



## Addressing diabetes at the crossroads of global pandemic and regional culture

### Comment on “The curse of wealth – Middle Eastern countries need to address the rapidly rising burden of diabetes”

William C. Hsu<sup>1,2</sup>, Robert A. Gabbay<sup>1,2,\*</sup>

#### Abstract

As diabetes and obesity rates continue to climb at astronomical rates in the Middle East, future generations are at an even greater risk for diabetes and the associated complications. Many factors are at play and it is clear that creative solutions are needed to retool provider resources in the Middle East towards prevention of diabetes and its complications while leveraging technology to maximize outreach within the accepted cultural norms. Only by building the capacity to address the current diabetes burden as well focusing on prevention for the future, can Middle East countries create a strong infrastructure for a successful future.

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#### \*Correspondence to:

Robert A. Gabbay

Email: [Robert.gabbay@joslin.harvard.edu](mailto:Robert.gabbay@joslin.harvard.edu)

In the April issue of IJHPM, Klautzer and colleagues described alarming rates of obesity and associated chronic conditions that have risen in tandem with the wealth generated by the oil and gas economies of the Middle East, in particular Gulf Cooperation Council (GCC) countries (1). The authors elaborated on the public health, human resource, and fiscal challenges faced by these nations as the incidence of type 2 diabetes in particular has skyrocketed (2).

#### Current state of diabetes in Gulf Cooperation Council countries

More worrying perhaps than the current problem is that there is no relief in sight for what is becoming an intergenerational cycle of obesity and diabetes: maternal obesity leads to Gestational Diabetes Mellitus (GDM), which may in turn predispose affected children to a lifetime of obesity and associated cardiometabolic consequences (3,4). Children of obese women are also more likely to develop obesity and diabetes even when not exposed to GDM (5). It is not surprising that the prevalence of childhood and adolescent obesity is on the rise (6), both a consequence of and a looming factor in the vicious cycle of the obesity-diabetes epidemic.

If the rising incidence of obesity and diabetes is not addressed, this public health crisis may persist, even if the fossil fuel-based affluence that precipitated it does not (7). In the U.S., many private insurers do not invest heavily in prevention because substantial up-front expenditures may not pay off in the form of positive health outcomes and reduced costs for many years. In addition, once this type of investment is made, there is no guarantee that members will remain in (and pay into) the same insurer's system over the long term. While the GCC

nations face a similarly ominous obesity-diabetes epidemic, in contrast to the U.S. their predominantly government backed insurance system is well resourced over the long term. Although GCC countries currently underinvest in healthcare, a strong, government-backed insurance system has the potential to develop innovative initiatives that could prevent or reduce the devastating and costly outcomes associated with poorly controlled diabetes.

#### Recommendations

As a first step, GCC nations must make larger and earlier investments in primary prevention, such as: establishing appropriate reimbursement for healthcare providers who successfully prevent and treat obesity; providing incentives to patients working to lose weight; creating an infrastructure that enables all individuals to engage in effective, culturally-appropriate physical activity; raising community and family awareness of diabetes; and establishing widespread diabetes screening programs.

Demand for diabetes-related treatment and secondary prevention is also expected to rise precipitously in the very near future. As Klautzer and colleagues noted, GCC nations have a shortage of doctors, nurses, and health educators, poor primary care services, and a large proportion of patients with poorly controlled diabetes. To mitigate the most devastating and costly outcomes, considerable investment in secondary prevention will be required. To accomplish this most effectively, characteristics unique to this region must be taken into account.

In some more conservative regions, cultural traditions and practices may have an impact on healthcare access. For

example, within the region, various customs and laws guide how, when, and with whom women may travel, which can make the logistics of arranging for clinic visits more challenging. In order to deliver primary and secondary preventative care, healthcare systems will need to be creative and develop initiatives that can effectively work within such constraints. One such idea may be to leverage mobile technology. Mobile applications offer almost unlimited possibilities for tracking and reinforcing diet, physical activity, and weight loss. Likewise, applications that enable the transmission of blood glucose levels and real-time treatment decision support could help patients establish regular, meaningful contact with healthcare providers (8) without placing strains on social norms.

In addition to addressing the problem of access, diabetes management strategies must move away from a provider-centered approach and toward patient-centered care based on the Chronic Care Model (9). Care needs to incorporate a population based approach, with outreach to high risk individuals and empowers patients in their own self-management support (10). Furthermore, the concept of diabetes self-management should be expanded to one of family-oriented management. Family members are the most under-utilized resources in healthcare, with studies showing they can play an important role in helping patients with lifestyle changes and self-management. Diabetes is also a family disease, not only because of genetic associations, but because of the psychological and emotional impact it has on the shared familial lifestyle (11). Although family members often worry about their relative with diabetes and want to help, doing so can be a burden, especially if they do not know how to help (12). It is therefore critical to extend all aspects of diabetes management, education, and support to the full family ecosystem, including non-family household members, such as home maids who buy groceries and prepare meals. In a strongly family-oriented culture, such an approach constitutes a more comprehensive and relevant care model than a Western, individualistic approach.

One model for improved care is the integrated diabetes care center, which consolidates all aspects of secondary prevention in a single location as suggested in the article. Such centers provide continuity of care in a multidisciplinary setting, enabling patients to reduce their A1C, control other risk factors, and prevent complications. The Joslin Diabetes Center has had a long history of using such a multi-disciplinary approach to treat diabetes across over 40 sites, with an emphasis on holistic care including mental health, with cultural adaptation, and an emphasis on patient education and empowerment. This multi-disciplinary approach has shown improved clinical outcomes (13).

Until a more robust healthcare infrastructure is in place, addressing the GCC human resource shortage can be leveraged to open new opportunities for diabetes care improvement. In addition to reducing disease demand through prevention, it is also critical to increase work force supply to combat the tide of diabetes epidemic. Home care services, for example, can bring diabetes care and support to patients and their families. Training more diabetes educators could help alleviate some

physician-identified barriers to optimal diabetes control – for example, lifestyle choices such as poor diet and lack of education (14). Joslin is also working to reduce demand on physicians and nurses by expanding some of their traditional functions to pharmacists, dental professionals, exercise physiologists, and other healthcare providers. For example, a project in Saudi Arabia is training retail pharmacists as community diabetes resources (15). An overwhelming number of people live just a short distance from their local pharmacy and visit this site more often than their doctors. By answering questions about diabetes medications and basic diabetes information such as glucose meter selection and use, pharmacists can help patients to better manage their diabetes. As noted by a Cochrane systematic review: “*Pharmacist-provided services that target patients may improve clinical outcomes such as management of high glucose levels among diabetic patients, management of blood pressure and cholesterol levels and may improve the quality of life of patients with chronic conditions such as diabetes, hypertension, and asthma. Pharmacist services may reduce health service utilization such as visits to general practitioners and hospitalization rates*” (16).

## Conclusions

As noted by Klautzer and colleagues, the Gulf Cooperation Council countries face an unprecedented epidemic of diabetes that will dramatically impact the future health of their populations. Innovative approaches that engage both the healthcare systems and patients in families will be needed to address these needs and mobile health provides a unique opportunity to leverage expanding access to technology to drive patient engagement, behavior change, and decision support tools. It will be critical that these countries make the appropriate investments in the health of the populations to prevent the dramatic consequences that could befall this region if the diabetes epidemic continues to grow.

## Ethical issues

Not applicable.

## Competing interests

Authors declare that they have no competing interests.

## Authors' contributions

Both authors wrote, reviewed, and edited the manuscript.

## Authors' affiliations

<sup>1</sup>Joslin Diabetes Center, Boston, MA, USA. <sup>2</sup>Harvard Medical School, Boston, MA, USA.

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