Mobile: A Key Enabler of Public Health Strategies in the Gulf

GSMA fosters mHealth partnership to combat diabetes and obesity in the GCC

Tackling a Major Public Health Challenge

Gulf Cooperation Council (GCC) member states are facing a very serious public health challenge: exceptionally high rates of diabetes and obesity, according to the World Health Organization and the International Diabetes Federation (IDF). Most alarming is the high prevalence of obesity and diabetes among children.

Diabetes and its associated complications not only cause significant emotional stress for patients and their families; they can place unsustainable pressure on the national healthcare budget, the community, and the economy at large. The imbalance between healthcare capacity and healthcare demand is a major challenge facing the United Arab Emirates (UAE) where the average waiting period for a newly diagnosed person with diabetes to see a specialist physician is 56 days.

By leveraging the high level of mobile broadband connectivity and smartphone penetration in the region, GCC health ministries could reduce the stress on the system. Research[1] shows that mobile health solutions (mHealth) can be a cost effective tool for improving access to care, raising health awareness, and helping chronically ill patients to manage their conditions. For people living with diabetes, even a simple mobile health intervention, such as basic text messaging, can lead to significant improvements in glycaemic control resulting in healthcare cost reductions of approximately $800 per patient.[2] [3]

The GSMA, which represents the interests of mobile operators worldwide, has recognised the potential of, and urgent need for, mHealth solutions in the GCC. Given the proliferation of mobile services and devices in the region, the GSMA believes that mobile operators are well positioned to integrate mHealth solutions into national and regional public health strategies.

This study explores the GSMA's successful engagement with mobile operators and policymakers in the GCC; resulting in increased awareness and interest in incorporating mHealth into their strategic roadmaps.   It also explains how the GSMA coordinated a January 2014 Memorandum of Understanding (MoU) promoting cooperation on mHealth between mobile operators in the UAE and the UAE Ministry of Health. Finally, the study outlines the GSMA's broader regional mHealth strategy and its engagement with the Executive Council of GCC Health Ministers.

Targeting Diabetes and Obesity in the UAE

Since the discovery of oil reserves in the 1960s, the UAE's GDP has increased considerably allowing both the public and private sectors to recruit millions of expatriates to support the rapid expansion of infrastructure and services. The result has been a dramatic transformation in the lifestyle of the average UAE national over the course of a single generation.

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[1] The Mobile Economy, Arab States 2014. GSMA.

[2] Nundy, S., Dick, J. J., Chou, C.-H., Nocon, R. S., Chin, M. H., & Peek, M. E. (2014). Mobile Phone Diabetes Project Led To Improved Glycemic Control And Net Savings For Chicago Plan Participants. *Health Affairs (Project Hope)*, *33*(2), 265–272. doi:10.1377/hlthaff.2013.0589

[3] Bresnick J (2014). mHealth Reminders Improve Diabetes Care, Reduce costs by 8.8%. *Health IT Analytics.*

In the past 40 years, the nation has engaged in a total shift away from a semi-nomadic lifestyle and reliance on local food production to an increasingly sedentary, urbanised lifestyle in which highly processed fast food plays a prominent role. The UAE is also a youthful country, with 69% of inhabitants under 30 years of age and over 50% younger than 20[4]. A recent study reported that 20% of children aged 6 to 10 and 40% of children aged 11 to 19 are obese[5]. Childhood obesity can increase the likelihood of suffering from diabetes and the early onset of other chronic conditions.

In 2014, the International Diabetes Federation (IDF) reported that 19% of the UAE population of almost 9.5 million people had diabetes, the 16th highest rate in the world. It is important to note these are diagnosed cases – the IDF estimates a further 325,000 people in the UAE are unaware they have the disease[6]. Beyond the changes in diet and lifestyle, there may be a strong genetic component, often attributed to the prevalence of consanguineous marriage among kin.

The federal government of the UAE (like most of its counterparts in the GCC) directly funds the provision of healthcare and education services for its citizens. However, the high incidence of diabetes and obesity is difficult and costly for the government to manage alone. The average direct cost to the UAE government of the medical treatment of a person living with diabetes is US$1,967 per year[7]. This figure, however, does not capture the indirect economic costs resulting from workdays and wages lost for both patients and their caregivers.

Building an effective mHealth Ecosystem
To evaluate the potential role of mHealth in diabetes and obesity management, the GSMA first wanted to understand the specific needs of hospitals, physicians, and government. In November 2012, the GSMA organised a consultation exercise in Dubai among diabetes and mobile industry stakeholders.   A task force, consisting of both mobile and healthcare professionals was formed to identify appropriate goals and actions. In January 2013, the GSMA hired a regional mHealth development manager to oversee the coordination of the task force and the delivery of the following objectives:

- Form an ecosystem of mobile operators, health regulators, and healthcare providers;

- Launch pilots to collect data on the adoption and effectiveness of mobile health services;

- Raise awareness of the mobile health opportunity by presenting regional workshops.

In the initial six-month phase, the GSMA focused mainly on outreach and education of healthcare providers and clinicians regarding:

- The depth and breadth of mHealth solutions available in the market;

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[4] Health Statistics 2013, Health Authority of Abu Dhabi
[5] A Al Junaibi, A Abdulle, s Sabri, M Hag-Ali and N Nagelkerke. The prevalence and potential determinants of obesity among school children and adolescents in Abu Dhabi, United Arab Emirates. International Journal of Obesity, 2013; 37: 68-74.
[6] IDF Diabetes Atlas, Sixth Edition. International Diabetes Federation
[7] IDF Diabetes Atlas, Sixth Edition. International Diabetes Federation

- How mHealth solutions could contribute to improved patient outcomes and increased operating efficiency for healthcare providers

- The value mobile operators could contribute in terms of network coverage, personal data security, billing, and hospital work flow management;

- The benefits of reaching patients on devices they always have with them and are comfortable using.

With the support of healthcare providers, the GSMA opened discussions, on various fronts, with public health policymakers and regulators across the GCC region to align the regional mHealth proposition with the vision and priorities of national governments. This alignment enabled mobile operators to focus their efforts and gain traction with key potential customers, policymakers, and market regulators. Crucially, these discussions also laid the groundwork for government/industry partnership on mHealth that has the potential to significantly improve the economics of healthcare delivery and diabetes care in the UAE.

A Perfect Storm: The UAE is Fertile Ground for Mobile Health Solutions
The UAE is known globally for bold vision and leadership in the use of information and communications technologies (ICT) to deliver government services. A 2012 United Nations Development Programme report rated the UAE highly in terms of e-government readiness due to high internet penetration (70%) and extensive use of digital communications[8]. In May 2013, UAE Prime Minister Sheikh Mohammad bin Rashid al Maktoum issued a mandate for a total transition from e-government to m-government by 2016 so that the population can leverage mobile technology to more effectively interact with the government. This declaration put mobile in the spotlight and pushed mHealth further up the agenda.

The GSMA facilitated the development of a ground breaking Memorandum of Understanding (MoU) between mobile operators in the UAE and the Ministry of Health to leverage interoperable mHealth solutions for tackling diabetes and obesity in the UAE. GSMA Director General Anne Bouverot, accompanied by Etisalat Group CEO Ahmed Julfar, met the UAE Minister of Health in October 2013 and the UAE Minister of Cabinet Affairs in November 2013. In January 2014, at the Arab Health Congress in Dubai, His Excellency Abdul Rahman Al Owais and the CEOs of the two UAE mobile operators, Etisalat and Du, signed a MoU to integrate interoperable mobile health solutions into the national health strategy, specifically targeting diabetes and childhood obesity. Each operator selected a specific issue to focus on and committed to launching a viable mhealth service by the end of 2015.

Du, in partnership with UNICEF, has rolled out a large-scale anti-obesity health education service following a successful pilot. The service is designed to enable both school nurses and other health educators to offer more interactive health education for schoolchildren aged 11 to 16, encouraging

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[8] A Al-Khouri. eGovernment Strategies: The Case of the United Arab Emirates. European Journal of ePractice. www.epracticejournal.eu. 17; ISSN: 1988-635X. September 2012.

healthy lifestyle choices. Early evaluation of the programme found a 12% and 15% increase in health knowledge among boys and girls, respectively.[9]

Etisalat is working with the UAE National Diabetes Task Force to pilot an Arabic language diabetes education solution. The two organisations are integrating health messages, approved by the Ministry of Health, into a number of mobile-based delivery systems - including an application that pushes tailored health text messages and health videos to individuals.

In December 2014, CommsMEA awarded the GSMA "Most Innovative New Service of the Year" for the mHealth ecosystem partnership in the UAE. Furthermore, the Executive Council for GCC Health Ministers, which coordinates the efforts of GCC health ministries, aligns regional health strategies and shares lessons learned, is actively engaging with the GSMA to replicate the services deployed in the UAE elsewhere in the region. The Executive Council of GCC Health Ministries has invited the GSMA to deliver workshops for national health ministries to showcase the unique attributes of mHealth and its potential to support national public health strategies across the region.

At the October 2014 GITEX exhibition in Dubai, regional mobile operators unveiled partnerships with cutting-edge mHealth technology developers. Etisalat now offers a mobile nurse call service which alerts nurses to patient's needs, via a mobile device carried during their shift. The service promises to improve the efficiency and effectiveness of the healthcare system by reducing the number of steps a nurse must make to keep a close eye on their patient's status and needs.

Many of the demonstrations of connected wearable devices, such as smart watches, at GITEX 2014 underlined the role these new devices can play in wellness and prevention. The show also featured remote patient consultation solutions, including connected robots, which can interact with a patient, and connected medical equipment that can aid in remote assessments.

Key Lessons Learned in the GCC
A broad range of mobile health services, from SMS medical appointment reminders and chronic disease-focused health education, have now been piloted or launched in the GCC region. Pilots of a 24/7 Mobile Doctor service in both the Qatari and UAE markets have shown promise and the potential to cut costs.   This service provides 24/7 access to a call centre of physicians who can advise on home care or refer to a local clinician that accepts the caller's insurance.

The GSMA has identified a number of inter-related factors that will be pivotal in bringing mHealth services to scale:

- In the GCC region, the process for obtaining Ministry of Health approval for health education or healthcare services can be unclear and difficult to complete. Partnering with public health policymakers to launch services can help mobile operators understand how to navigate a challenging system.

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[9] The National Staff. (2014, December 8). Unicef and du team up for school pupil health education drive. *The National.* Retrieved from http://www.national.ae

- Achieving agreement and buy-in at the highest level of both public and private sector organisations will accelerate the pilot process. Success can eventually be achieved without top-level buy-in, but the process will take longer.

- A focused effort on building a cross-sectorial, public and private sector network and maintaining strong relationships is key to long-term success. This approach ensures solutions are relevant to local needs and allows each partner to bring their strengths to a service deployment.

- Clear government objectives can help mobile operators use their capabilities in a way that compliments a healthcare system's existing assets and address gaps.

- Pilots of mHealth services must be carefully designed and adapted to meet the specific needs of the local population. In the GCC, health regulators and hospital CEOs frequently request region-specific data proving that mHealth is an acceptable and utilised delivery method for their patient populations. At the beginning of the campaign, there was precious little local pilot data available, but even small sample sizes can be a valuable indicator of market interest and encourage larger deployment.

- Agreement among mobile operators to offer interoperable services can have a wider impact and are more likely to gain regulatory approval, while also preserving competition.

- It is important that mobile operators closely align their mHealth solutions with the specific needs of the country and target population. In most cases, medical industry stakeholders' ultimate goal is to both improve health and lower healthcare costs. Mobile operators need to position mHealth programmes to meet these needs - demonstrable healthcare cost reductions and public health improvements strengthen the business case for government-funded healthcare hospitals and healthcare centres.

Maintaining the mHealth Momentum in the GCC

With innovative leadership, a tech-savvy population, and abundant funding, the GCC could lead the world in the adoption of smart city and mHealth services. Moreover, the operator and government partnerships in the GCC mean the region is now well positioned to benefit from mHealth solutions.

However, the speed of deployment of effective and sustainable services will depend heavily on the willingness of healthcare providers and governments to fully integrate mobile solutions and services into their strategic plans. For mobile operators, the level of investment in such services will depend in part on the business case and the likely financial return. If they are to fully harness the potential of mHealth to address the GCC's public health challenges, healthcare, government, and mobile industry stakeholders will need to ensure their objectives remain closely aligned.