



CONNECTED CARE:

The New Healthcare Paradigm

The holistic view that puts the patient at the centre of the healthcare system

By Inga Louisa Stevens, Contributing Writer

In an era of technological dominance and digital innovation, Connected Care is becoming the model of healthcare delivery that everyone is hedging their bets on and it is now at a critical juncture in terms of its adaptation into mainstream healthcare delivery.

According to the Alliance for Connected Care, that describes Connected Care as the “real-time, electronic communication between a patient and a provider, including telehealth, remote patient monitoring, and secure email communication between clinicians and their patients,” challenges such as legal and regulatory barriers continue to limit mainstream acceptance of this technology.

Despite these challenges, healthcare providers such as hospitals, clinics and primary healthcare centres are adapting to Connected Care to help define the future of how they deliver care to their patient population. For Dubai-headquartered Aster DM Healthcare, the concept of Connected Care refers to the ability of a healthcare provider to be there for their patients beyond the walls of their clinics and hospitals.

“Since our very inception, we have believed in providing efficient and personalised medical care to our patients. And now with our Aster at Home services

we are able to be there for our patients at any time during the day, for whatever their medical needs may be,” says Dr Shaji Aleadath Hydrose, who is a general practitioner at Aster Clinic, Al Quoz in Dubai, UAE. “We believe that happiness in healthcare can be enhanced tremendously by delivering it in the comfort of the homes of the people who require it.”

Aster home services consist of three primary avenues:

- Aster Chronic Care@home – This home care service involves the daily monitoring of diabetes and hypertension using an Intelligent Health Service Platform. This platform allows for remote glucose monitoring, remote blood pressure monitoring, real-time feedback, interventions, and customised advice.
- Aster Grace Nursing and Physiotherapy (Abu Dhabi) – The Aster Grace service provides nursing and physiotherapy services to patients at their homes. Services are delivered on an intermittent basis according to the plan of treatment established by the patient/family, patient’s physician and home healthcare staff. These services include skilled nursing, physical therapy, home care doctor, respiratory therapy.
- Doctor on Call (800 Aster) – The 800

Aster service is a mobile medical practice available 24/7, 365 days in a year, at an individual’s residence, hotel or workplace. Their physicians provide non-emergency treatment for fevers, upper respiratory tract infections, cough and colds, flu, vomiting and diarrhoea, allergic reactions dizziness, gastrointestinal and urinary tract infections etc. The service excludes major and surgical cuts, heart attack or cardiac arrest, substance abuse (alcohol, drugs, etc.), physical abuse, assault, or any other life-threatening injuries.

The use of connection technology is most prevalent at the Aster Chronic Care@home service. As Hydrose explains, “Every patient that avails of the service is provided with a Bluetooth enabled, wireless, sleek and advanced Blood Pressure Machine and Blood Glucose Machine. The patients are then advised by the doctor on the frequency with which to take their blood pressure and glucose readings, which are uploaded to our server using a smart app. These readings are constantly monitored by the Aster Chronic Care@home team, and if they pick up any panic values, the patient is immediately contacted, and remedial actions will be taken according to the advice of the clinician.” ▶



Data analytics is central to the delivery of Connected Care at Aster DM Healthcare. The demographic data, medical history, past medication and the number of years that they have had high blood pressure or high blood sugar is collected from the 630 active patients using the Aster Chronic Care@home service. This range is personalised for every patient, depending on the medical information that they provide.

Once the patient begins the service, their blood pressure and blood glucose levels will be constantly monitored. In case there is a deviation in any of these two metrics, the control centre would ask

the patient the following questions:

- 1) What was your diet?
- 2) What kind of exercise did you do?
- 3) Did you take your medications?
- 4) Do you have anything specific to share?

The responses and the change in their blood pressure/blood sugar values will then be fed back to the patient's clinician. From there, the clinician or nursing assistant will give the patient the necessary advice needed to regulate their blood pressure/ blood sugar level back to normal.

"The core reason for the inclusion of technology in healthcare is to ensure that the same services are made available to

patients, but at a greater convenience.

With Aster Chronic Care@home, patients are given a special kit that includes items such as Bluetooth enabled Blood Pressure Machine and Glucometer," Hydrose explains. "Thus, the patients themselves are the ones that initiate the collection of data regarding their blood pressure and blood sugar levels. Due to the portable nature of the devices in the kit, patients do not need to be in one standard location every time they take their readings."

"Furthermore, apart from their regular quarterly visits, patients do not need to come all the way to see their clinicians.

Any changes in their numbers are dealt with and advised by their clinicians over the phone,” Hydrose adds.

Meanwhile, under the FreeStyle Libre brand, Abbott Laboratories also provides a platform of digital solutions that helps people living with diabetes manage it more seamlessly while enabling them to connect and share their glucose data with their caregiver network. Through this platform, all concerned people will have a better understanding of their patient’s diabetes status and will be empowered to provide better care and treatment to the patient.

Following the introduction of the latest life-changing technology in glucose monitoring by Abbott Laboratories for people living with diabetes, the value

through a cloud-based software called LibreView,” explains Hani Khasati, who is the general manager at Abbott Diabetes Care for MENA & Pakistan.

Connected Future

Looking towards the future, conversations turn towards what components are able to further enhance and enable more integrated Connected Care – be it technological advancements, strengthened stakeholder partnerships, better funding models, or the influence of deeper patient engagement in the Connected Care model.

According to Hydrose, some of the elements that can enable connected care further include a greater use of

vulnerable attack surface.

“Network- and cloud-connected medical devices used in clinical settings – nurse stations, patient monitors, communications, networks, diagnostic devices, testing, scanning systems, blood gas analysers, and more – are just as much at risk as healthcare IT networks, laptops, and tablets,” he explains. “Typical attacks targeting such devices are ransomware, internal and external data exfiltration, distributed denial-of-service attacks, malware introduced via infected external memory devices, and network attacks. A single connected medical device can potentially be exploited to enable large-scale data theft.”

Moore describes a typical threat scenario that targets poorly secured

The security and safety of medical equipment that facilitates Connected Care is also of critical importance and is a huge consideration for healthcare providers and medical device and software manufacturers as we continue to develop its capabilities.

of the FreeStyle Libre Flash Glucose Monitoring System is further enhanced by FreeStyle LibreLink[^] and LibreLinkUp[~] mobile apps.

FreeStyle LibreLink is a mobile app that enables FreeStyle Libre system users to access glucose data directly from their smartphones, eliminating the need to carry the separate FreeStyle Libre reader (a handheld device used to scan the FreeStyle Libre sensor to get a glucose result).

LibreLinkUp is an app that enables caregivers of people living with diabetes to remotely monitor their loved ones’ glucose readings.

“With this integrated and innovative solution, the patient remains at the centre of attention and care. Healthcare providers are also empowered to efficiently manage their patients’ diabetes by uncovering glucose trends and insights via graphs and reporting available

technology – video tools, digital apps, cloud servers to store information, and more sophisticated equipment to gather greater patient data – to provide remote care from the physicians to the patients.

“In addition, the development of technology will allow us to deal with more medical conditions remotely, and precisely, thereby providing more holistic treatment to patients while making it convenient for them to get themselves treated,” he adds.

The security and safety of medical equipment that facilitates Connected Care is also of critical importance and is a huge consideration for healthcare providers and medical device and software manufacturers as we continue to develop the capabilities of Connected Care. According to Tom Moore who is vice president of worldwide OEM sales for McAfee, like any other Internet of Things (IoT) devices, medical equipment is a

medical devices – all of which could have devastating implications, with the potential for costly data breaches.

“For example, this could be an employee (either inadvertently or with malicious intent) who installs malware on a connected medical device via a USB drive. The malware connects the infected device to an external command and control server and the perpetrator could wipe out the data and overwrites a server’s Master Boot Record affecting hundreds or thousands of devices, potentially disabling them.”

While McAfee helps medical device manufacturers thwart attacks and comply with strict regulatory mandates and requirements by providing an array of embedded security solutions, it is the responsibility of the entire healthcare continuum to ensure that patients remain adequately protected in this era of Connected Care facilitated by advances in technology. **AH**