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Defining mHealth

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Jewish philosopher and theologian Moses Maimonides (Moses ben Maimon or 'Rambam') (1135–1204), who professed that reason is the primary source for human knowledge, said, 'Teach thy tongue to say "I do not know", and thou shalt progress'.

Several subsections of electronic health (eHealth) continue to emerge. This is due in large part to the wide availability of multi-core processors making 'parallel programming possible for end-user applications running on desktops, workstations, and mobile devices'.[1] One area that is commanding attention throughout the world is mHealth, the use of mobile communications for health information and services. The ultimate goal is clear – to improve health outcomes. While many forecast mHealth to truly breakthrough in the next 5 years,[2] the vast amount of current programmes and the short-term potential promises eHealth initiatives of even greater magnitude.

At the recent Business Development Institute meeting on Mobile Healthcare Communications – Case Studies and Roundtables, I made introductory remarks and led two roundtable discussions exploring the latest global research on mobile health (or as it is more commonly referred in presentations or via the Twitter hashtag #mHealth).[3] Although the readership will not be surprised to learn that healthcare professionals, consumers, and organizations are adopting mobile technologies for the creation, communication, and consumption of healthcare information, it may be refreshing to learn that many participants expressed their genuine naiveté when many of the insights, analysis, and recommendations on these mHealth topics were shared – mHealth is enabling progress in the digital dialogue by encouraging those engaged to admit that a learning curve precedes adoption.

The drivers, barriers, and opportunities in mHealth: Although smartphone penetration is seen as the main driver for mHealth by 63% of respondents to the recent 'Global mHealth Developer Survey', the lack of standardization (50%), regulation (49%), and market transparency (49%) are the main barriers facing mHealth.[2] mHealth offers four distinct applications for international development, including drug adherence and remote monitoring, remote dissemination of information, data collection and disease outbreak surveillance, and diagnostic treatment and support.[4]

There is no question from the recent data that has emerged that mobile technologies are improving health and wellness in the lives of patients around the globe. Hafeez-Baig and Gurujan indicated that social demographics is 'acting as a mediating variable for clinical practices and compatibility in the context of the intention to use wireless handheld devices'.[5] A recent report on Health Topics by Pew Research Center's Internet and American Life Project, smart phones and mobile devices have changed how people use the internet to search for health information.[6] Fifty-seven per cent of adults in the US go online using a mobile connection, such as a laptop with wireless access or a smartphone. According to Manhattan Research, nearly 30 million US adults are mHealth consumers, or use an app, text messaging, or a browser on their mobile devices for health reasons – up from 10 million consumers in 2008.[7] Baby boomers are expected to contribute to the ongoing expansion of the mHealth.[8]

In a recent systematic review of published articles on text messaging, eight out of nine sufficiently powered studies were found to support evidence of the widely accessible, relatively inexpensive tool of text messaging as a tool for health behaviour change and these effects exist across age, minority status, and nationality.[9] It is clear that mobile technologies have narrowed the great digital divide in many resource-constrained areas. In South Africa, limited internet penetration has led to increased experimentation with mobile devices as a tool for social change.[10] In West Africa where there is approximately 1 doctor per 40 000 patients, community health workers are using an innovative

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mobile phone technology to track the growth and health of children ages 5 and under.[11] Although researchers have acknowledged challenges, Interactive Voice Response (IVR) and Short Message Service (SMS) text messaging are being used to collect adherence data from caregivers of HIV-infected children in Uganda.[12] Recent research in the Philippines has yielded the finding that purchasing a mobile phone leads to a 17.1% decrease in tobacco consumption per adult over the age of 15.[13] Growth in these geographic areas over the last few years has stimulated the conversation, adoption, and integration of mHealth globally.

Systems are now incorporating wireless technologies to send SMS notifications in case of critical conditions to enabling patient data enquiry using a mobile handset.[14] Effective and efficient monitoring methodologies are not just for critical conditions. Solutions are being advanced that are grounded in wireless technologies and social networking for the chronic disease management of patients suffering from diabetes.[15] A mobile phone application for type 1 diabetes mellitus has shown that its utilization might improve self-management and enhance quality of life.[16] In other areas of healthcare, the modes of interaction, functionality, and the connected nature of smartphones are offering a more clinically valid approach in addressing the unmet needs of persons with Alzheimer's disease[17] and experimental results show that PerFallD, a pervasive fall detection system tailored for mobile phones, achieves superior detection performance and power efficiency.[18]

mHealth clearly provides a range of programmes, convenience, and efficiency that cannot be achieved with many technologies. With an estimated market value for mHealth applications at $84.1 million for 2010,[19] and with 70% of people worldwide interested in having access to at least one (and they are willing to pay for it),[20] the most indispensable tools are the ones that will adopt and improve communication between patients and healthcare professionals.[21–23]

Although we reflect on the successes, engage in ongoing research, and consider our own possibilities for embracing mHealth, let us all agree that the opportunities for improving communication in healthcare, healthcare delivery, and the dissemination of medical information are well within our grasp and closer than ever before to our fingertips.

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