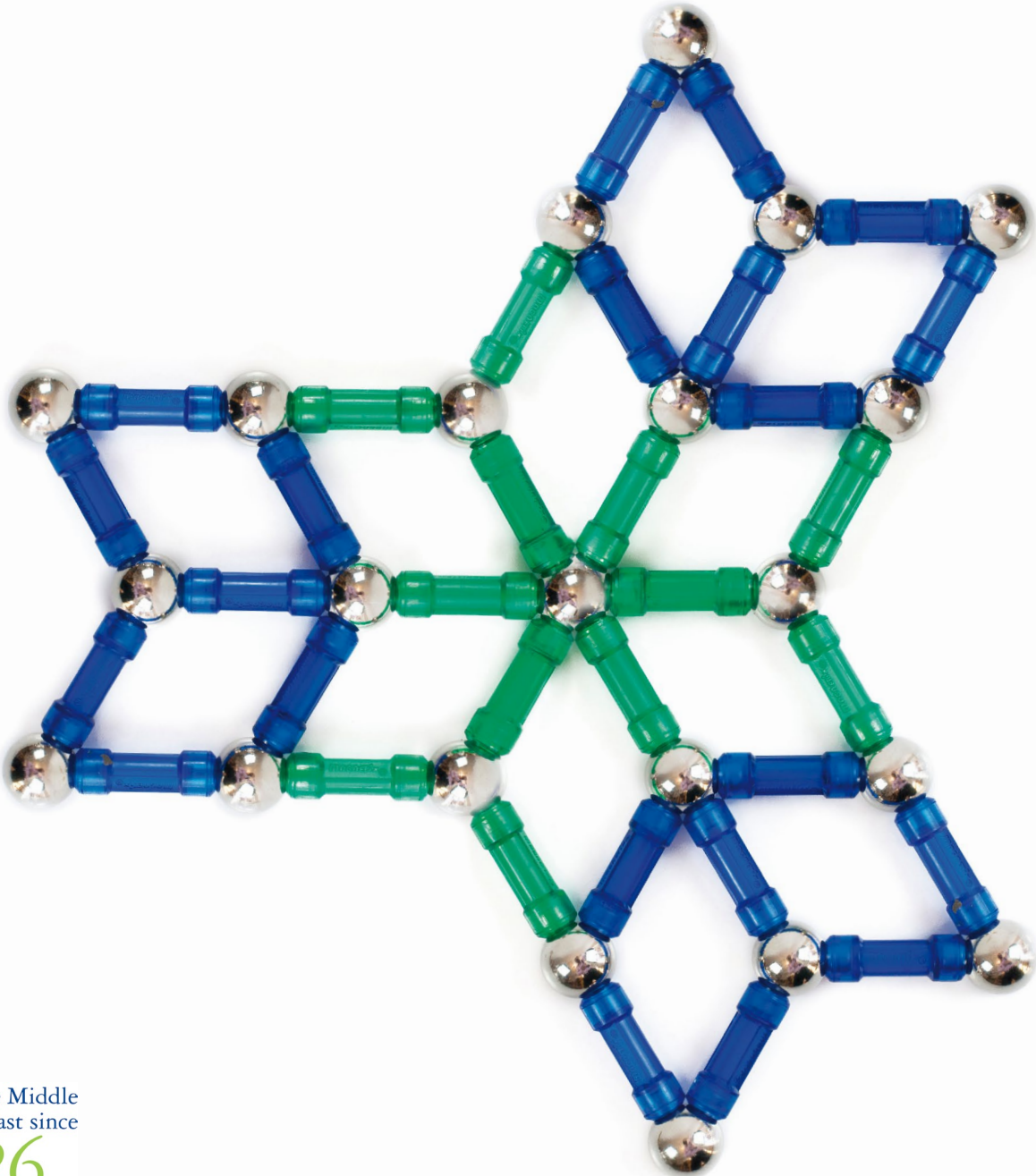


Technology, Media &
Telecommunications
Predictions 2014
Middle East



eVisits: the 21st century housecall

Deloitte predicts that in 2014, there will be 100 million eVisits globally, potentially saving over \$5 billion when compared to the cost of in-person doctor visits¹³³ and representing growth of 400 percent from 2012 levels. eVisit usage will likely be greatest in North America, where there could be up to 75 million eVisits in 2014, representing 25 percent of the addressable market: there are 600 million annual visits to general practitioner offices in the US and Canada, and about half are for problems that could also be solved by an eVisit¹³⁴.

In some form or another, there have been alternatives to in person doctor visits for decades. There were new technologies like the telephone in the 1920s, satellite calls in the 1970s for remote communities, or connected kiosks as part of the Minitel network in 1991¹³⁵. All offered the potential for cost savings and mass adoption. But despite 20 years of predictions that eVisits were about to become common, adoption remained low until recently.

In contrast, 2014 should see an inflection point in their adoption, primarily due to changes in technology and telecommunications infrastructure and also due to continued pressure to reduce medical costs and improve care. Pervasive PC deployment, ubiquitous fixed Internet, greater comfort using technology among older patients, who make up the bulk of doctor visits, and the mass adoption of mobile devices combining with available and affordable wireless broadband make eVisits viable in ways that were not possible even four years ago. Advances in analytics offer much greater ability to automate the back office elements of eVisits, and pervasive fiber optic networks to hospitals and clinics facilitate the more data intense applications of eVisits, such as the transmission of brain scan images for tele-stroke applications.

A common misperception of an eVisit is that it is a video conference where the patient sits down in front of a PC, connects with a doctor, and then sticks out a tongue and says "ahhhh" to the web camera. This type of eVisit represents only a small part of the market and offers only minor cost savings compared to an in-person visit¹³⁶. The vast majority of eVisits are likely to be more functional and focus on capturing patient information through forms, questionnaires and photos, rather than through direct interaction with a physician.

In the US in 2010, there were 1.2 billion patient visits to physician offices, emergency departments and hospitals (for outpatient services), equivalent to 3.3 visits per US citizen. Just over half of those visits were to primary care doctors. Prescription refill, coughs, stomach pain, sore throat, earache and skin rash accounted for over 110 million of the office visits: all categories that could be screened or resolved via an eVisit¹³⁷.

Middle East Healthcare sector overview

In the Middle East, governments have also recognized the underlying need to develop healthcare in the region. Demand for healthcare services in the Gulf currently outstrips supply which means that the sector relies heavily on sending patients outside the GCC to Europe or North America for treatment. With chronic and lifestyle-related diseases on the rise, a shortage of medical staff and a lack of standardization and regulation requirements in the region, GCC governments are investing in modernizing and reforming their health systems. The introduction of a national eHealth strategy, the use of electronic information and communication technology (ICT) to improve the health outcomes of citizens and deliver improved business processes, is a solution that some GCC countries are considering or are in the process of implementing. However rather than introducing and use of eVisits, digitization and electronic management of patient records appear to be the overarching path the GCC seems to be taking towards its eHealth development. Qatar's Supreme Council of Health (SCH) eHealth initiative to improve delivery of healthcare services through centralized digitization of patient records and telemedicine is an example¹³⁸.

Despite the dedicated government expenditure and rapid improvements that have been taking place, eHealth in general is still a very underdeveloped sector in the region's healthcare market, as it is still in an experimental stage. However, with significant demand for healthcare services and implementation of national eHealth initiatives, conditions are in place for the introduction and eventual adoption of eHealth and eVisit solutions. Various organizations in the region have already been exploring eHealth, with advancements also made in related solutions such as mobile health (mHealth) and eConsultations¹³⁹.

eVisits are not necessarily positioned in the region to replace in-person doctor visits, instead, they are seen as a way in which to cut down on time physically spent in doctors' offices that do not add any significant value to a patient's overall wellbeing. With the region's prevalent youth demographic, wider internet and mobile penetration levels, today's Arab youth have grown accustomed to conducting much of their lives online¹⁴⁰. In terms of social behavior, journalism and gaming, we have seen this with their rapid adoption of social networking and blogging technologies such as Facebook, Twitter and YouTube. Similarly, with these developments and the potential adoption of MOOCs (for more information, see the 2014 Prediction: Massive Open Online Courses (MOOCs): not disruptive yet, but the future looks bright), eHealth and eVisit related technologies could also be quickly adopted by the Arab youth¹⁴¹.

Sizing the number of eVisits

The total addressable market for eVisits in the GCC is about \$2-3 billion, calculated as follows. In 2012, residents in Saudi Arabia averaged 4.6 outpatient visits per capita¹⁴². Assuming healthcare habits in Saudi Arabia and the wider GCC resemble those of the developed world, about half of those would be for primary care physicians, suggesting that roughly two to three visits per year can be reasonably assumed for a Middle East country. The population of the GCC is approximately 47 million people¹⁴³, which means the addressable market in the GCC for outpatient visits is approximately 115 million visits annually. If we assume a \$60 average cost per doctor visit for the Middle East¹⁴⁴, given that the average cost of a doctor visit varies considerably from country to country, the dollar value of all in-person doctor visits for the GCC is about \$7 billion per year. Not all in-person primary physician consults are appropriately handled by eVisit solutions, but even if only 30-40 percent are well suited for eVisits, that still implies a \$2-3 billion total addressable market. With the general GCC outpatient market estimated by analysts to grow by over 11 percent¹⁴⁵, the addressable market could increase by as much as \$230-310 million this year.

Compared to the addressable market for developed countries, similarly estimated to be about \$50-60 billion¹⁴⁶, this may appear to be relatively small. However, considering the population base of the developed world is approximately 1 billion people¹⁴⁷, and that of the GCC is almost 20 times smaller, the GCC's addressable market for eVisits becomes quite significant. This highlights both the demand and the disparity in healthcare costs between the developed world and the GCC, where the average cost of a doctor visit in the GCC is 20 percent more expensive than the developed world¹⁴⁸. With this in mind and local studies showing telehealth's ability to drastically reduce diagnosis periods¹⁴⁹, eVisits can not only save valuable time of doctors, but can also have greater cost saving impact for hospitals, governments and private healthcare investors in the region.

eVisits are a subset of the telehealth market, which is estimated to be \$25 billion by 2015 and which also includes professional-to-professional consultations, remote monitoring, alerts/notifications, and some other smaller markets¹⁵⁰.

The business environment in 2014 is primed for significant growth in the volume and value of eVisits. Global healthcare best practices aim to decrease costs by focusing on prevention and early intervention to decrease the burden of illness, and by continuing to integrate information technology¹⁵¹.

The same is also the case in the Middle East, where 'prevention is better than cure' is a stance that has been taken on by many in the medical sector in recent years¹⁵². Continuing integration of information technology is also highly prevalent in the region's healthcare sector, most notably in Saudi Arabia, UAE and Qatar.

Mini case study: Saudi Arabia's eHealth transformation¹⁵³



The recently announced eHealth overhaul of Saudi Arabia's healthcare system will introduce new widespread technological capabilities across all of its hospitals and clinics. Acclaimed as the largest healthcare project in history, Saudi Arabia's Integrated and Comprehensive Health Program (ICHM) will include implementation of Electronic Health Record (EHR), Hospital Information Systems (HIS) and Enterprise Resource Planning (ERP) systems across its healthcare sector. The mammoth scale of the initiative involves connecting more than 3,500 healthcare facilities with about 70,000 beds through 1400 virtual servers under a single integrated and automated patient information sharing network, enabling unified access to various health services under a single portal. Over a ten year development program, Saudi Arabia envisages the largest eHealth network in the world, a strong platform and fertile ground for the development and eventual adoption of eVisits as another viable form of care.

Mini case study: UAE's mHealth drive¹⁵⁴



The new two-year agreement between the UAE Ministry of Health (MoH) and the country's telecom operators Etisalat and du will see them working in partnership to develop and implement the country's wider mHealth program. This includes a range of new mHealth products and services covering patient health education, remote patient diagnosis, monitoring and control for patients suffering from obesity, diabetes, cancer, cardiovascular and respiratory diseases. Telehealth, medical video conferencing including wellness and lifestyle are also part of the agreement to build the UAE's mHealth ecosystem. The far reaching mHealth program aims to help improve patients' understanding of their condition and enable doctors to remotely monitor their patients and to provide remote medical assistance. In emergency cases where fast response times could make the critical difference between life and death, the national development of mHealth could prove to be revolutionary.

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The integration of ICT in the region's healthcare sector is also featured at a more local level. The Dubai Healthcare Authority's (DHA) recently launched "Smart Healthcare Initiative" in conjunction with Samsung Data Systems (Samsung SDS) and INDEX Holding introduces a suite of new smart eHealth services for both healthcare professionals and patients¹⁵⁵. Such services include electronic patient filing and monitoring as well as internal medical supply management amongst doctors, hospital departments, sections, laboratories and pharmacies, saving as much as 50 percent of processing time involved. The partnership between a local governmental authority and a major technology firm is another positive sign that local players and multinationals together see potential in the region's eHealth success. The DHA's recent disbursement of over 3,000 android tablets across all its health centers is another step forward taken by the DHA to build 'smart hospitals'¹⁵⁶.

The region's ICT healthcare infrastructure is similarly being driven by the rise of mHealth apps and could potentially be accelerated further with the release and wider adoption of wearable technology such as Google's smart glasses (for more information, see the 2014 Prediction: Wearables: the eyes have it). Even educational institutes such as John Hopkins and Harvard Medical School have reportedly partnered with local telecom companies to offer Arabic mHealth apps in Saudi Arabia and Kuwait, relevant to their local health issues¹⁵⁷.

The ongoing eHealth programs, initiatives and developments across the region will help to drive its growth and adoption of eHealth including sub services such as telehealth and eventually eVisits.

Globally, in terms of growth, North America is likely to lead the predicted global increase in the use of eVisit services. Multiple US services are experiencing significant market growth, offering care that is as clinically effective as in-person visits while reducing costs^{158 159}. Further, US technology providers are already working in partnership with governmental and insurance providers¹⁶⁰. Canada is also seeing rising use of eVisits at more than 50 percent annual growth¹⁶¹, with wait times reduced by days for primary care and by 6-8 months for some highly specialized dermatology consultations conducted via eVisits¹⁶².

Outside of North America, eVisit adoption varies widely. The UK and Denmark both provide some services¹⁶³. Penetration in Asia Pacific is limited; however, pilot programs are achieving success in Indonesia¹⁶⁴. One interesting early adopter is Kenya, where a serious physician shortage and accessibility challenges¹⁶⁵ have created a strong need for an alternative care delivery system. The Mashavu Networked Healthcare Solutions' pilot project has demonstrated that eVisits can be successfully deployed outside the developed world¹⁶⁶.

The success demonstrated in Kenya is a positive indication that similar eVisit models can be applied and adapted to the wider Arab region, given the geographies of both are vast and access to medical care in rural areas is a challenge for their dispersed native populations. As the shortage of nurses, physicians and doctors is also a persistent issue in the Middle East, eVisits are positioned well to service many Arab patients in need of care.

The entry of major international healthcare providers such as Cleveland Clinic in the UAE, which has introduced eVisits in the US, may also help develop eVisit offerings in the region¹⁶⁷. Mediaclinic Middle East's digital review in 2011 showed its mHealth app received 2,000 appointment requests, marking behavior which could represent the first step in patients expanding their mHealth usage for eVisits^{168 169}. eVisit technology is also already available to medical professionals and patients in the region, through offerings such as Google's online 'Helpouts' tool, enabling private individuals to offer fee-based, one-to-one services to others remotely online^{170 171}.

While complex diagnoses and treatments are likely to remain face-to-face encounters; basic diagnoses, prescription refills and even specialty services such as dermatology may routinely be done from a conveniently-located kiosk or the comfort and privacy of one's own home.

As eVisits are proven and adopted in the developed world, and as the necessary infrastructure is deployed in the developing world, they are likely to offer affordable primary medical and diagnostic care to very large populations that do not have access today. Although the initial benefit of eVisits may be saving billions of dollars, over time the greater good may come from saving tens of millions of lives.

Mini case study: Google's eHealth Helpout



'Helpouts' is a newly launched venture by Google which enables users to seek "real help from real people in real time". The new technology can be used for eHealth and eVisits, namely via remote consultations with doctors on basic illnesses and ailments. To promote its wider use in eHealth, Google has made the service accessible to all, waiving their 20 percent commission rate only to healthcare providers.

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Bottom line

Outside the health care field, the most obvious beneficiaries are the technology and telecommunications industries. As the market grows, they will see growing demand for data volumes, quality of service data, high speed broadband and machine-to-machine connectivity, on wireline and wireless networks. Device manufacturers are likely to benefit, and as mHealth (mobile health) accelerates in 2014 and beyond, there are likely to be new growth opportunities for devices, peripherals, and apps. One report that discusses the 66 percent CAGR in data growth between 2012-2017 identifies 'medical applications' as one of the key drivers of this traffic increase¹⁷².

Public and private organizations should continue the push to reform policies that disallow payment to providers offering eVisits. Such payment reform has already begun in areas with mature telemedicine programs. Ontario, Canada recently added a public insurance payment code for physicians to bill for "eConsults"¹⁷³ and the Australian and French government health ministries changed funding rules to actively support and promote eVisits¹⁷⁴. From a private-sector perspective, US payers are showing interest in eVisit programs, particularly with the number of insured Americans increasing exponentially under health reforms. However, at the moment only 18 US states have passed laws that require or will require private payers to reimburse for telemedicine visits¹⁷⁵.

Educational, research-based, and non-governmental organizations have the ability to accelerate eVisit adoption by supporting pilot studies and conducting comprehensive evaluations¹⁷⁶. North America's organizations dedicated to the advancement of telemedicine – Ontario Telemedicine Network and the American Telemedicine Association – will likely need to play a key role in publicizing eVisit potential using these avenues.

Governments with successful eVisit solutions will be in a position to share their insights about impacts, effective incentive structures and ways to combat legal and technical barriers to adoption. Denmark has offered eVisit services for years and is piloting several new variations, such as tele-psychiatry. These pilots will undergo large-scale testing in an effort to produce proven, established solutions that others can draw on to help justify their own eVisit services¹⁷⁷.

Physicians, hospitals and other healthcare providers should consider which investments they need to make in patient portals, electronic medical records, and security and privacy systems to benefit from all the efficiencies and improvements in patient care that eVisits promise to deliver. Technology providers should likewise model the burgeoning telemedicine ecosystem that eVisits are likely to accelerate, and then determine how and where their companies should participate in a future where patients themselves are part of the healthcare management solution, leveraging sensors, devices and communications systems to monitor treatments and health status.

Regardless of the institution implementing eVisit services, human resource training, familiarization with computer use and telemedicine, and overall organizational readiness are imperative to success. Support from governments and other partners (such as employers, who will benefit from reduced absenteeism for doctor visits) should include recommendations, public education on the benefits of eVisits, policy changes and financial allocations for implementation¹⁷⁸.

One critical step will be to communicate the many benefits of eVisits for physicians. Media coverage tends to focus on the benefits for patients and insurers/payers; however, for eVisits to take root, physicians will need to invest in improving their technology infrastructure and staff up for a potential flood of new online interactions. Although some physicians may view eVisits as impersonal and lacking in human interaction, others will see them as an opportunity to spend more time on more serious and complex cases, while improving quality and efficiency for simpler cases. Also, as long as liability for virtual diagnoses is handled properly, physicians will likely enjoy many other features of eVisits, including: the ability to share clinical data and information virtually with colleagues, the ability to help more patients in less time and across greater distances, and the potential for more flexible work arrangements.

Middle East perspective

Although the potential benefits of eVisits present an attractive proposition to all, their adoption in the region, unlike in North America and Europe, will be more gradual.

The region has been known to be a relatively late adopter of medical equipment and technology compared to its Western counterparts¹⁷⁹ and will also need time to fully develop the technical information infrastructure required for the wider proliferation of eVisits to take hold. This is especially the case with large scale national eHealth programs, where in Saudi Arabia implementation is planned over a ten-year period.

Cultural factors also play a role, with the general concept of eVisits still new to the Arab patient. Healthcare after all is a very private and personal issue, and though eVisits are proven and adopted in the Western world, Arab patients will need more time to develop their trust in it.

Lack of local regulation in eHealth, including data protection and cyber security are also key issues which need to be addressed at the governmental and ministerial level. Frameworks for the security of information systems, confidentiality of patient data, technical data security programs and legal safeguards to protect information being shared and accessed must be developed and put in place¹⁸⁰. If not addressed adequately, patients may never gain confidence in eHealth and therefore eVisit solutions as a fair and proper alternative to in-person doctor visits, limiting their potential uptake. Health ministries in the region should work with their Western counterparts such as those in Canada and Denmark, in which the market for eHealth and eVisits is more advanced and mature^{181 182}.

Local expertise is also lacking in the areas of healthcare, ICT, project management and business, and with the transient turnover of expats, talent is often temporary. The right talent and experience needs to be brought into the region to oversee and implement new eHealth initiatives, but investment in the national population's relevant skills to enable them to use the upgraded eHealth systems should not be left behind.

In the meantime, mHealth will emerge as a more disruptive force in the healthcare system over the next few years, in terms of enhanced patient record keeping and monitoring rather than for eVisits.

As eVisits emerge as a new phenomenon around the world, the Middle East will be watching, as Arab patients may also one day seek treatment from the comfort of their homes.

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Endnotes

- 133 Assuming the cost of an eVisit is more than \$50 less than an in-person visit. This is true in the US and Canada, but savings are likely to lower in other markets. Given that North America will be the bulk of the market in 2014, the \$5 billion is a reasonable first approximation of likely savings.
- 134 North American visit numbers are from: Ambulatory Care Use and Physician Visits, Centers for Disease Control and Prevention, 30 May 2013: <http://www.cdc.gov/nchs/fastats/docvisit.htm> , and the percentage of doctor visits addressable by eVisit technology and 2012 market size are Deloitte estimates.
- 135 Telematic Transmission of Computerized Blood Glucose Profiles for IDDM Patients, American Diabetes Association, 19 April 1990: <http://care.diabetesjournals.org/content/14/2/130>
- 136 Video conference eVisits do exist, especially for applications like tele-dermatology and tele-stroke. But the savings tend to be minimal: they still require doctors to set aside blocks of time to video-chat with patients, there are still no shows, dedicated hardware and secure network to maintain patient privacy is required at both ends. Basically, aside from the time the doctor spends walking from waiting room to waiting room, the teleconference form of eVisits isn't that much different from an in-person visit. That the teleconference form represents about one tenth of eVisits total is a Deloitte estimate based on industry experience.
- 137 Ambulatory Care Use and Physician Visits, Centers for Disease Control and Prevention, 30 May 2013: <http://www.cdc.gov/nchs/fastats/docvisit.htm>
- 138 Noviu, 2013: <http://www.nuviun.org/ehealth-telemedicine>
- 139 The GCC has one of the youngest populations in the world. See: UAE Healthcare Forecast to 2014, RNCOS, April 2012: <http://www.rncos.com/Report/IM387.htm>
- 140 The GCC has one of the youngest populations in the world. See: UAE Healthcare Forecast to 2014, RNCOS, April 2012: <http://www.rncos.com/Report/IM387.htm>
- 141 Fast adoption of eServices by the youth in the region. See: Middle East well positioned for Improved mHealth Adoption, mHealthwatch, 5 September 2013: <http://mhealthwatch.com/middle-east-well-positioned-for-improved-mhealth-adoption-21552/>
- 142 Average number of outpatient visits per person/year, Figure 16.12: Outpatient visits to facilities across all health sectors (showing average number of visits per person), Saudi Ministry of Health Report, 2012: http://www.moh.gov.sa/en/Ministry/Statistics/book/flash/1433/MOH_Report_1433.html
- 143 GCC Secretariat General official website, 2014: <http://www.gcc-sg.org/eng/>
- 144 Market estimate based on Deloitte's experience in the Middle East healthcare sector, 2010-2014.
- 145 Projected GCC outpatient market is expected to be \$35.9 billion by 2015. See: GCC Healthcare Industry, Alpen Capital, 13 Dec 2011: <http://itac.ca/wp-content/uploads/2013/03/Alpen-Capitals-GCC-Healthcare-report-2011.pdf>
- 146 This market approximation is made in our Global TMT Predictions 2014. See: eVisits: the 21st century house call, TMT Predictions 2014, Deloitte, 14 Jan 2014: http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Technology-Media-Telecommunications/dttl_TMT_Predictions-2014-lc2.pdf
- 147 This population assumption is made in our Global TMT Predictions 2014. See: eVisits: the 21st century house call, TMT Predictions 2014, Deloitte, 14 Jan 2014: http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Technology-Media-Telecommunications/dttl_TMT_Predictions-2014-lc2.pdf
- 148 This is based on the assumption that the average cost of an in-person doctor visit is \$50 for a developed country. See: eVisits: the 21st century house call, TMT Predictions 2014, Deloitte, 14 Jan 2014: http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Technology-Media-Telecommunications/dttl_TMT_Predictions-2014-lc2.pdf
- 149 Telehealth holds the potential to shorten the period of diagnosis for patients. See: Supporting Hospital Doctors in the Middle East by Email Telemedicine: Something the Industrialized World can do to help, Dec 2007: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2223186/>
- 150 In 2012, Deloitte reported that the global telehealth market was likely to grow to \$22.9 billion by 2015, compared with \$9.9 billion in 2010. Based on advances over the past year, the forecast has increased. See: Primary Care: Working Differently. Telecare and telehealth – a game changer for health and social care, Deloitte Centre for Health Solutions, 2012: <http://www.deloitte.com/assets/Dcom-Angola/Local%20Assets/Documents/uk-ls-telehealth-telecare.pdf>
- 151 Current global environment is conducive to e-visits. See: Hype Cycle for Telemedicine, Gartner, July 2013: <http://my.gartner.com/portal/server.pt?open=512&objID=253&mode=2&PageID=2283783&resId=2552815&ref=QuickSearch&stkw=hype+cycle+telemedicine#h-N73037> (Subscription required)
- 152 Prevention is better than cure. See: UAE Healthcare Forecast to 2014, RNCOS, April 2012: <http://www.rncos.com/Report/IM387.htm>
- 153 Saudi Arabia is Building a Massive Nationwide eHealth Network, Novium, 2 Mar 2014: <http://www.nuviun.org/blog/saudi-arabia-eHealth>
- 154 MoH-telco's deal to deliver m-Health services, Gulf Today, 29 Jan 2014: <http://www.gulftoday.ae/portal/8de64114-450d-4c00-9ad9-2f5812c38f47.aspx>
- 155 DHA Launches the Smart Healthcare Initiative in Collaboration with Samsung SDS and INDEX Holding, Dubai Health Authority, 21 Oct 2013: <https://www.dha.gov.ae/EN/Media/News/Pages/DHALaunchesTheSmartHealthcareInitiativeInCollaborationWithSamsungSDSAndINDEXHolding.aspx>
- 156 Dubai Healthcare Care Sector Relies on New Feel Good Pill, Gulf News, 26 Sep 2013: <http://gulfnews.com/gn-focus/tablets/dubai-healthcare-sector-relies-on-new-feel-good-pill-1.1235684>
- 157 Dubai Healthcare Care Sector Relies on New Feel Good Pill, Gulf News, 26 Sep 2013: <http://gulfnews.com/gn-focus/tablets/dubai-healthcare-sector-relies-on-new-feel-good-pill-1.1235684>
- 158 US eVisit service providers. See: Zipnosis Announces Service in New Markets, Reuters, 18 January 2013: <http://www.reuters.com/article/2013/01/18/mn-zipnosis-idUSnBw6hBj6da+110+BSW20130118> ; Online service that provides healthcare guidance, including writing prescriptions, sees dramatic growth, Pharmaceutical Commerce, 28 February 2013: http://www.pharmaceuticalcommerce.com/index.php?pg=information_technology&articleid=26792&keywo=online%20service-Virtuwell ; HealthPartners' Online clinic for simple conditions delivers savings of \$88 per episode and high patient approval, Health Affairs, February 2013: <http://content.healthaffairs.org/content/32/2/385.abstract>
- 159 Health providers with e-visit services. See: Hype Cycle for Telemedicine, Gartner, July 2013: <http://my.gartner.com/portal/server.pt?open=512&objID=253&mode=2&PageID=2283783&resId=2552815&ref=QuickSearch&stkw=hype+cycle+telemedicine#h-N73037> (Subscription required)
- 160 Health plan companies partnering with e-visit providers. See: The Doctor Will See You Now: Cigna Teams with MDLIVE to Offer Health Care Access 24/7/365, Wall Street Journal, 10 May 2013: <http://online.wsj.com/article/PR-CO-20130510-911775.htm>
- 161 Growth in telemedicine in Ontario. See: Ontario Telemedicine Network 2011/12 Annual Report, Ontario Telemedicine Network, 2012: http://otn.ca/sites/default/files/2011-12_annual_report_0.pdf

- 162 Asynchronous telemedicine e-visit: Family physician takes a picture of the lesion or rash and puts it into a specialized queue for review by a participating dermatologist. See: Teledermatology service speeds consults, Northern Ontario Medical Journal, 21 June 2013: <http://www.nomj.ca/2013/06/21/teledermatology-service-speeds-consults.html>
- 163 Hype Cycle for Telemedicine. Gartner, July 2013: <http://my.gartner.com/portal/server.pt?open=512&objID=253&mode=2&PageID=2283783&resId=2552815&ref=QuickSearch&stkw=hype+cycle+telemedicine#h-N73037> (Subscription required)
- 164 Indonesia telemedicine pilot, 2002-2004. See: Exploring New Modalities – Experiences with Information and Communications Technology Interventions in the Asia-Pacific Region: A Review and Analysis of the Pan-Asia ICT R&D Grants Programme, Asia-Pacific Development Information Programme (APDIP), 2006: <http://web.idrc.ca/uploads/user-S/11685405431ExploringNewModalities.pdf>
- 165 Doctors per capita in East Africa: Tanzania (1:50,000), Rwanda (1:22,501), Kenya (1:8,551), and Uganda (1:14,330). In the United States, there is one doctor for every 384 people. See: Validation Process for a Social Entrepreneurial Telemedicine Venture in East Africa, International Journal for Service Learning in Engineering, Spring 2010: <http://library.queensu.ca/ojs/index.php/ijse/article/view/2344/2469>
- 166 Mashavu is run by students from Pennsylvania State University. Kiosks are computer-based systems that collect medical information including weight, body temperature, lung capacity, pulse rate, blood pressure, stethoscope rhythms, photographs and basic hygiene and nutrition information. See: Validation Process for a Social Entrepreneurial Telemedicine Venture in East Africa, International Journal for Service Learning in Engineering, Spring 2010: <http://library.queensu.ca/ojs/index.php/ijse/article/view/2344/2469> ; Health Care Kiosks Spring Up in Sub-Saharan Africa, Huffington Post, March 2012: http://www.huffingtonpost.com/gillian-love/medical-advances-in-africa_b_1387928.html
- 167 International healthcare companies are entering the region. Cleveland Clinic Abu Dhabi: <http://www.clevelandclinicabudhabi.ae/en/pages/default.aspx>
- 168 Mediclinic Middle East: <http://www.mediclinic.ae/PageContent.aspx?pageid=698&groupid=10>
- 169 Dubai Healthcare Care Sector Relies on New Feel Good Pill, Gulf News, 26 Sep 2013: <http://gulfnews.com/gn-focus/tablets/dubai-healthcare-sector-relies-on-new-feel-good-pill-1.1235684>
- 170 Google: <https://helpouts.google.com/home#home>
- 171 Google is entering the healthcare market. See: Google's big healthcare play: Helpout's is all about video consultations with your doctor, Venture Beat, 20 Nov 2013: <http://venturebeat.com/2013/11/20/googles-big-health-care-play-helpouts-is-all-about-video-consultations-with-your-doctor/>
- 172 Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2012–2017, Cisco, 6 February 2013: http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.html
- 173 Northern Health Travel Grant (NHTG) – Virtual Care Options, Ontario Ministry of Health and Long Term Care: http://www.health.gov.on.ca/en/pro/programs/phys_services/docs/nhtg_is_vh_en.pdf
- 174 Australia and France change funding rules. See: Hype Cycle for Telemedicine, Gartner, July 2013: <http://my.gartner.com/portal/server.pt?open=512&objID=253&mode=2&PageID=2283783&resId=2552815&ref=QuickSearch&stkw=hype+cycle+telemedicine#h-N73037> (Subscription required)
- 175 18 states have passed laws that require or will require private payers to reimburse for telemedicine visits if they reimburse for the same services during in-person visits." See: Telehealth Policy & Reimbursement Q and A, GlobalMed, 2013: <http://www.globalmed.com/training-education/telehealth-policy-reimbursement-q-and-a.php>
- 176 Telemedicine – A Key To Health Services Of The Future. National action plan for the dissemination of telemedicine – in brief, The Danish Government, August 2012: http://www.digst.dk/Digital-velfaerd/-/media/Files/Velf%C3%A6rdsteknologi/Telemedicinsk%20handlingsplan/telemedicine_UK_pdfa_03_11_12.pdf
- 177 Ibid
- 178 Indonesia telemedicine pilot, 2002-2004. See : Exploring New Modalities – Experiences with Information and Communications Technology Interventions in the Asia-Pacific Region: A Review and Analysis of the Pan-Asia ICT R&D Grants Programme, Asia-Pacific Development Information Programme (APDIP), 2006: <http://web.idrc.ca/uploads/user-S/11685405431ExploringNewModalities.pdf>
- 179 The Middle East is a late adopter of medical technologies. See: Survey of the UAE healthcare sector, opportunities and challenges for private providers, Deloitte, 2011
- 180 eHealth, Middle East Public Sector National necessities, Deloitte, 2013
- 181 Countries that are market leaders in eVisits can serve as models when implementing regulations surrounding eVisits in the region. See: Medical Tourism: Treatments, Markets and Health System implications: A scoping review, 2011: <http://www.oecd.org/els/health-systems/48723982.pdf>
- 182 Regulatory models already implemented in early adopter countries. See: Medical Tourism: Treatments, Markets and Health System implications: A scoping review, 2011: <http://www.oecd.org/els/health-systems/48723982.pdf>

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