IHS TECHNOLOGY

Topline Report

# Telehealth & Remote Patient Monitoring

November 2016

ihs.com

## As telehealth evolves to become meaningful, remote patient monitoring continues to be meaningless.

**Roeen Roashan,** Senior Analyst

The objective of IHS in writing this report is to provide marketing and technical executives with a current, comprehensive assessment of the world market for telehealth and remote patient monitoring and to forecast the impact of significant trends.

This study was designed in conjunction with numerous leading manufactures and suppliers of virtual healthcare solutions. The methodology implemented has produced findings that are fundamental to an in-depth understanding of the current structure and future development of the market.

### Introduction

The vague nature of product and service classification continues its presence in virtual healthcare. As solutions from vendors are enhanced with new features, convergence across what used to be distinct solutions is blurring the lines between virtual consultations, healthcare kiosks and remote patient monitoring. The short-term implication is terminology-related, but long-term; convergence will impacts the entire value chain of virtual healthcare. Whether it is from a regulatory point of view, or perhaps engagements between vendors and providers, the ever-changing state of virtual healthcare is a double-edged sword. Surely, technology convergence is an enhancement and carries much-needed efficiencies for the healthcare sector, but it serves no purpose if the addressable market is profoundly unaware of how this technology fits overall in their long-term strategy, or even worse, is unsure of its relative value – a true reflection of providers' perception of telehealth and remote patient monitoring, as value-based healthcare emerges. Beyond the market analysis and technology discussions this report focuses on identifying and clarifying instances where there is an optimal fit for virtual healthcare.

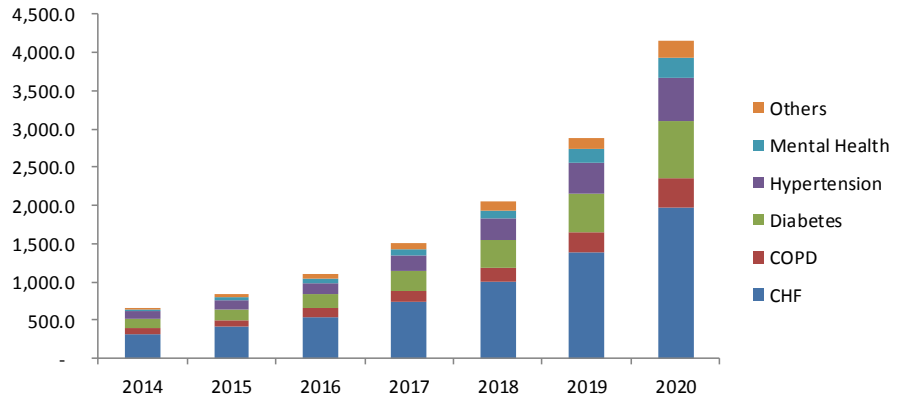
**Contacts**

Roeen Roashan, Senior Analyst
Roeen.Roashan@ihsmarkit.com

## Global status overview on virtual healthcare

The overall global adoption of virtual healthcare has expanded over the past 12 months, but providers are still highly cautious of integrating off-the-shelf solutions into existing clinical workflows. The need for client-specific configuration is on the rise, especially present in the remote patient monitoring market. The remote patient monitoring market is experiencing yet another shake-up from a product development point of view, which is resulting in a portion of vendors shifting towards population health management solutions to achieve scale. Other market incumbents have chosen to either continue with existing product line ups, adding minor enhancements, or have decided to exit the market in order to reevaluate business models as former market leader Bosch Healthcare did when it seized all operations in April, 2016.

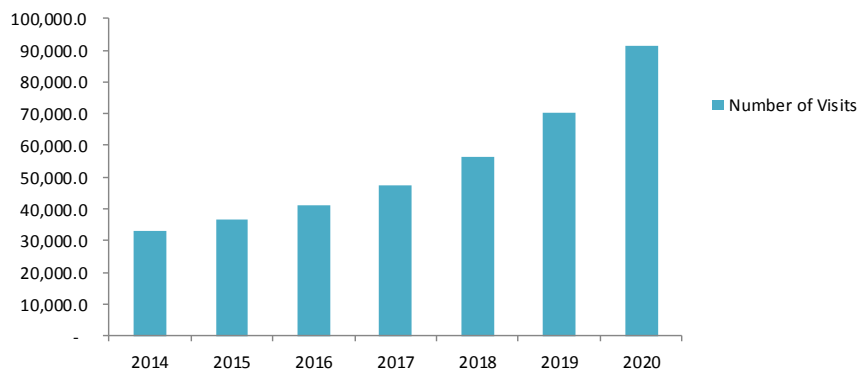
Figure 1.1
**World RPM Patients By Condition**
(# of Patients in 000s)




Source: IHS Nov-16

The world market for remote patient monitoring was worth an estimated $521.1 million in 2015 – a 6.9% increase from 2014, which is modest given the potential and addressable market. Patients being remotely monitored are expected to surpass a million worldwide by the end of 2016 (see Figure 1.1 above). Despite a growing population with chronic diseases, the overall adoption of remote patient monitoring is a small fraction of its total addressable market.

Figure 1.7
**World Market for Virtual Consults**
(Number of Consultations 000s)

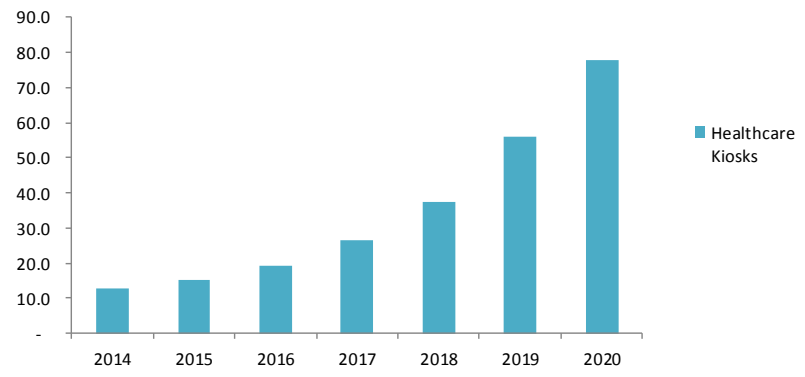



Source: IHS Nov-16

The virtual consultations market is facing fewer challenges, at least in North America and Western Europe, where sufficient internet bandwidth and accessibility of mobile consumer electronics have aligned well with clinical workflows. As a result, virtual visits to primary care or specialty care physicians are living up to its promise of expanded access and convenience. There were approximately 36.4 million virtual visits in 2015 (see Figure 1.7), independent of channel and purpose. An almost threefold growth is expected in the forecast period, based mostly on providers' growing use of virtual consultations. Still there is some way to go until virtual consultations simply become a norm. For comparison, the US healthcare sector alone has over one billion doctor visits annually in total.

Similar to the remote patient monitoring market, healthcare kiosks have gone through a pivotal phase, including the demise of HealthSpot. The future of healthcare kiosk is not contained to one use-case. The most promising emerging application emphasizes a community-based model that acts as a "care filler", to support both primary care and specialty care services. This is primarily occurring in the United States and Canada. In other parts of the world, e.g. China and India, kiosks are being used for rural health. IHS expects the deployment of healthcare kiosks to grow from low double-digits to nearly 80,000 units worldwide, as shown in Figure 1.9.

Figure 1.9
**World Market for Healthcare Kiosks**
(Unit Shipments in 000s)




Source: IHS
Nov-16

Another reality that all vendors are facing is that the value-based model is not necessarily to drive adoption of virtual healthcare technologies. While there is a shift towards value-based care, this evolution will not alone enable innovation. In fact, providers are more cost-focused than ever before, and are establishing other means to comply with quality metrics enforced by regulatory bodies that do not require massive investments. Vendors that are wary of this and develop business models that accommodate providers' cost-containment emphasis will have a competitive advantage. Solutions that lock-in providers will become obsolete.

Finally, technology convergence, which currently is premature and only at a feature-level, will have a fundamental impact in the long-term. Remote patient monitoring solutions are increasingly adding a virtual consultation feature to its services, and virtual consultation platforms are beginning to support the integration of patient-generated data for chronic care management with the purpose of e.g. avoiding readmissions. For healthcare kiosks, vendors are looking to add screening and diagnostic tools that historically have pertained to specialists. These are all examples of feature convergence, albeit at a less sophisticated level. The synergies are clear between telehealth and remote patient monitoring technologies; however, convergence will reach its optimal state when these solutions originate from a single-purpose workflow supporting the triple-aim i.e. improving patient experiences of care, improving the health of populations, and reducing the per capita cost of healthcare. Once this happens, market confusion and terminology issues will subside.

These high-level trends are discussed in the following sections and within the respective regions and countries. All tables and figures can be accessed through the Excel database for this report.

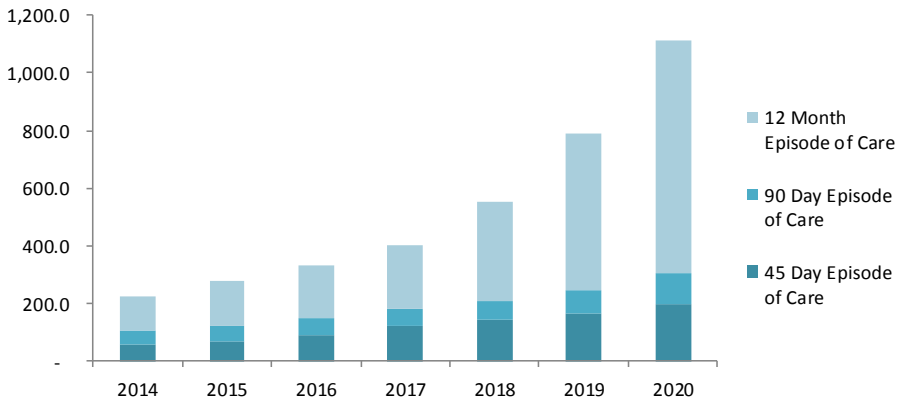
## Remote patient monitoring

In 2015, approximately 838,000 patients had their vitals monitored remotely worldwide. These patients were predominantly diagnosed with cardiovascular diseases such as congestive heart failure and hypertension. A large portion also had diabetes. The majority of these patients were enrolled in programs for post-acute care with the purpose of avoiding hospital readmissions. The remainder of the patients was enrolled in long-term chronic diseases management. During 2015, monitoring revenues reached $278.8 million, up from $224.8 million (see Figure 4.4), while hardware revenues (both health hubs and peripheral devices) were an estimated $242.4 million. Hardware revenues are increasing only as a function of patients being monitored, but overall the value of hardware is decreasing in terms of profitability.

Figure 4.4

**World Market for Monitoring Services by Length of Care**

(Revenues in $m)




Source: IHS

Nov-16

The Americas is the largest region, accounting for slightly more than half of the market, followed by the European, Middle East and African regions, and Asia Pacific. Although remote patient monitoring is present globally, the majority of the activity resides in the US market, and the Western European region, where remote patient monitoring adoption has occurred largely by home health agencies, the US Veterans Administration, and large government-led projects within the European Union. Market performance in recent years has been modest. Despite annual double-digit growth, and the prospects for the next 12-24 months are similarly conservative, as financial pressure rises among providers. However, IHS expects that 2019 and 2020 will be pivotal for this market, given the acclimatization of providers in complying with value-based care. Transitioning to value-based care implies an increase in the amount of care, which will mainly occur remotely. It neither makes sense, nor is it efficient, to deliver all aspects of healthcare inside clinics or hospitals. A great example is lowering readmissions, which will become an even bigger priority with value-based care. Quality metrics around readmissions and penalties are already in place in the United States and the majority of the European countries. Preventing readmissions requires methods that extend care outside the clinical space. Therefore there will be a sector-wide demand for remote patient monitoring from 2019 and forward.

Remote patient monitoring was conceived to provide access to healthcare in rural areas more than two decades ago. Since then, vendors have been pushing for this technology to be used as part of conventional care. From a technological point of view, the current capabilities of capturing patient vitals and performing analytics are sufficient, although there are constant improvements in sensor technologies, analytics, and user interfaces. In addition, vendors are finally starting to acknowledge the importance of interoperable systems, and diverting away from business models that lock-in providers. The co-innovation risk, which comes down to technological barriers or the chicken or egg dilemma, is therefore historically low. In contrast, adoption risk has remained high since the early days of remote patient monitoring, due to lack of meaningful use-cases in the broader context of healthcare – something that will definitely change, as providers' confidence in practicing value-based care increases. This is the basis for IHS's optimistic view in the world market for remote patient monitoring.

In order to consistently improve the quality of its reports, IHS welcomes feedback from all purchasing companies. Please contact Roeen Roashan (Roeen.Roashan@ihsmarkit.com) with any comments.

**Note: The full version of this report has an accompanying Excel database that provides extensive quantitative analysis supplementing the scope of this report. The database is part of the Digital Health Intelligence Service and available for all subscribers of the service.**