Whitepaper

Digital Healthcare Provision Goes Mainstream

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CLOUD POWER

Introduction

The adoption of digital healthcare is accelerating as providers sift through and prioritize the numerous tools at their disposal. The market is often defined in the segments of telemedicine, teleradiology, telepharmacy, remote surgery, adherence programs and various niche markets. In this paper, the authors explore what is driving the rapid adoption of these technologies and how they could be best positioned to meet the needs of physicians and patients.

Challenges of the US Healthcare System

The challenges of the US Healthcare System are the subject of many volumes of literature. However, a macro analysis of demand and supply factors quickly distils the problem to a handful of key issues.

On the demand side, the root of the problem is that the US population is growing and aging. Unlike many other developed countries, the US population continues to grow at 0.8% annually and the proportion of people over 65 years is expected to increase from 13% in 2013 to almost 20% in 2030[1]. As the population ages, so do the number of patients with medically complex conditions. In fact, three-quarters or more of people over the age of 75 suffer from two or more chronic conditions[2] and the prevalence of complex chronic conditions is growing rapidly[3] (Figure 1).

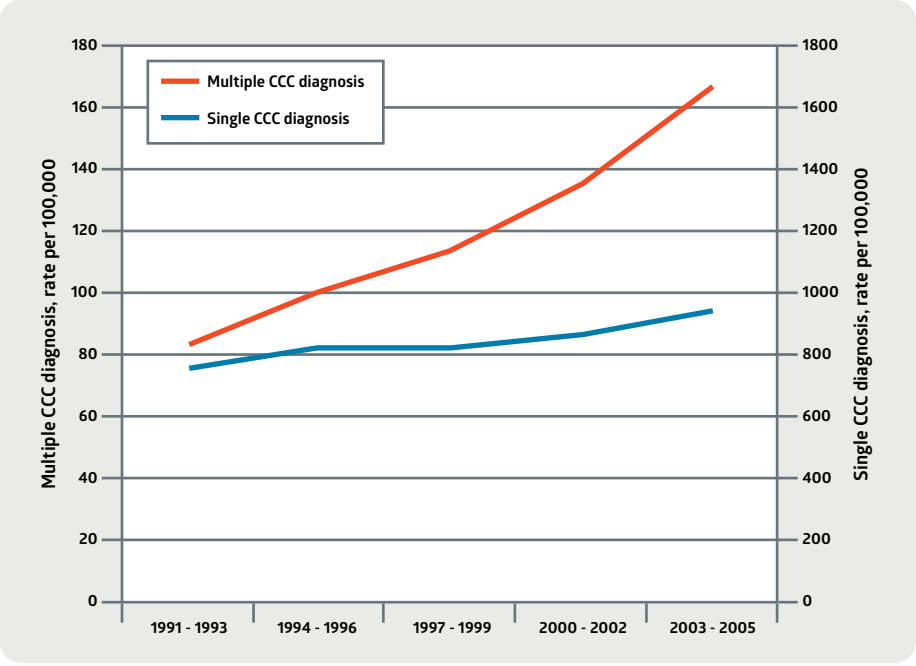

Figure 1

The most common complex chronic conditions tend to afflict geriatric and pediatric patient populations. Middle-aged patients with complex metabolic disorders such as high cholesterol, high blood pressure, and diabetes are soaring. Complex cardiovascular patients are rising in number as well: the total cost of cardiovascular care was $260 billion in 1998, that figure is now closer to $450 billion[4]. Elderly patients simultaneously battling dementia or Alzheimer's

disease combined with respiratory problems and cardiovascular issues are an increasingly common issue. On the other end of the age spectrum, the number of children facing a lifetime with significant multiple physical and/or neurological disorders continues to grow, now affecting approximately 7% of all children. Complex chronic conditions present a severe burden to health systems since they require more intense management and a greater involvement from scarce specialists; they consume greater pharmaceutical and healthcare provision resources; and patients with these conditions generally deteriorate over time unless they are well managed. The cost of caring for these chronically ill patients drive the bulk of healthcare spending with 5% of the U.S. population now consuming 49.5% of every healthcare dollar, and 20% of all patients consuming 81.2% of total spending (Figure 2)[5].

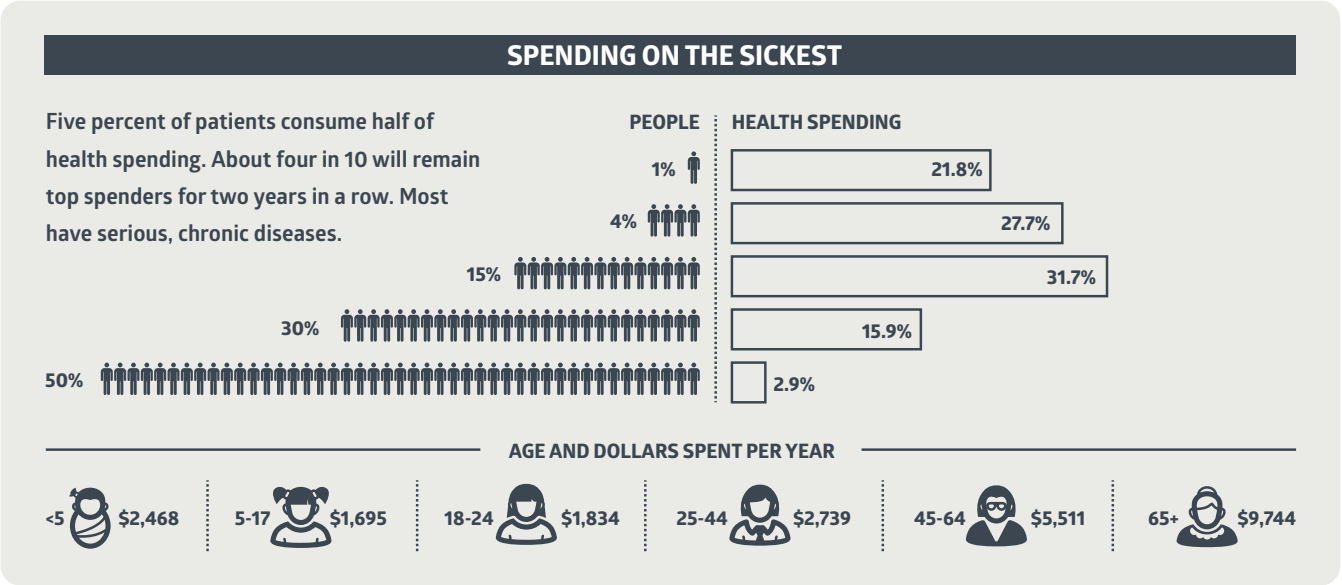

Figure 2

On the supply side, there is a growing per capita shortage in most types of healthcare professionals, especially among adult primary care physicians, pediatric primary care and specialty physicians, nurses and many other types of specialists (Figure 3 and 4)[6]. The aggregate shortage is expected to soar to 135,600 physicians by 2025 in the US and this is a trend that will be difficult to change since one of the main drivers is the demography of US healthcare providers. 1 out of 3 practicing physicians in the United States is over the age of 55 and will retire in the next 10 or 15 years.[7] The retirement rate will barely be covered with newly graduated healthcare professionals. And unfortunately, an alarming percentage of medical school graduates are choosing to enter specialty areas of medicine rather than primary care. As a result, physicians will need to treat a larger numbers of patients. Allied health professionals such as nurse practitioners, pharmacists, and home health specialists will therefore need to be empowered to address broader range of medical issues, and specialists will have to engage patients across broader catchment areas, covering much larger physical distances.

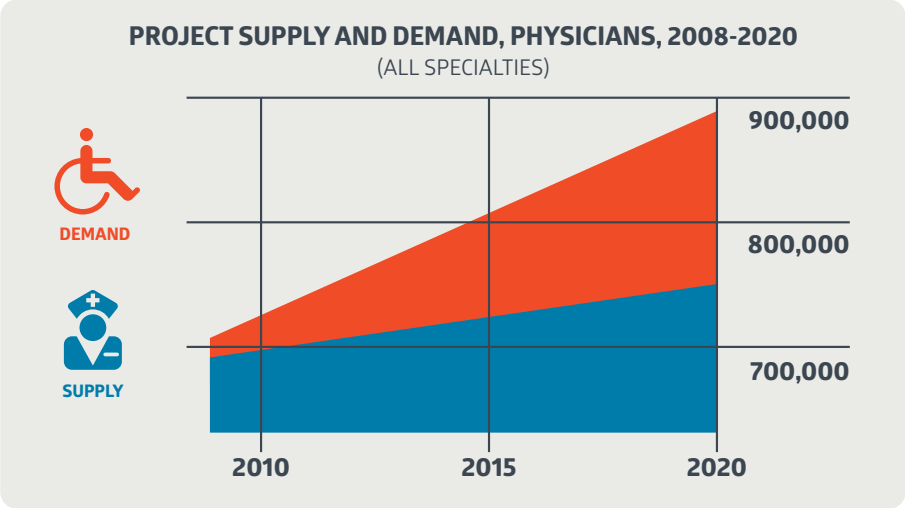

Figure 3

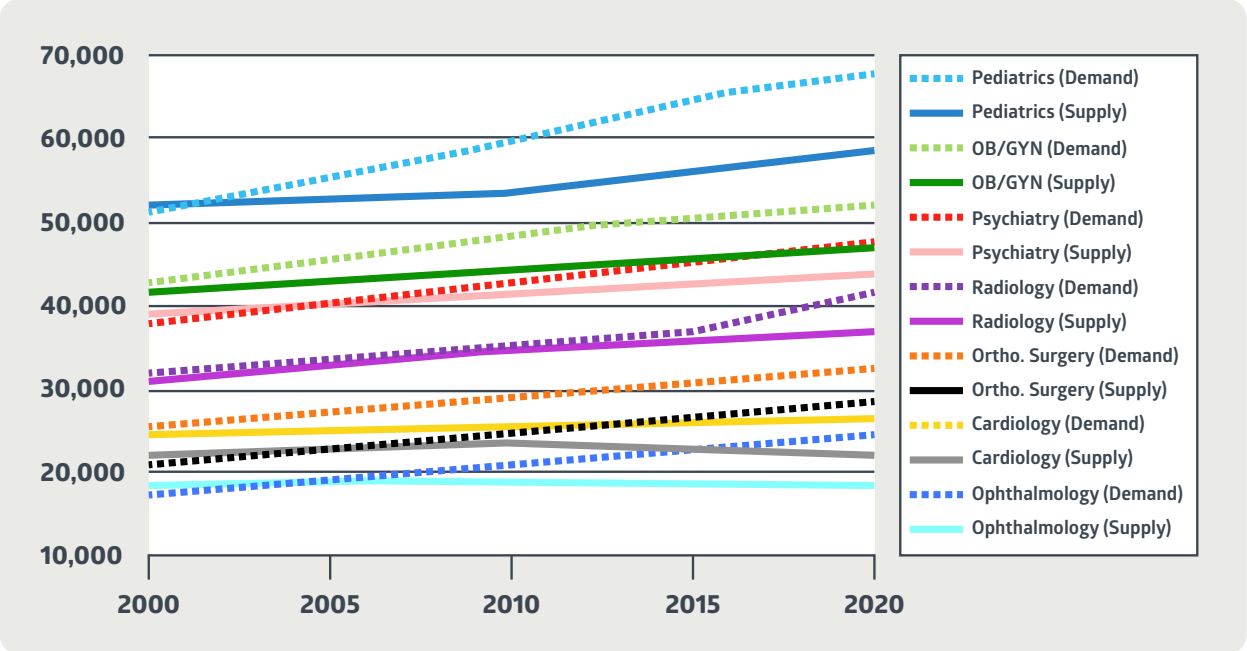

Figure 4

In addition to increasing their reach and productivity, healthcare professionals will need to collaborate with each other more effectively to provide integrated care to increasingly complex patients with multiple ailments. Other than situations where a physical diagnostic examination or therapy is essential, many medical needs can be met through virtual consultations. Teleradiology is already a mainstream service since it is easy to receive and interpret images remotely. Mental health, dermatology and low acuity primary care are therapeutic areas where virtual consultations have already seen significant adoption since the need for physical interactions are relatively limited. The remainder of

medicine remains a Greenfield opportunity for the deployment of telemedicine. Pediatrics poses a significant telemedicine opportunity due to the high volume of anxiety-driven consultations initiated by worried parents. Large health systems are also beginning to introduce telemedicine as part of their continuum of care including chronic patient management, follow-up programs in acute and post-surgical situations, and employee health and wellness.

Health Systems Evolving to Address Their Challenges

To manage exploding healthcare costs and better meet patient expectations, public and private payors are putting pressure on providers to generate measurably improved health outcomes at lower cost while delivering higher patient satisfaction. In response to these pressures and to address the growing gap between demand and supply of healthcare, leading providers are developing four important capabilities:

1. **Continuity of Information:** Without continuity of patient information, very little progress can be made to modernize healthcare provision. The adoption of Electronic Medical Records in the US in recent years is one catalyst for change. Health information exchanges (HIE) present the opportunity for easier data sharing among disparate partners. Similar systems are widespread in several countries in EU, such as Denmark, Estonia, and the Netherlands.

2. **Population Modelling and Resource Allocation:** With robust patient data in hand, the more sophisticated integrated health systems in the US are becoming increasingly analytical and predictive about the likely health trends of patients in their catchment area. By modelling patient demographic and health data, providers can identify and predict the segments of their patient population that suffer from various types of ailments. Based on this information, they are able to better plan resource allocation across populations of patients. For example, a health system in an urban center with an aging population might focus on complementing its hospitals with a network of nursing homes, visiting nurse programs, and multi-specialty centers for conditions such as cardiovascular, COPD, and neurology. In contrast, an affluent suburb of city commuters with young families would focus on maternity and pediatric facilities.

3. **Care Coordination and Transitions:** Delivering optimal health outcomes in a cost effective way for complex conditions and for acute or post-surgical situations often requires transitions between different settings of care and coordination between the various parts of the care delivery chain. In many cases (e.g. congestive heart failure), the number of days a patient spends in a hospital (the most expensive settings of care) can be significantly reduced if other types of care facilities for convalescence or follow-up care are available (e.g. skilled nursing facilities or rehabilitation centers). Coordinating care across multiple transitions requires investments in capabilities such as the development of well-specified protocols to govern transitions for all major conditions and patient types. Nurse educators are required to prepare patients for a shift to a new setting of care and to instil greater responsibility for self-care. Information must flow seamlessly from each setting of care to the next, and effective communication systems across the chain of care providers must be established. Telemedicine also has an important role to play

in bridging communication across care providers, and becomes an essential means of communication when the patient is at home or a long-term care facility without specialist providers. These investments pay off quickly in reducing system cost and improving outcomes.

4. **System Accountability:** In order to foster the collaborations needed across a chain of providers to make coordinated care effective, advanced health systems are evolving to a paradigm of total patient accountability. In this model, the health system is assigned a 'budget' to manage an entire condition end-to-end. For instance, instead of assigning a budget to a hospital for performing a heart by-pass surgery and stipulating follow-up consultation charges to clinics, a health system would be assigned a larger 'budget' for the complete management of the patient and be held accountable for the outcome. In this paradigm, the health system is motivated to transition the patient from the hospital to a skilled nursing facility and then to home care as soon as possible. However, if the patient relapses and returns to hospital, the health system would be financially penalized. Introducing total patient accountability is easier to accomplish in an integrated delivery network since it is in the network's interest to transition patients from one setting to another to optimize outcomes at the lowest cost. Organizationally, an integrated delivery network is better positioned to make decisions based on an overall P&L versus standalone facilities (or the siloed departments of a large hospital).

There is a significant opportunity for telemedicine to play a major role as healthcare systems reshape themselves to deliver high quality care with scarce resources. Therefore, it is not surprising that the U.S. telehealth market is expected to grow from $240 million today to $1.9 billion in 2018, an annual growth rate of 56 percent, and the global market for telemedicine is forecast to grow to from $440.6 million in 2013 to $4.5 billion in 2018. The number of patients using telehealth services will rise to 7 million in 2018, up from less than 350,000 in 2013.[8]

Positioning Telemedicine for Rapid Adoption: The SnapMD Model

SnapMD's telemedicine platform and business model has been developed from the ground up with healthcare providers and patients as a priority. The platform is positioned as a cloud-based enterprise software solution to providers. This allows provider groups or hospitals to extend the reach of their primary and specialty physicians to their patients through secure video consultations. Other telemedicine solutions disrupt the relation between provider and patient by connecting patients to an anonymous bank of doctors. In contrast, SnapMD's solution enhances the relationship between provider and patient, by ensuring continuity of care. The platform is private-label which allows the provider to brand the service as its own and avoid confusion with the patient.

SnapMD has also developed various features based on provider and patient needs for essential functionality and convenience. While individuals can establish their own account, families can set up a joint account which multiple family members and caregivers can access. Payments for services can also be facilitated, including determination

of insurance eligibility. Medical information generated from each consultation is presented in an automated post-encounter report, and this data can be readily integrated into the provider's electronic medical record (EMR) system. The platform also supports multi-party consults which allows additional specialists to be brought in for expert opinions or family members to participate and understand how best to care for the patient at home. Finally, SnapMD is compatible with a wide range of remote diagnostic equipment (see Figure 5) which physician extenders or patients can be trained to use and which provide physicians the ability to conduct certain aspects of examinations remotely. SnapMD operates on market leading operating systems and hardware including smartphones, tablet, laptop, and desktop computers.

Figure 5

Total Exam 3 Camera (GlobalMed)

ClearSteth digital Stethoscope (GlobalMed)

A growing list of major US healthcare providers and systems are using SnapMD technology because it is easy to use and is positioned to complement and enhance their services. Telemedicine solutions, such as SnapMD, that create sticky relationships with providers and patients will ultimately be the winning platforms that transform the digital healthcare landscape.

The Global Need for Telemedicine

The US is not the only country with financially strained healthcare systems. Similar challenges are pervasive across Europe where the population is also aging rapidly (Figure 6) and there are growing populations of complex patients with multiple conditions [9].

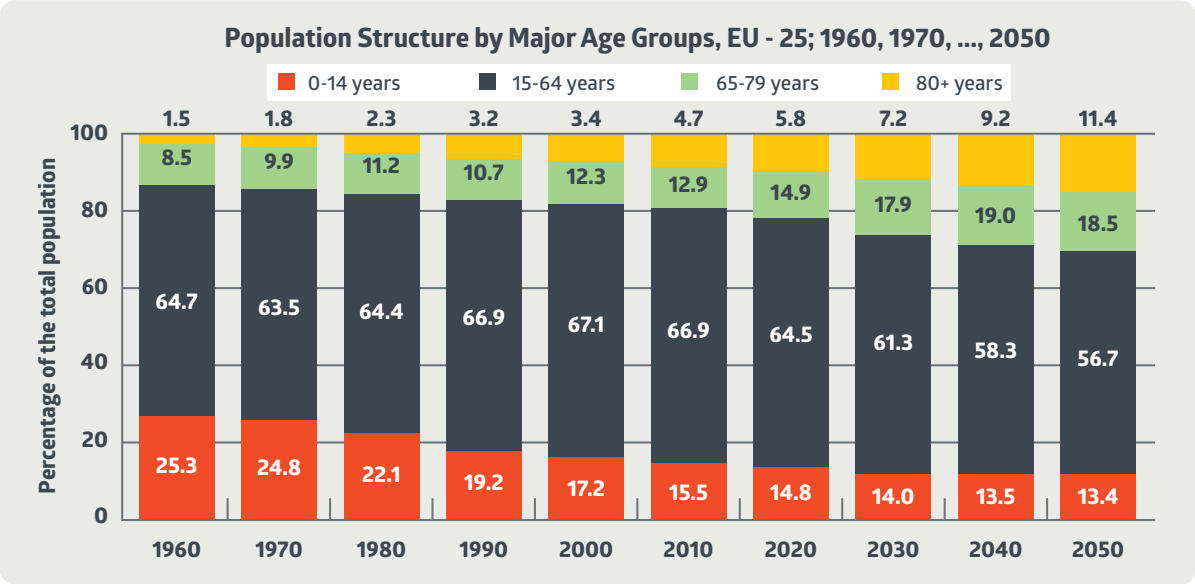

Figure 6

In England, chronic patients account for 80% of primary care consultations with 15% of the people with three or more problems accounting for nearly 30% of inpatient days.[10] Across Europe, it is estimated that two-thirds of those who have reached pensionable age have at least two chronic conditions.[11] This growing disease burden coincides with a chronic shortage of general practitioners and qualified specialists. The Royal College of GPs has estimated that by 2021 there could be a shortfall of 16,000 GPs, while the Royal College of Nursing has forecast a shortfall of 47,500 nurses by 2016, and 100,000 by 2022. Figure 7 depicts a shortage in key specialist physicians across various EU countries[12].

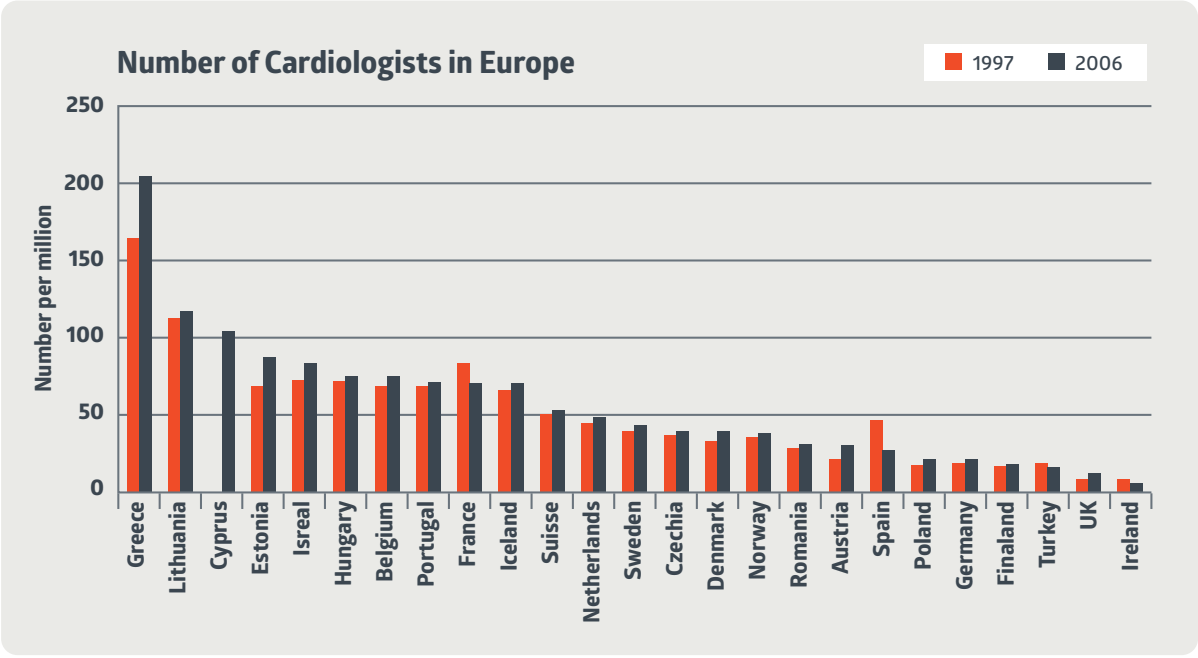

Figure 7

In emerging economies, healthcare systems are equally strained but for quite different reasons. In regions like the Middle East and India, populations are young and growing fast. Figure 8 shows how the population pyramids for Saudi Arabia and India differ significantly from the UK and Italy[13]. In these emerging economies, the supply of healthcare overall is lagging far behind the demand. Enormous investments are required in hospitals, clinics, and specialist facilities as well as in training healthcare professionals. Healthcare development of this magnitude will require decades to implement.

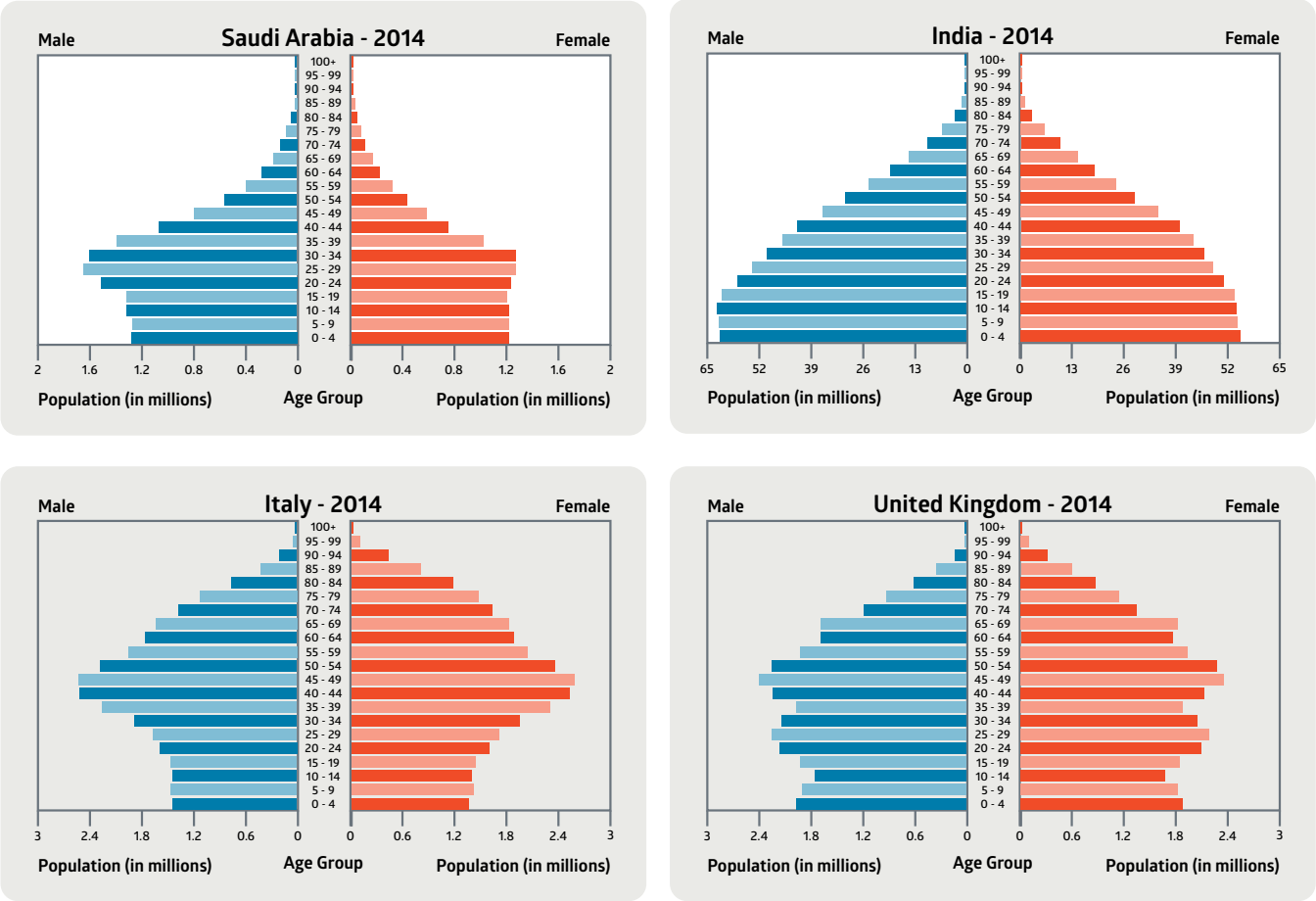

Figure 8

In most regions, there are signs that the adoption of telemedicine is reaching an inflection point because it has such an important role to play in increasing the productivity of scarce healthcare professionals and resources. As an internet-enabled and browser-delivered software, SnapMD is facilitating care across the United States as well as internationally. SnapMD's robust and flexible technology can be deployed across a wide variety of care settings and clinical needs. Both primary care and specialty services, including physician extenders, are supported by SnapMD and can be delivered into the home, workplace, and tertiary care settings. With SnapMD, healthcare providers and systems can implement telemedicine programs to meet their local requirements, better leverage their medical staff, and achieve the long-pursued goals of delivering high-touch and high quality care at reasonable costs with high patient and physician satisfaction.

About SnapMD

SnapMD is a leader in private-label telemedicine cloud-based software. The company provides a robust HIPAA compliant communications platform developed to enable healthcare providers to directly engage patients. The SnapMD platform furnishes secure one-on-one live video, audio and text consultations between ambulatory patients and their primary care and specialty care physicians. Using SnapMD, healthcare providers can conduct on-demand virtual consultations to reduce avoidable visits to the emergency department, schedule and conduct follow-up consultations for patients undergoing active treatment, provide remote medical services such as in-school virtual clinics and physician-to-physician consultations. With SnapMD Telemedicine technology, healthcare providers have another powerful tool to help them find efficiencies in personnel utilization while continuing to deliver quality care. For more information, please visit www.snap.md

About Tiger Hill Healthcare

Tiger Hill Healthcare (THH) is a global business-building firm that partners with disruptive, high-growth companies in digital healthcare. THH is led by Dr. Indranil Ghosh, Mr. Olivier Jarry and Ms. Michele McHugh-Mazatta – three highly experienced executives with over 70 years of cumulative track record in leading pharmaceutical, medical device, and healthcare investing firms. With a footprint extending across North America, Europe, Middle East and India, THH is well-placed to act as an growth acceleration partner to innovative healthcare companies with global potential. Tiger Hill Healthcare is part of the Tiger Hill Capital group. More information can be found on www.tigerhillcapital.com

Endnotes

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