

# mHealth and Home Monitoring

**mHealth and Home Monitoring** is the fourth consecutive report from Berg Insight that gives first-hand insights into the adoption of wireless solutions for health monitoring.

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## 2.2 million patients worldwide are remotely monitored today

eHealth is a term for healthcare practice supported by electronic processes and communication. More recently, mHealth has begun to appear as a term for eHealth using mobile phones or cellular networks. mHealth is a very broad term that principally involves every kind of mobile health related communication, application or data service. This report covers home health monitoring involving patient self-testing using medical devices and remote transmission of the medical data to healthcare providers for disease management.

Some of the most common conditions being monitored today are chronic diseases including cardiac arrhythmia, hypertension, ischemic diseases, sleep apnea, diabetes, hyperlipidemia, asthma and chronic obstructive pulmonary disease (COPD). These conditions cause substantial costs and reduce both life expectancy and quality of life. Berg Insight estimates that more than 200 million people in the EU and the US suffer from one or several diseases where home monitoring can become a treatment option. Applying information and communication technologies in the healthcare industry can lead to decreased costs, more efficient care delivery and improved sustainability of the healthcare system. However, the rate of adoption is still slow and wireless technologies have only just begun to penetrate the market.

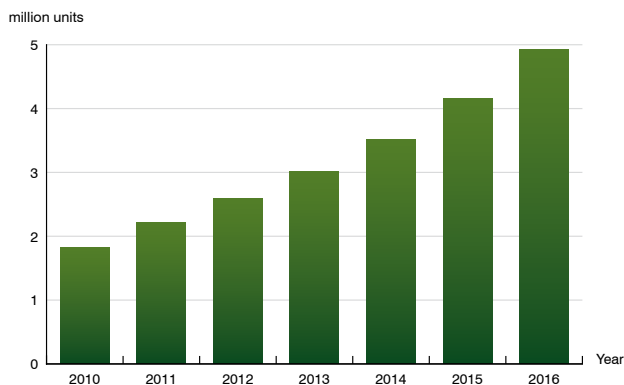
At the end of 2011, around 2.2 million patients worldwide were using a home monitoring service based on equipment with integrated connectivity. The figure does not include patients that use monitoring devices connected to a PC or mobile phone. It only includes systems that rely on monitors with integrated connectivity or systems that use monitoring hubs with integrated cellular or fixed-line modems. Berg Insight forecasts that the number of home monitoring systems with integrated communication capabilities will grow at a compound annual growth rate (CAGR) of 18.0 percent between 2010 and 2016 to reach 4.9 million connections globally by the end of the forecast period. The number of these devices that have integrated cellular connectivity increased from 0.42 million in 2010 to about 0.57 million in 2011, and is projected to grow at a CAGR of 34.6 percent to 2.47 million in 2016.

Several companies have developed integrated solutions for monitoring multiple chronic diseases and other conditions. The six leading providers of integrated telehealth systems include the major ►

► technology and electronics companies Bosch, Honeywell, Philips and Bayer, as well as the small specialist telehealth companies Cardiocom and Numera. Combined, these six companies account for 73.0 percent of the installed base of telehealth hubs. The main market segments for medical devices with integrated connectivity are cardiac rhythm management, sleep therapy and cardiac event monitoring. In these segments leading providers such as Medtronic, Biotronik, St Jude Medical, CardioNet, LifeWatch, ResMed, Philips Respironics and Fisher & Paykel Healthcare today market wirelessly connected solutions. Implantable cardiac rhythm management devices is by far the largest segment, accounting for 74.3 percent of remotely monitored patients.

The major mobile operator groups including AT&T, Orange, Telefónica and Vodafone are currently exploring the field and have set up business units dedicated to mHealth. The most commonly used mode of expansion has been to establish strategic partnerships with mHealth and eHealth solution vendors. Several operators are leveraging other vehicles for expansion such as corporate venture capital, acquisitions and in-house development. However, providing specialized solutions for the healthcare industry implies a significant diversification from the core business. The challenge for mobile operators is to identify market segments where they create most value, while at the same time limiting the potential downsides of over-diversification.

The adoption of out-of-hospital wireless monitoring in healthcare is driven by a wide range of incentives, related to everything from demographics and technology development to new advancements in medical treatment. However, there are a number of barriers, including resistance to change among healthcare organizations and clinicians, misaligned incentive structures and the financing of wireless solutions by what is at large an underfunded healthcare sector. Several catalysts are nevertheless likely to speed up the rate of adoption, including increasing monitoring during clinical trials, insurance company requirements and new clinical evidence on cost effectiveness. Significant events that will drive uptake include the Medical Device Data Systems (MDDS) legislation in the US and the publication of the results from the Whole System Demonstrator project in the UK.



Home health monitoring connections, million units (World 2010–2016)

### This report answers the following questions:

- Which medical conditions offer the best potential for wireless health monitoring solutions?
- Who are the leading providers of medical devices for home monitoring?
- What are the mHealth strategies of mobile operators?
- Which are the general technology trends for home health monitoring equipment?
- What initiatives have been taken by the leading players in the telecom and IT industries?
- What are the market shares of the top 10 integrated telehealth solution vendors?
- Why are smartphone applications so significant for the mHealth market?
- How will standardisation facilitate the integration of medical devices and mobile handsets?
- How can the mobile industry contribute to the adoption of wireless technology in healthcare?

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