

THE INDUSTRIAL REVOLUTION OF MEDICAL DEVICES

With a focus on the UK, Thomas Olesen, Commercial Director, Europe, Qualcomm Life, provides an overview of the digitalisation of healthcare, and the current status, hurdles and potential benefits of connected devices, from the perspective of a digital technology company. He provides examples of telemedicine and mHealth projects already underway, and explains how Qualcomm Life is building the digital infrastructure required for organisations including national healthcare systems to provide connected healthcare both for patient monitoring and for drug delivery too.

The UK population is 64.1 million and roughly 15 million of those people suffer from a chronic disease. It is also estimated that approximately 42% of patients in the UK have at least one chronic disease – meaning they could be suffering from more. Annually, the UK economy suffers a cost of £7.2 billion from coronary heart disease, for example. Productivity issues account for 47% of this cost while 27% relates to direct healthcare costs.¹ It is thought that if hospitals learned to use hospital beds more efficiently by reducing the length of stay or readmissions, the UK NHS could save at least £1 billion a year.²

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In light of these figures, there is a call for UK healthcare services to be digitally transformed. Aside from e-records and free Wi-Fi, this mandate extends to telehealthcare. Telehealth, the remote exchange of clinical data between a patient and their clinician, is a fast growing and dynamic market, which holds a lot of potential for the UK.

The UK digital health sector is currently

worth £1.3 billion, with the UK being the frontrunner globally in the use of primary care electronic health records. However, acute hospitals have lagged behind and have been the focus of some recent government initiatives.

There have been a number of initiatives designed to improve the evidence base and adoption of telehealth, the most well-known being the Whole System Demonstrator (WSD) study. However, the evidence on cost-effectiveness produced from the WSD was viewed as disappointing, and the adoption is now subject to number of barriers including clinical buy-in.

Markets such as the US are moving ahead with implementation of larger scale telehealth implementation, whereas the UK continues to be in pilot mode. This disadvantages local industry as the UK currently lacks the scale and infrastructure to drive growth.

As the market evolves, the UK becomes at risk over the short- to medium-term. But this could be about to change...

A MARKET EVOLVES

Fixed line and hardware-dependent systems as well as the current focus of large UK providers, are becoming increasingly mobile-based. Consumers are looking to improve their fitness and wellbeing through wearable technology, and patients with chronic diseases are using connected medical devices to monitor their condition continuously and share data seamlessly and securely with their care givers.

Seamless care from hospital to home – and all points in between – is becoming a necessity from many patients suffering from chronic conditions as they look for better quality of life and less trips to the hospital. This is supported by new



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technologies such as smart sensors and apps, generating more intelligent data which in turn allows for better analytics and cost-effective intervention by physicians, which ultimately lowers hospital admissions, while at the same time quality of care is improved and both patients and care givers experience higher satisfaction.

Qualcomm Life, a subsidiary of chipmaker Qualcomm, is helping UK hospitals, and other organisations, remove inefficiencies and improve patient care, through reducing A&E visits, hospital admissions and mortality rates.

Qualcomm Life has established one of the world's largest open connected health ecosystems to deliver intelligent care everywhere, powering connected medical devices, sensors and a secure medical-grade infrastructure across the care continuum. This has been achieved by combining its wireless expertise and ecosystem of connected medical devices outside of the hospital with the expertise of its subsidiary, Capsule (Andover, MA, US), in connectivity and integration inside the hospital. Capsule was acquired by Qualcomm Life in 2015.

Qualcomm Life is today solving several of the challenges historically hindering the ability of connected health to scale. Data is captured anywhere on the care pathway and integrated with any relevant EMR or Health IT system required by the NHS – seamlessly and securely.

Studies have proven that connected health has a positive impact on those suffering from diabetes and heart failure. For example, patients with chronic heart failure using telehealth resulted in a 47.5% lower hospitalisation rate and greater patient satisfaction care compared to those receiving usual care.³

CASE IN POINT

Qualcomm Life has been working with leading medical device, provider and pharmaceutical companies across the globe to bring the benefits of connected health as well.

Entra Health Systems (San Diego, CA, US) is developing one of the first US FDA-listed and CE-certified connected blood glucose meters, MyGlucoHealth, working in combination with a near real-time online data collection network to upload and manage blood glucose readings securely, eliminating the need to maintain personal logbooks and enabling patients and

providers manage the chronic disease better.

Entra's solution forms an integrated telehealth platform supporting patients and healthcare professionals in the control and treatment of diabetes. Using automated tools, Entra can set up reminders to encourage patients to test more frequently, and notify family, caregivers and clinicians when testing results fluctuate, ultimately giving patients more direct control over their care and providing clear lines of communication with clinicians and caregivers.

Another example of bringing connectivity to healthcare, and specifically potentially to drug delivery too, is Qualcomm Life's work with Walgreens, the largest US retail pharmacy chain, which recently acquired Alliance Boots (parent company of the British retail pharmacy, Boots).

In January 2015, the two companies announced their collaboration to power

a chronic condition such as heart disease or diabetes, Walgreens' solution can help patients achieve improved health through regular biometric communication with their providers, as well as being rewarded for participating in becoming more informed and engaged in their healthcare.

IMPLEMENTATION IN THE UK

As previously mentioned, telehealthcare in the UK has not yet had the uptake it has experienced other countries such as US. However, there is one NHS hospital that Qualcomm Life is working with that has embraced digital health as part of its offering.

Through a collaboration with Telematic and Biomedical Services (TBS GB, Southend-on-Sea, UK) and Orla Healthcare (Harlow, UK), Qualcomm Life provided

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device connectivity with Walgreens' mobile and web applications and its Balance Rewards for healthy choices® programme. This project is designed to bring the benefits of robust medical device connectivity and care co-ordination capabilities, as well as enable remote patient monitoring, transition care support and chronic care management through a secure and seamless transmission of biometric data from patients' connected medical devices.

Walgreens Balance Rewards members earn points for participating in various health-related programmes and tracking progress towards a goal. With medical device connectivity powered by Qualcomm Life, Balance Rewards members can sync selected mHealth devices directly to their Balance Rewards account, earning points which translate to dollars, and enabling pharmacists to access biometrics and health status information electronically.

Compatible Walgreens devices include a wrist-worn blood pressure cuff, a traditional blood pressure cuff and a blood glucose meter.

Whether patients are transitioning from hospital to the home or managing

its 2net Platform and Hub (see Figure 1) and saw compelling results with improved health outcomes and patient satisfaction.

TBS GB, a subsidiary of TBS Group, specialises in the management of healthcare technology, provides telehealth technology and logistics support to Orla Healthcare, a private provider of home health services in the UK. Focused on streamlining transitions of care, the 400 patient pilot saved 2,000 hospital bed-stays, had zero unavoidable re-admissions and saw a 99% patient satisfaction rating.⁴

Patients in the pilot were admitted to the Princess Alexandra NHS Hospital (Harlow, UK) and treatment was provided at the patient's home with a telemedicine kit comprised of a blood pressure monitor, a pulse oximeter, a telecare device (GPS location system and alarm button) and a 2net Hub to capture and transmit biometric data from the patient's home to the 24/7 clinical support team. The patient data was visualised using Medixine Clinic, Qualcomm's cloud-based software program that enables biometric data visualisation, triage management, and at-risk patient population management.

Following this success, TBS GB and Orla Healthcare extended the pilot to include early discharge of ward patients, transitioning in-patients from wards and treating them at home.

This service is unique within the NHS and is made possible by Orla's consultant-led team and TBS GB's technology solutions enabled by Qualcomm Life's 2net.



Figure 1: Schematic of Qualcomm's 2Net platform and hub for connecting healthcare.

MOVING AHEAD

As the industry moves ahead with the uptake of digital health, there are several hurdles that need to be addressed, including data interoperability, security and privacy. While the technologies are in place to allow clinicians, GPs and patients access to data anytime, anywhere, the healthcare industry itself just isn't ready. Each institution uses different systems – including payment systems and regulatory frameworks.

Qualcomm Life is working to accelerate and enable connected health by providing pharmaceutical companies, medical device manufacturers, and healthcare providers with our scalable, connectivity infrastructure across the care continuum.

We can also help national health systems, such as the NHS, address some of the challenges of scaling-up telehealth

by effectively capturing data across the continuum of care in the UK, compliant with all UK rules for data privacy, and compliant with the medical directive.

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LONDON CONFERENCE

Thomas Olesen will be speaking on this topic at forthcoming the Management Forum "Connectivity in Medical Technology Conference" in London, UK on June 23-24, 2016. He invites readers to join him in London to help find a solution for moving forward with digital health and helping the NHS and other institutions address the challenges that come with embracing digital health initiatives.

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