan, as they felt it would void the fast [8]. Even outside of Ramadan, regular monitoring of blood glucose is insufficiently practised by patients with diabetes in some Muslim communities [9]. Hence, educating all people with diabetes through available educational channels that insulin injection and/or blood glucose monitoring does not invalidate fasting during Ramadan is essential.

**In the majority of Muslim countries, blood glucose testing and/or insulin injection does not invalidate the Ramadan fast**

***Diet and exercise***

Consumption of a high-fat and high-protein diet during Ramadan is a traditional behaviour that can be difficult to modify [10]. A prospective study of the dietary patterns of patients with type 2 diabetes (T2DM) during Ramadan, who also underwent dietary counselling, revealed an increase in calorie intake during Ramadan with a significant increase in fat intake [10]. The study demonstrated that despite repetitive counselling on diet guidelines for Ramadan, compliance was poor [10]. This was also noted in the CREED study where 30% of patients reported eating larger meals [11]. Following a day of fasting, as well as a desire to eat larger than normal meals, there is often an urge to eat them more quickly. Eating rate has been positively correlated with food intake, and eating too quickly can lead to overconsumption [12]. Eating habits, such as the number and timing of meals, also varies among countries, and this can impact on the management of diabetes and the relevance of guidelines. For example, in some countries the fast is broken with a light snack followed by a large meal later in the evening, whereas in others a main meal is used to break the fast. Increased exercise is also an important lifestyle modification

for people with diabetes but this might be avoided in some Muslim communities, both due to practical considerations such as lack of time and services, as well as cultural circumstances and social expectations [13].

### 9.2.2 Barriers involving HCPs and healthcare systems

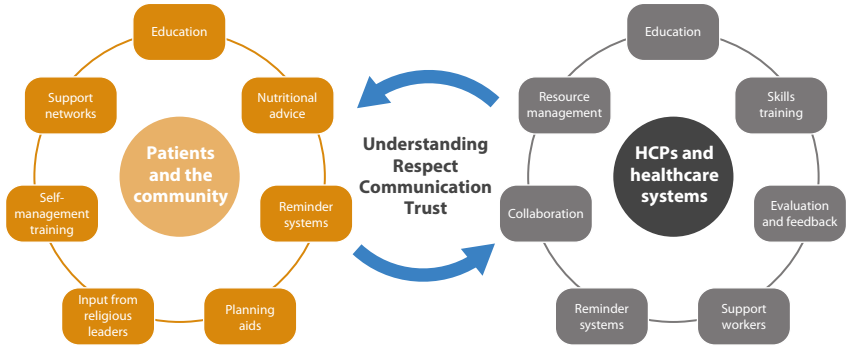
Barriers to guideline implementation originating among HCPs can arise from numerous factors, including a lack of skills, knowledge, cultural competence and awareness of patient needs. Indeed, a lack of medical knowledge of fasting and diabetes among general practitioners in France reportedly resulted in the provision of inaccurate advice to patients during Ramadan, alongside inadequate patient education [14]. The EPIDIAR study, which was carried out across 13 Muslim-majority countries, revealed that around a third of HCPs did not provide any recommendations at all about fasting during Ramadan to their Muslim patients with diabetes [9]. There are signs that awareness of recommendations and guidelines are increasing; however, in Muslim-minority countries, the evidence suggests that use of guidelines remains low [11, 15]. Studies have also shown a lack of awareness of Ramadan guidelines among pharmacists [16, 17]. One study in Qatar found that less than half of pharmacists referred to published practice guidelines, and only 20% and 8% were aware of and had read the American Diabetes Association (ADA) consensus document on fasting during Ramadan and the decree of the Organisation of Islamic Conference, respectively [16]. Interestingly, 20% of pharmacists interviewed were concerned about offering advice contradictory to that provided by the physician [16]. The views of others may raise a significant barrier to guideline implementation, and some HCPs may find it hard to accept guidance that conflicts with the opinions of colleagues or indeed their own religious beliefs. A lack of training, both in general diabetes management and diabetes management during Ramadan, is also a critical issue [18].

**Across 13 Muslim-majority countries, around a third of HCPs did not provide any recommendations at all about fasting during Ramadan to their Muslim patients with diabetes**

## 9.3 Overcoming barriers to guideline implementation

The first step in overcoming barriers to guideline implementation is to fully understand them; this enables appropriate practical responses to be configured and implemented. Many of the barriers could be overcome by the provision of comprehensive diabetes education, both for patients and HCPs (***Figure 2***). Combining targeted education with a series of further actions across communities and health services, such as skills training, improved communication, use of planning aids, establishment of support networks, and resource management, can together help foster stronger patient-doctor relationships; the basis for effective guideline implementation (***Figure 2***).

**Figure 2. Multiple approaches for overcoming barriers to guideline implementation**




### 9.3.1 Targeted diabetes education and building a good patient-doctor relationship

Ramadan-focused diabetes education is widely recommended and has proven to be effective, as discussed in Chapter 6 [7, 19]. In both Muslim-majority and Muslim-minority countries it may first be necessary to provide education to HCPs, to both increase their awareness of the range of guidelines available and to ensure they are providing optimal advice to patients for the management of diabetes during Ramadan. This can be achieved with the support of regional, national and international organisations. Moreover, encouraging specialists within healthcare systems to advocate such guidelines can both educate and motivate other health workers, as well as provide confidence among staff that a unified message is being disseminated. HCPs may also need additional training to ensure that they have the appropriate skills to deliver optimal diabetes management strategies to fasting individuals. Paramount to this is cultural sensitivity to the beliefs and attitudes of the patient, and effective communication between patient and doctor [20]. HCPs must take care to convey the importance of the patient's role in the management of their own diabetes, while being sensitive to socio-cultural circumstances [20]. Cultural competency minimises misunderstandings, resulting in better communication and overall care [21]. It can also empower providers to take practical steps to respond to patient values; for example, providing a female doctor or chaperone to female patients who may be uncomfortable seeing a male physician [22]. It can also be helpful for HCPs to monitor the adherence of patients to the diabetes advice provided (e.g. through the use of patient diaries); such information can be used to shape patient care according to patient behaviour, and to improve diabetes management during Ramadan [23]. For patient education, patient beliefs and current practices should be used as a foundation for building informative programmes, and education should be tailored to the recipients' culture and literacy [20, 24].

For example, when educating about diet, HCPs should have the knowledge to ensure that traditional foods and foods compatible with the patient's economic situation are included within dietary plans [24].

**Cultural competency is essential for clear communication and better overall diabetes care**

At a service level, improving accessibility to care, cross-discipline communication and continuity of care can help with the implementation of guidelines, by providing consistent messages to patients and ensuring the development of a trusting therapeutic alliance [20]. Services should take responsibility to raise awareness of available materials, both among staff and patients. Evaluation and audit of guideline implementation can provide opportunities to re-assess and improve implementation approaches [25]. Resources may be lacking in some low- or middle-income Muslim-majority countries and effective resource management is therefore necessary to ensure the provision of optimum diabetes care; collaboration within medical teams and the use of agreed protocols can be beneficial [26].

### 9.3.2 A collaborative approach to enhance guidance implementation

It is essential to involve religious leaders in community-level educational programmes, alongside HCPs, to ensure that patients receive advice combining religious and medical directives [27]. Religious leaders have access to a large proportion of the community and the information they provide is considered trustworthy. Studies involving focus-groups have suggested that imams are keen to work with and support HCPs in providing general diabetes prevention advice within their religious teaching [28, 29]. Incorporating fasting-specific diabetes advice into teachings would provide a valuable means to disseminate this information. In a small study that examined the fasting practices of pregnant women with diabetes, individuals were as likely to seek advice from their imam as from an HCP [30]. It is vital, therefore, that imams have a sound understanding of the issues surrounding diabetes management during Ramadan, in order to provide accurate information to patients. Over half of the participants in the study involving pregnant women with diabetes did not consult either an HCP or a religious leader prior to Ramadan [30]. This highlights the need for proactive action by healthcare systems and HCPs to provide education and support to this community rather than waiting for patients to seek out advice. The involvement of community support workers in community-centric educational programmes can also help to reshape traditional views and drive successful outcomes, as demonstrated in the Ramadan Education and Awareness in Diabetes programme (see Chapter 6) [7].

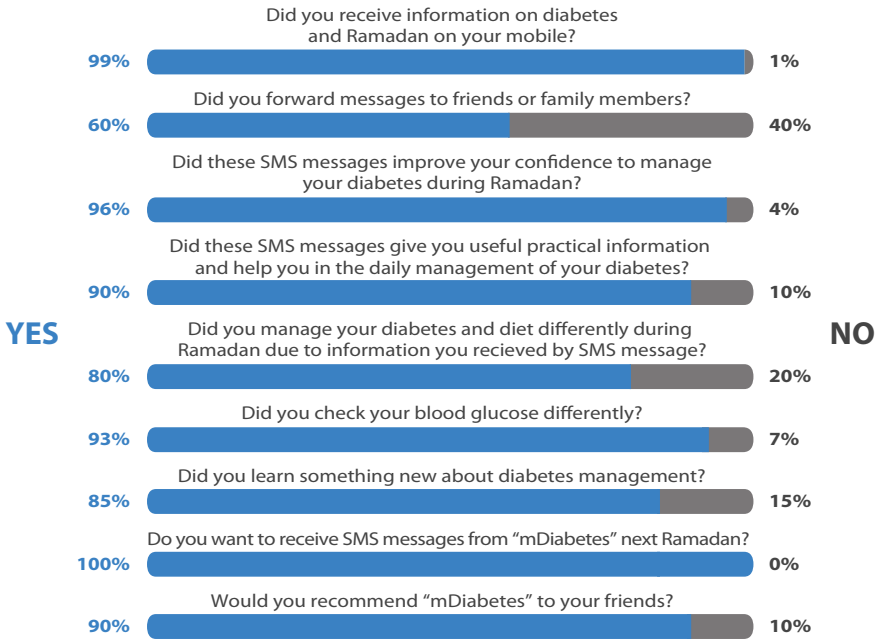
**Providing Ramadan-focused diabetes education should be a collaborative process involving HCPs, religious leaders and community support workers**

Overall, multiple strategies for raising awareness of the issues of diabetes management during Ramadan should be encouraged. Ultimately, education of all stakeholders is fundamental in ensuring the provision of optimal diabetes management, especially during Ramadan.

### 9.3.3 The use of technology to improve diabetes management during Ramadan

Technology can be a useful tool for improving diabetes management [31]. For example, services could adopt reminder systems to remind HCPs to provide Ramadan fasting advice to each patient in their pre-Ramadan consultations. Owning a mobile phone is commonplace these days, therefore mobile messaging and applications could be used to promote disease awareness and to provide support for diabetes self-management, including medication reminders and diet and lifestyle plans [31]. To this end, the World Health Organization and the International Union of Telecommunications have implemented the 'Be He@lthy, Be Mobile' initiative which seeks to use mobile technology to fight the growing global burden of non-communicable diseases including diabetes [32]. The mDiabetes project was one such approach that was launched in Senegal in 2014 [33]. Patients with diabetes, HCPs and the general public were encouraged to sign up to receive a special set of 'Diabetes & Ramadan' SMS before, during and after Ramadan. The aim of these text messages was to increase awareness of diabetes and provide advice during Ramadan to prevent complications associated with fasting and feasting. In 2014, around 3,000 people had registered to receive the messages, and this increased to 11,000 in 2015. It is projected that 50,000 adults will be registered for this service in 2016. In collaboration with the Senegalese Association for the Support of People with Diabetes (Association Sénégalaise de Soutien aux Diabétiques; ASSAD), the acceptance of the SMS health campaign was qualitatively evaluated nine months after the 2014 campaign. During the evaluation a random sample of 100 patients with diabetes who had registered for the SMS service were interviewed by phone. The outcome was very positive, confirming the high interest within the diabetes community to receive simple daily advice on a personal device to help manage their diabetes during Ramadan and fast safely (***Figure 3***). The mDiabetes project has also been launched in Egypt [34].

**Figure 3. Outcomes of a questionnaire evaluating the mDiabetes project in Senegal**




## Summary

- Diabetes guidelines and educational resources such as the *IDF-DAR Practical Guidelines* are only of value if they are adhered to by both HCPs and patients.
- Several barriers to guideline implementation have been identified, originating within the individual (the patient or HCP) or within the wider cultures of the community or healthcare system.
- Key solutions to overcoming such barriers include raising HCP awareness of the key issues surrounding diabetes management during Ramadan, and providing effective, socio-culturally sensitive patient education.
- Technology can play a key role in the dissemination of diabetes management advice and guideline recommendations – as demonstrated by the mDiabetes project.

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