Tackling Chronic Disease in the Gulf Region

Swings and Roundabouts

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The Gulf Cooperation Council (GCC) countries together form one of the wealthiest regions in the world. Rapid urbanization and modernization has led to unprecedented increases in lifestyle-related disease. World Health Organization (WHO) data show that obesity rates for most of the GCC countries fall within the top 10 globally [1]. The highest is Kuwait at 43%, with the other GCC countries ranging between 33% and 35%; Oman is the exception with a rate similar to the Organization for Economic Cooperation and Development (OECD) mean at 22% [2]. Similarly, 6 of the top 10 prevalence rates for diabetes are from the GCC region, far exceeding most OECD countries, with the highest rate in Saudi Arabia, Kuwait, and Qatar at 20% and lowest in Oman at 15% [3]. With the exception of Kuwait, smoking rates are at the lower end of the OECD range and less than one-half of the rates seen in other Middle Eastern countries of 45% to 58% [4]. However, as these are self-reported data, they are likely to be underestimates, particularly in view of the re-emergence of alternative tobacco such as the water pipe (shisha) and tobacco pipe (midwakh) [5-7].

CHANGING DEMOGRAPHICS

By 2010, the GCC infant mortality rate had fallen to 13 deaths per 1,000 births, whereas life expectancy had reached an average of almost 75 years [8]. This has resulted in a higher proportion of elderly local population and is predicted to rise further by 6- to 7-fold over the next 25 years [9]. In Abu Dhabi, the capital city of the United Arab Emirates (UAE), approximately 30% of the national male population and 20% of the national female population were found to have impaired glycemic function by the age of 18 years [10]. The combination of rapid aging of the population and the high prevalence of diabetes and obesity for GCC countries is a specific cause for concern as it predicts a large rise in the disease endpoints of future heart attacks and strokes for which the health care infrastructure is not well prepared. As other chronic diseases such as mental health conditions, musculoskeletal disease, fatty liver, and chronic kidney disease are also increasing in the region, health care services need to meet the change in demand.

POLICIES

The WHO published a set of voluntary global 2025 targets for the prevention and control of noncommunicable diseases as part of its Global Monitoring Framework [11]. In order to meet the targets for obesity and diabetes, concerted regional efforts will be required to enlist the input of the various governmental and nongovernmental entities essential in achieving system level change including organizations and ministries responsible for health, education, food control and standard setting, urban planning and the environment, agriculture, trade, industry, and transportation. Improved surveillance programs for diabetes will be needed to guide a halt in prevalence rate increases, improve health outcomes, and lower health care costs, which are currently estimated to increase 4-fold by 2050 for diabetes alone in some GCC countries [12]. Specific interventions for the prevention of diabetes have not been tested in the Gulf region and should be considered a priority. One important population segment to study will be the 27% of the Emirati population [13] with pre-diabetes. The long-term cost-effectiveness of screening for diabetes in the high-prevalence Gulf region countries is unknown but there is sufficient evidence to justify the benefit of screening in young adults to avoid complications of undetected diabetes [14]. With the uniformly high rates of diabetes and pre-diabetes in young populations, screening should be made an intrinsic part of the health care delivery system.

EDUCATION AND WORKFORCE CHANGES

The health care sector in the majority of the GCC counties is heavily dependent on foreign workers, comprising between 30% (Bahrain) to 85% (UAE) of health care staff [15]. In Abu Dhabi, there are insufficient providers in many specialties, including intensive and critical care medicine, emergency care, neonatology, pediatrics, oncology, orthopedic, rehabilitation, and psychiatry [16] despite a relatively high number of medical schools in GCC countries [15]. The local health workforce is more likely to take up administrative roles in the government and health ministries than take clinical roles, compared with the foreign workforce. The high proportion of foreign health care staff brings challenges such as inconsistencies in practice, approach, and standards of care in addition to problems with retention of staff due to high turnover rates.

Abu Dhabi is addressing these issues with increased emphasis on local nursing staff including specialization of nurse educators and an increase in the provision of public health training at the master's level. There are several regional partnerships with international organizations to set standards for clinical care, including a partnership with Truven Health Analytics, a U.S.-based company that

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developed a clinical quality scorecard in Abu Dhabi, and with the U.S.-based Institute for Healthcare Improvement in Qatar.

REGIONAL CASE STUDIES

Universal health care

Universal health care, the provision of a health care for all citizens without financial penalty, was described by the WHO as "the single most powerful concept that public health has to offer" [17]. A *Lancet* article on the issue of provision of cancer care in the GCC calls for "the provision of universal health care in all Gulf countries [to] be mandatory… The disproportionate distribution of wealth in the region is a substantial hurdle to accessing care for a large part of the population, which hinders efforts towards universal care" [18]. Yet the mechanisms for developing countries to implement such a change are not yet well defined [19-22].

Investment in health care by GCC countries remains relatively low ($1,251 per capita), which is approximately one-half of the OECD average ($3,354 per capita) [22]. Health care expenditure in the UAE is 3.7% of the gross domestic product [23] but the overall gross domestic product is very high at US$85,800 per capita [24] and absolute expenditure amounts may be more suitable for comparative purposes. Spending per patient for specific conditions such as diabetes mellitus and associated complications of myocardial infarction and stroke is between 2- and 3-fold higher in the United States than in the UAE [25,26]. According to the WHO, "few countries where health spending from general government revenues and compulsory insurance is less than 5—6% of GDP come close to achieving universal coverage because they are unable to make sufficient provision to subsidize the poor" [27].

The GCC countries have an unusual demographic profile, with approximately 15% of the national population, 45% of skilled and white collar workers, and 40% of unskilled and low-paid workers reported to be residing in Abu Dhabi in 2013 [28]. For the national populations of GCC countries, there is guaranteed health coverage funded entirely by the governments [29], with access to preventive services and international care [30]. White collar workers, usually from economically developed countries, have comprehensive health insurance provision as part of their work packages [31]. Unskilled migrant workers, however, are not guaranteed health care access in all GCC countries; Saudi Arabia, Qatar, and Dubai have passed laws requiring nongovernmental employers to purchase a health insurance for their expatriate workers, but they do not, as yet, provide cover for unskilled and low-paid workers.

In 2006, Abu Dhabi launched access to health care for all expatriates by mandating employer health insurance and linking it to resident permits, including low-paid and unskilled workers, a first in the GCC. It is estimated that less than 2% of the Abu Dhabi population do not have health coverage [28]. Abu Dhabi implemented tiered health insurance according to the health needs of clearly distinct population segments and found improved access to health care [24]. Whereas the Abu Dhabi example was deemed successful, the Emirate of Dubai in the UAE, and Qatar have since implemented limited mandatory insurance for segments of the population, but are yet to cover the entire population, including chronic and preventable disease, and low-paid workers. Furthermore, a recent UAE-wide study shows that considerable deterrents remain for seeking health care related to cardiovascular and chronic disease prevention, including access and awareness, among low-paid unskilled laborers [32]. The fee-for-service payment mechanism adopted in most Gulf countries, whereby health care providers benefit from a greater degree of activity, is a potential obstacle to the management of chronic disease. Alternative models of payment that actually reward chronic disease patients for being well controlled such as those introduced in the United Kingdom and the United States should be explored. Achieving long-term sustainable improvements in health care provision in the GCC will require a combination of healthier lifestyles and the development of a health infrastructure that incorporates and reimburses prevention alongside more equitable access to health care.

Abu Dhabi Weqaya program

The United Nations Political Declaration on the Prevention and Control of Noncommunicable diseases [33] and WHO's global strategy on diet, physical activity, and health [34] stipulate population-wide approaches to promote healthy diet and regular physical activity. However, policy responses to the cardiovascular and diabetes epidemic in the Gulf region lack regional coordinated efforts. There is, however, one noteworthy local program: the Abu Dhabi Weqaya program aimed to meet the goals of the WHO and UN policies and was recognized by *The Economist* as a progressive program for the Gulf region [11]. In 2008, alongside the introduction of mandatory health insurance, the government of Abu Dhabi took a decisive step to tackle cardiometabolic disease by introducing a national health promotion program, Weqaya, with regular cardiovascular screening linked to the provision of the health insurance card for the Abu Dhabi national citizens and in accordance with United Nations, WHO, World Economic Forum, and Institute of Medicine recommendations for addressing cardiovascular disease at population level [10,13]. The results from the program went on to define for the first time for a GCC country the dire extent of cardiovascular risk for the local population, with age-standardized rates for diabetes and pre-diabetes of 25% and 30% and for obesity and overweight at 41% and 34%, respectively, which are considerably in excess of those reported in the United States and United Kingdom [13]. These alarming results created momentum for local health services planning and the development of policies and guidelines for the prevention of cardiometabolic disease. Whereas the direct impact of the program on health care outcomes may not be evident for

some years, the near-term impact can be observed in sustained initiatives such as voluntary food labeling initiatives adopted by food outlets and grocery stores that endorse "healthy" foods [35,36], an increase in physical activity venues for the male population and separate ones for the female population [37], and implementation of school-based healthy lifestyle programs [38]. Subsequent increases in the prevalence rate of diabetes, as predicted by the International Diabetes Federation have been attenuated in the UAE [3], although this could be related to other factors. Also due in part to this momentum, the awareness and surveillance of cardiometabolic risk in neighboring GCC countries improved, with the prevalence rates in most other GCC countries reported to exceed those of the UAE in subsequent rounds of International Diabetes Federation estimates [3].

Salt reduction

Although regional data are scarce, the current dietary situation in the GCC is of some concern including the overall caloric intake and specific nutritional quality of food consumed such as salt, sugar, and fat. Between the years of 1971 to 2005, the increase in absolute mean calorie intake was reported as 60% in Saudi Arabia and 16% in Kuwait [39], and the prevalence of low intake of fruit and vegetable (<5 servings per day) was 92% in Saudi Arabia and 80% in Kuwait [39]. GCC countries were also found to have higher contributions to their diet from fat, animal fat and sugar compared with low- and middle-income Middle East countries [39].

Salt reduction has been identified by WHO as among the "best buys" for prevention in public health. The average salt intake in the UAE, reported by the PURE (Prospective Urban and Rural Epidemiological Study), was 9.7 g/day, which is twice the WHO recommended level of 5 g/day (or <2 g/day of sodium), putting the population at higher risk of death and cardiovascular events [40,41]. The effect of potassium intake in relation to sodium intake is also a complicating factor as it may modify the effect of sodium on cardiovascular risk and is confounded by another risk factor, that of low fruit and vegetable intake, which is ubiquitous in the GCC.

In order to meet the 30% reduction in salt/sodium intake of the Global Monitoring Framework targets [11], a broad-ranging approach is required. International initiatives have succeeded in reducing salt intake by approximately 25% through governments setting mandatory or voluntary salt-reduction standards such as in the United Kingdom and Australia. Their success has relied on a combination of reduction of the salt content in processed foods, increased awareness, and clear food labeling. Gulf countries should consider such examples of success in order to design and adapt their own approach to salt-reduction interventions. As the vast majority of food consumed is imported to the Gulf countries, this negates the ability to partner with local food manufacturers to reduce salt content but provides the added opportunity of developing clear nutritional standards for food imports. No specific large-scale salt awareness mass media campaign has been run in the GCC and this likely contributes to a low level of population awareness. This should be addressed using regionally appropriate mass media campaigns that take into account the local patterns of food consumption including local foods and diet as well as the targeting of housemaids and home cooks.

CONCLUSIONS

With preventable conditions on the increase and at extremes of prevalence, together with aging of the population, health care spending in GCC countries is predicted to rise sharply and health outcomes to suffer. Overall health care spending remains low and increases should focus on primary care and prevention versus more resources in acute, secondary, and tertiary care. Universal access to care including nonemergency care is essential to control cardiovascular risk factors such as diabetes, hypertension, and dyslipidemia. The cost of chronic disease medications for low-paid workers in Gulf countries is substantial and often unaffordable [42]; GCC health care systems should ensure that there is sufficient access to routine care for noncommunicable disease and should review drug pricing regulations.

Risk factors that are predominantly influenced by lifestyle behaviors such as obesity and diabetes are markedly high in the GCC region, albeit lower in Oman. Initiatives that make the environment more conducive to healthy lifestyle choices are key to achieving sustainable change with multisectoral programs including schools, education councils, urban planning, food control authorities and others. The rates of obesity and other risk factors in children should be tackled alongside adult-based programs through school health programs, school canteen guidelines, and additions to the school curriculum to promote improved diet and physical activity. To tackle gestational diabetes and its sequelae, improved maternal perinatal and fetal intrauterine nutrition are a priority. Whereas there is some evidence of progress, and some individual successes in the provision of universal health care, health promotion and screening programs, and partnerships with international bodies to monitor and improve clinical quality, these efforts lack a coordinated response to the emerging and rapidly changing risk burden that will be required in order to meet the voluntary Global Monitoring Framework targets for the year 2025 [11]. WHO's best buys should be targeted where feasible, especially those that deal with regional extremes of risk such as noncigarette tobacco use, poor diet and physical activity, or those that have short- to medium-term gains such as reducing salt intake, restricting food imports, and the proactive management of pre-diabetes. The young GCC population, with its extreme rates of cardiometabolic risk factors, presents a relatively brief window of opportunity within which lifestyle and preventive

interventions can lead to a reduction in cardiovascular and cancer endpoints. There is also the opportunity to apply innovative top-down and bottom-up policies to achieve the necessary life style changes.

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