

Lessons learned from Arab Health 2023:

Unlocking the potential of Connected Medication Management in the UK

A special report from Arab Health 2023, supported by Becton Dickinson (BD)

Overview

In January 2023, Newmarket Strategy and BD, a global medical technology company, were part of a delegation of UK health leaders travelling to the global healthcare conference Arab Health in Dubai, United Arab Emirates. The purpose of the visit was to learn more about Connected Medication Management (CMM) and the role it can play in solving some of the most pressing challenges faced by health systems today.

Connected Medication Management is a technology-driven approach to medication management that uses digital and automation technologies. It aims to optimise medication use by reducing medication errors to improve patient safety, whilst delivering productivity gains for the NHS. It also frees up nursing and other clinical staff to provide more patient care.

As part of the visit to Arab Health, the delegation visited The Cleveland Clinic Abu Dhabi (CCAD) to see cutting-edge CMM technology in situ and learn more about the role the technology has played in advancing standards of care in the hospital.

The delegation also took part in a roundtable event, which brought together health leaders from across the Middle East and the UK to discuss the barriers to uptake of CMM technology in the NHS, seeking to explore how they can be overcome and what lessons can be learned from the experience of other countries and health systems.

Medication management in the NHS today

Innovative medicines are helping to transform healthcare in the UK, improving patient outcomes and providing more targeted treatments for a variety of conditions. The NHS in England spent £17.5bn on drugs in the year 2021/22, it is the second highest area of spending in the NHS, after staffing costs. Over the last decade the drug spend in hospital has risen to 50% of the total NHS drugs bill and is expected to continue to rise further in the years to come. An ageing population, with a growing number of people living with co-morbidities together with innovation in medicines means that demand is likely to continue increasing. There has for example, already been a doubling in the volume of prescribing in primary care in the past twenty years and approximately 15% of the population now take 5 or more medications a day.

“Connected Medication Management technology has a critical role to play in optimising medicines use. It can reduce harm to patients caused by medication errors and helps manage the drugs bill, whilst freeing up staff to provide more patient care.”

Dr Keith Ridge CBE, former Chief Pharmaceutical Officer for England

“Medication errors are a significant and growing threat to patient safety. Inaccurate prescribing and administration of medications, as well as poor communication between healthcare professional can all lead to adverse events and even death.”

Dipak Duggal, Director of Global Medical Affairs, BD

In addition to the cost of medicines to the NHS, one of the greatest challenges in UK medicines policy is the role medicines play in the harm of patients, particularly through medication errors. NHS England defines a medication error as any, ‘unintended or unexpected incident, which could have or did lead to harm for one or more patients receiving NHS care’. Research commissioned by the Department of Health and Social Care estimates that there are approximately 237 million medication errors in the UK each year, 66 million of which are clinically significant and have the potential to harm patients, their loved ones, and our communities. The research also estimates that medication errors cause or contribute to 1,708 deaths each year. However, preventing medication errors is complex, with the potential for errors to occur at any point along the journey from prescribing the medicine, dispensing the medicine in a hospital pharmacy to administering the medicine at the patient bedside.

In the past decade, there have been significant advances in patient safety. The government, NHS, patient groups and industry have worked together to raise awareness and improve the understanding of the risks to patients when receiving care in the NHS. Much of this has been driven by improving and refining processes – putting in place cultural, procedural and regulatory changes that have all helped to minimise the scope for human error. National investment in electronic prescribing systems has helped. Hospital chief pharmacists have also sought opportunities at a local level to introduce other technology to improve safety and efficiency, but this has been piecemeal and dependent on local investment and priorities.

“Digital technology is playing an increasingly important role in improving patient safety by helping healthcare professionals to track, monitor and dispense medications – helping to reduce opportunities for potential patient harm.”

Clive Flashman, Chief Digital Officer,
Patient Safety Learning

But medication safety continues to be a major challenge for the UK health system, with studies showing that prescribing, dispensing and medicines administration errors constitute the highest adverse events in hospitals and have significant economic and health consequences. While there has been some success in addressing the issues that enabled the conditions for the repeat harm caused to patients, there is a need to embrace new tools and new ways of working more comprehensively if we are to continue reducing the scope of possibility for medication errors to occur.

The Covid-19 pandemic caused unprecedented disruption to the NHS, with first the challenge of treating waves of patients infected with the virus and now in tackling the record numbers of people awaiting treatment in part as a consequence of the national lockdown. To meet this challenge, the NHS has redoubled its efforts to deliver greater levels of productivity and efficiency. However, the service is still expected to maintain progress on patient safety.

How then, can the NHS confront the challenge of becoming more efficient while continuing to make progress on patient safety?

The answer to a large part of this question may have been found during the delegation’s trip to Arab Health – through harnessing the power of data and technology and building automated and connected systems that can deliver both productivity gains and mitigate the risk to patients from medication errors.

A vision of connected medication management

CMM can enable hospitals to better track and manage medication, whilst reducing time consuming manual tasks, helping to release healthcare professionals to focus on important clinical duties, while also reducing patient harm from medication errors.

At the Cleveland Clinic Abu Dhabi, the UK delegation saw first-hand how CCAD had integrated CMM technology into the design and build of the hospital, ensuring harmony with modern care practices and providing a seamless experience for staff and patients.

CCAD has managed digitally to connect each element of the medicines management process. Electronic prescribing is fully integrated to the patient record system. Prescribing drives the ordering of medication from the hospital pharmacy. In the hospital pharmacy, automated technologies are used to store, dispense and label medicines, with each individual dose of medicine having a unique barcode, and assigned for an individual patient. This includes injections as well as oral medications, and Controlled Drugs. This frees up clinical pharmacists to carry out more patient facing clinical duties. At ward level, secure, automated dispensing and storage devices, linked to the patient record system, guide nurses to the medicines a patient is prescribed, speeding up the drug round, whilst the bar code system enables the nurse to confirm the right drug for the right patient. The patient's medication record is updated accurately and automatically. Medicines stock levels at both pharmacy and ward levels are optimised, as is wastage. This 'closed loop' approach to medicines use is safer and more efficient. The data generated by the system enables the chief pharmacist and other clinical staff to have much greater visibility on medicines use and can also drive relevant planning and efficient procurement.

While much of this technology is available in the UK and the potential benefits of CMM are well recognised within the NHS, to date, uptake of the technology has tended to be locally driven, slow and piecemeal, which has led to a fragmented approach to its adoption and large variation in the capabilities of hospitals throughout England.

Key enablers to unlock CMM benefits

The roundtable discussion at Arab Health uncovered three key enablers to help unlock the benefits of CMM technology in the UK

1. Collaborative working and building the evidence base

“Thinking about how digital technology is integrated into the design and build of our hospital facilities is vital to building an NHS fit for the 21st Century”

James Davis, Chief Innovation Officer, Royal Free London NHS Foundation Trust

“Our CMM system enables us to track, monitor, and manage medications more accurately and efficiently, helping us to reduce the risk of medication errors and ensure that the right medication is prescribed and administered to the right patient at the right time.”

Dr Khalid Abdel Dayem, Senior Manager, Automation and Informatics, Cleveland Clinic Abu Dhabi

The complex and broad impact of CMM technology on hospitals means there is a need to build consensus for a shared vision amongst a wide group of stakeholders across the system. Developing the evidence base to deliver effective implementation whilst demonstrating the clinical and cost effectiveness of the technology should be part of this.

“Chief Pharmacists cannot realise this vision alone, and it will require engagement and buy-in from stakeholders from across the NHS to successfully implement CMM technology.”

Jatinder Harchowal MBE, Chief Pharmacist, UCLH NHS Foundation Trust

The implementation of CMM technology has traditionally been the responsibility of hospital chief pharmacists, however, they cannot realise the benefits of the technology alone. Building trust and collaboration between stakeholders such as nurses, patients, industry, academics, policymakers and hospital leadership teams, is key to ensuring the technology meets the needs of patients and end-users.

This should be supported by a culture of learning, evaluation and feedback, where users can support the continual improvement of the systems, helping to create a collaborative environment which can help foster innovation and develop new solutions that work for all.

“Developing a shared vision and support from across both the NHS and government will be vital if the NHS is going to keep pace with other health systems and unlock the benefits of CMM.”

Ed Jones, Senior Partner, Newmarket Strategy

Moreover, the government and national policymakers also have a key role to play in supporting the adoption of the technology. By setting ambitions and allocating funding for the digital capability and connectivity of hospitals they can act as a lodestar for the NHS, helping to inspire more joint working and encourage more hospitals to begin and complete the CMM journey.

2. Increased interoperability through standardisation

Developing a set of agreed data standards and protocols for CMM technology is key to supporting more widespread adoption of CMM technology.

One of the biggest challenges to date in implementing CMM into hospitals has been poor interoperability of the technology, either with the hospitals' existing digital infrastructure, or between the technology of different suppliers.

“Developing standardised systems is key to fulfilling the vision of CMM technology”

Stephen Tomlin, Director of Children's Medicines Centre, Great Ormond Street Hospital

Developing and agreeing a common set of data standards can help to ensure that a hospital's digital infrastructure has a common language, enabling the easy, safe and secure transfer of data throughout the hospital. Standardisation can also help support delivering CMM at scale, enabling different health organisations, across an ICS for example, to communicate and share data, enabling leaders to manage their medicine spend across a much greater area.

It can make training staff easier too, as staff who move between different health organisations are not required to learn multiple different systems. This would help reduce the resource needed to train staff on use of the technology, as well as help ensure that the technology is being utilised to its full capabilities.

Building interoperable systems with harmonious standards and protocols should be a keystone in supporting the successful adoption and implementation of CMM technology in the NHS.

Similarly, there are opportunities to standardise elements of clinical practice, for example, standardising how some medicines are used would lead to safer practice and improved efficiency, while facilitating greater and better use of CMM.

3. Harmonising CMM with the current purchasing model

How the NHS purchases drugs has also reduced the speed in which CMM technology has been adopted, as it has been unable to directly translate and apply lessons learned from other health systems. Other health systems that are more advanced in their use of CMM, such as the USA and some parts of Europe, have a much wider use of “unit dose”, a process whereby medicines are dispensed in pre-measured, uniform doses. Unit dose enables closed loop and verifying individual dose by scanning and provides accurate costing of a patient’s consumption of medicines in health systems where this is necessary, whilst also reducing diversion of medicines.

The NHS purchases medicines in packs, some of which then undergo a manual process of preparation by hospital pharmacy staff to ensure the correct dosage is dispensed. This means that for the NHS successfully to build a closed-loop, connected medication management system, it must plough its own furrow, and develop systems and practices that are different to those of international comparators.

Developing a strategy for how to harmonise CMM technology with the current purchasing model for medicines will be key if the UK is to realise the full benefits of CMM technology. Alternatively, the NHS could explore the risks and benefits of switching to a unit dose system.

“There is an opportunity for industry to take a leading role in support the adoption of digital technology in the NHS. Demonstrating how CMM technology contributes to population health management will be critical.”

Neville Young, Director of Enterprise and Innovation, Yorkshire and Humber AHSN

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- Ed Jones, Senior Partner, Newmarket Strategy
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- Jatinder Harchowal MBE, Chief Pharmacist, UCLH NHS Foundation Trust
- Stephen Tomlin, Director of Children’s Medicines Centre, Great Ormond Street Hospital
- Clive Flashman, Chief Digital Officer, Patient Safety Learning

- Dr Khalid Abdel Dayem, Senior Manager, Automation and Informatics, Cleveland Clinic Abu Dhabi
- Neville Young, Director of Enterprise and Innovation, Yorkshire and Humber AHSN

A message from BD: Our commitment to a safer, smarter health system

BD's mission is to 'advance the world of health' and we are focused on developing innovative solutions that help to reduce healthcare costs, improve patient outcomes, and ultimately save lives. However, we recognise we cannot do this alone.

We are committed to working in partnership with stakeholders from across the health system to help the NHS meet the challenges of today, while creating a safer, smarter health system that delivers the best possible care for patients.

For more information, please contact Mike Houghton, Senior Manager at Newmarket Strategy at mike.houghton@newmarket-strategy.com