SAFE

THE NEW UK STANDARD OF CARE

BANISH MEDICATION ERRORS

REPORT

SECONDARY CARE CHAPTER

Omnicell™

BACKGROUND

The NHS has been hit by an uncomfortably stark fact – that 237 million medication errors are occurring in England each year as a result of working practices around prescribing, transition, dispensing, administration and monitoring.[1] These errors are cutting across multiple sectors and clinical professions and come at a cost to patients and to the NHS.

Medication errors are a global problem and it was the World Health Organization (WHO) calling for medication errors to be cut by 50% in the next five years[2] that prompted the Department of Health and Social Care to commission its own research into the extent and scale of medication errors. Its review, Prevalence and Economic Burden of Medication Errors in the NHS,[1] was accompanied by a report from the Short Life Working Group (SLWG) outlining the Department's implementation plan for reducing medication errors.[3] The key priorities identified were employing new technology, improving transparency and fostering a culture of learning rather than blame.

It seems that this time the Department is serious about offering the support to see it through. Patient safety has been catapulted to the top of the political agenda and all eyes are on it. The Chair of the House of Commons Public Accounts Committee has stated that the committee will scrutinise what the Department is doing to take the agenda forward, meanwhile extra funding is expected to follow, reinforcing the gravity of the situation and the urgency for dealing with it.

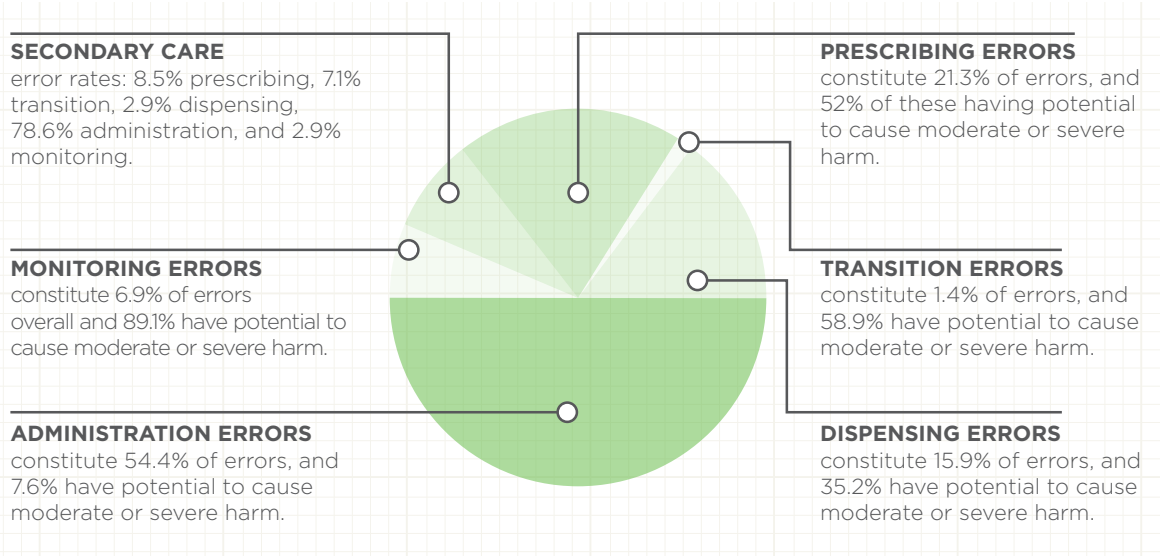
THE SCALE AND IMPACT OF ERRORS IN SECONDARY CARE

Medication is the second largest outgoing in the NHS after staff costs, with a total annual drug expenditure of approximately £16 billion.[4] This financial burden is exacerbated further by medication errors. Although the majority of the 237 million medication errors that occur in England each year cause no problems, one in four has the potential to cause moderate and severe harm. Avoidable adverse drug reactions in England cost £98.5 million a year[1] and the cost of litigation as a result of medication errors is more than £6 million because of anaesthetic errors alone.[1]

NEW WAYS OF WORKING MEDICATION ERRORS IMPACT[1]

The research conducted on behalf of the Department by Manchester, Sheffield and York universities for the first time gave insights into the widespread prevalence of medication errors and their impact on the NHS. It found that across all sectors:

- Of the 237 million medication errors, 72.1% are classed as minor with little or no potential for clinical harm, while 25.8% and 2.0% of errors have the potential to cause moderate and severe harm, respectively. These are spread across the following areas:



- Harm caused by medication is referred to as an adverse drug event (ADE). ADEs in England have previously been estimated to be responsible for 850,000 inpatient episodes, costing £2 billion in additional bed-days and increased mortality. ADEs can occur even when the medicine is prescribed appropriately, (e.g. due to overdose, adverse drug reactions (ADRs) or allergies)
- The estimated annual cost to the NHS of avoidable adverse drug reactions (ADRs) is £98.5 million per year, consuming 181,626 bed days, causing 712 deaths and contributing to 1,078 deaths
- Adverse Drug Reactions (ADRs) that occur in secondary care lead to a longer hospital stay (£14.8 million; causing 85 deaths and contributing to 1,081 deaths) but the transition of patients across sectors means the problem impacts at multiple settings.

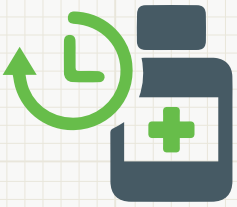
THE IMPACT OF MEDICATION ERRORS ON THE NHS

237 MILLION MEDICATION ERRORS OCCUR AT SOME POINT IN THE MEDICATION PROCESS PER YEAR.

£98m

per annum

THE ESTIMATED COST OF MEDICATION ERRORS TO THE NHS.



MORE THAN ¾ OF MEDICATION ERRORS IN SECONDARY CARE HAPPEN DURING ADMINISTRATION.

IT IS ESTIMATED THAT MEDICATION ERRORS IN THE NHS HAVE CAUSED 712 DEATHS AND CONTRIBUTED TO 1,708 DEATHS DURING HOSPITALISATION.

850,000

ADVERSE DRUG EVENTS IN ENGLAND HAVE PREVIOUSLY BEEN ESTIMATED TO COST £2BILLION IN ADDITIONAL BED DAYS.

IN NOVEMBER 2017, JUST 35% OF ACUTE TRUSTS AND LESS THAN 12% OF MENTAL HEALTH ORGANISATIONS HAD INTRODUCED THE NECESSARY ELECTRONIC MEDICATION SYSTEMS.

WHERE AND HOW ERRORS OCCUR

Medication is part of a complex ecosystem and is why, in the absence of a rigorous automated system and safety net, errors are inevitable. The medicine journey involves prescribing, dispensing, administering, monitoring, transition and finally use by the patient, and all these cut across different clinical professions (medicine, nursing and pharmacy) and sectors (primary, secondary and care homes).

Understanding where and how errors occur in the complex medicines journey can help focus attention on improving process and practices at those points.

In secondary care the significant contributor to medication errors is administration, accounting for 79% of errors. These errors are exacerbated by an increased volume of work and staff shortages. This makes it harder to deal safely and effectively with the rising number of people accessing services and an increasing older population with complex drug regimes and co-morbidities.

Further pressures are being put on staff time by the logistics of medicines supply and this is diverting clinical staff away from patient care and medicines optimisation that promote safety.[5,6] Administration errors vary and can involve the wrong medicine, patient, formulation and dose and may even include missing crucial patient information such as allergies.

Automated medicine administration systems which increase patient safety and recognise the increasing complexity of care for a population that is ageing and living with different health conditions is a vital part of the solution. Technology provides a safety net for busy healthcare professionals and ensures the patient is getting the right dose of the right drug at the right time, all backed up by an accurate and real-time audit trail.

RECOMMENDATIONS AND THE ROLE OF TECHNOLOGY

• TRANSPARENCY

Some of the SLWG recommendations have already been realised. The call for transparency and a culture that learns from mistakes have been partly met by the introduction a new law decriminalising genuine medication errors made by pharmacists. Sandra Gidley, chair of the Royal Pharmaceutical Society's English Pharmacy Board, stated at the time of the SLWG report that this "will play a significant role in reducing medication errors."[7] Duncan Rudkin, chief executive of the General Pharmaceutical Society, also welcomed this saying it will lead to "improved reporting and learning".[8] Meanwhile, the NHS Specialist Pharmacy Service has been tasked with creating an online repository of good practice in the safer use of medicines and a searchable database is due for launch later this year.[3]

Technology in medicines administration is likely to play the biggest part in reducing medication errors in secondary care and the Department has made the implementation of hospital electronic prescribing and medicines administration (ePMA) systems an urgent priority." And put it directly under the technology heading.

• TECHNOLOGY

Although electronic prescribing in primary care is now well established, the roll out of its secondary care equivalent has been slow. In November 2017, only 35% of acute Trusts and 12% of mental health organisations were using ePMA and yet the benefits are proven.[3]

Even without optimisation, a recent National Institute for Health Research (NIHR) study found that high-risk medication errors could be reduced by up to 50%, and the system was cost effective too.[3] The SLWG

acknowledges that implementation and optimisation of these systems is challenging and is the main barrier to roll out, but adds that "the rewards more than outweigh this".

To this end it has provided an ePrescribing toolkit to support sites looking to implement ePMA. The Global Digital Exemplar (GDE) Programme will provide additional blueprints for implementation, however the SLWG warned, "the NHS should not wait [for these] to accelerate deployment... In the context of robust evidence of clinical and cost effectiveness, the group considered that roll-out of ePMA must be accelerated."[3]

• INTEGRATION

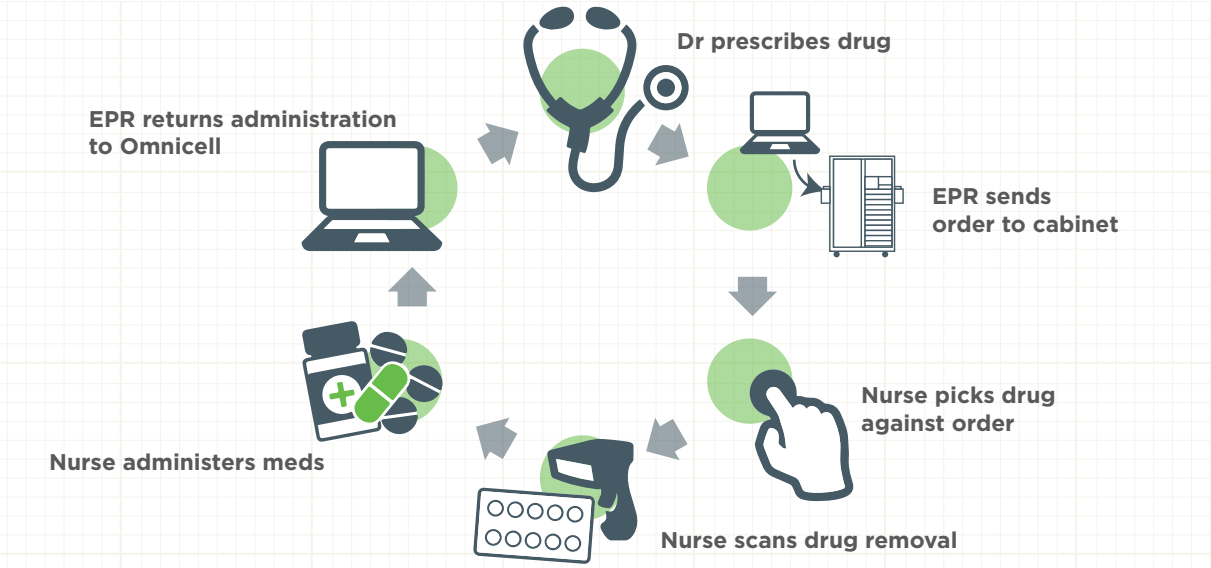
Automation has also been shown to prevent and eradicate medication dispensing errors in a number of ways including reducing selection errors.

As part of the ePMA programme, work is being done by some Trusts to link ePMA with automated medication cabinets. Putting the two systems together means there is additional patient safety measures in place from the moment the drug is prescribed to the moment the drug is administered to the patient.[9]

AN EXAMPLE OF THIS PROCESS WOULD BE:

- The doctor prescribes the patient medication electronically to the patient via the ePMA system
- The ePMA system sends the prescription to the automated medication cabinet
- Nurse selects the patient's name at the cabinet. They then see what drug and dose has been prescribed for them. This can even be queued up at the cabinet remotely from the patient's bedside. At the cabinet the nurse is guided to the medication in the cabinet.
- The nurse then takes the drug and administers it to the patient and this is recorded on the ePMA system.

Further work is being done on creating a digital closed loop prescribing system that puts in place further safeguards between medication being taken from the cabinet and administered to the patient.



KEY PRIORITIES OF SLWG – HIGHLIGHTS FOR SECONDARY CARE[3]

- Improved shared care between health and care professionals; with increased knowledge and support.
- Professional regulators must ensure adequate training in safe and effective medicines use is embedded in undergraduate training. Professional leadership bodies, working with professional regulators, must ensure continuing professional development adequately reflects safe and effective medicines use too.
- Professional regulators and professional leadership bodies should also encourage reporting and learning from medication errors.
- Work with pharmacy dispensing computer system suppliers to ensure that labelling contributes to safer use of medicines and does not hinder.
- The accelerated roll-out and optimisation of hospital e-prescribing and medicines administration systems.
- The development of a prioritised and comprehensive suite of metrics on medication error aimed at improvement.
- Development of a repository of good practice to share learning.
- New research on medication errors should be encouraged and directed down the best avenue to facilitate positive change.

CASE STUDIES – HOW IT WORKS IN PRACTICE

In an increasing digital age, automation is the key to aiding patient safety. The use of automated medicines cabinets in secondary care helps in reducing the risk of selection errors whether for dispensing or administering. Robust automated checking of medication and the use of barcode scanning can also help reduce incorrect selection. The following case studies give real examples of how Trusts have implemented automation to reduce medication errors.

• NORTHUMBERLAND TYNE AND WEAR NHS FOUNDATION TRUST[9]

The Trust is a Global Digital Exemplar and recently consolidated its three pharmacy departments into a single dispensing hub. The Trust uses Omnicell's automated medication dispensing cabinets in many of its wards and an Omnicell VBM 200F to fill its medication adherence packs.

After three months of use, they found that the automated system

- Significantly reduced medication error rates for dispensing patient adherence packs.
- The non-automated error rate prior to installation was 0.69%*. However post implementation no errors (0%) were associated with the VBM automated dispensing system itself. This meant that machine itself provided 100% accuracy throughout the dispensing process.
- As a result, six months after implementation the pharmacy is so confident with the accuracy provided by the system that they are now removing the second pharmacy check.

The Trust also has over 30 Omnicell cabinets installed across more than half of its wards. Since installation, there has been a 20% reduction in medicines incidents and 64% reduction in incidents relating to controlled or misusable medicines. In addition, there has been a 71% increase in Pharmacy Clinical Interventions as clinical pharmacy staff have been freed up from the medicines supply chain and are now more involved in patient facing roles. This means they are better placed to make timely interventions to improve quality of care.

"We've had really positive experiences with Omnicell technology. It's now clear that the VBM will allows us to almost eliminate pharmacy dispensing errors. I think that everything that can be done around improving the human element of pharmacy processes and ways of working has been done so I can't think of any other intervention that will allow us to make a step change around patient safety other than technology." – Ewan Maule, Deputy Chief Pharmacist, NTW Mental Health NHS Foundation Trust.

* based on six months of data. Error rate was determined by number of errors observed divided by the opportunities for errors and multiplied by 100.

- ## NORTHUMBRIA EMERGENCY CARE HOSPITAL[9]

Northumbria Specialist Emergency Care Hospital based in Cramlington, opened in 2015 and is the first purpose-built hospital in the country to have emergency medicine consultants on site 24/7, and specialist consultants in a broad range of conditions working seven days a week.

After a successful 18-month trial of Omnicell's systems in two North East general hospitals, a total of 24 medication automation cabinets are now in use across various departments including emergency care and theatres. Following the success of the project, another seven medication cabinets have been installed across Northumbria Healthcare hospitals. The Omnicell systems allow clinical staff to order, manage and control the usage of medicines, whilst ensuring patient safety and more time for face to face patient care.

SINCE INSTALLATION THE OMNICELL SYSTEMS HAVE:

- Improved patient care and medicines management by utilising patient safety features such as dispensing alerts for allergies, NPSA alert compliance and antibiotic stewardship
- The Trust has seen a 0% critical missed dose rate

FEATURES OF AUTOMATED MEDICINES CABINETS[9]

Automated medicines cabinets can reduce medication errors in secondary care in a number of ways including:

- Reducing incidences of missed doses or double doses
- Reducing picking errors e.g. guiding light technology
- Managing stock effectively to avoid giving patients expired stock
- Interactive allergy alerts and clinical alerts
- Automating and making more secure the controlled drugs process
- Closing the loop through ePMA integration - so what is prescribed is what is administered
- Secure fingerprint login to ensure authorised staff have ready access so patients get the right dose of the right drugs when they need it.

CONCLUSION

With 237 million medication errors occurring each year and more than 22,000 deaths linked to errors[1], the message is out there loud and clear – something needs to be done.

Technology and joint working practices are top of the agenda in bringing change. Technology acts as a safety net for busy healthcare professionals and ensures the patient is getting the right dose of the right drug at the right time, with an associated audit trail; transparency creates a learning culture where people across all healthcare professions and sectors can share knowledge and promote patient safety. Omnicell will support an introduction of Standards of Care in each setting to facilitate shared learning and showcase Trusts that have demonstrated benefits from new ways of working.

A solution that crosses boundaries and closes loops seems to be the answer.

Omnicell is once again this year implementing a SAFE (safeguarding against frontline errors) campaign amongst key opinion leaders within secondary care, care home and pharmacy settings in order to raise awareness of the impact of medication errors. The campaign aims to drive change and understanding the role of technology in tackling the problem. #BanishMedErrors for more information please visit www.omnicell.co.uk

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