

# SAFE Standard of Care

We all know that when medication is prescribed, dispensed and administered correctly it can dramatically improve the quality of patients' lives. But equally, if something breaks down in that process - between the prescription being written and the patient taking the drug - then medication has the potential to do great harm.



The academic study into medication errors across the NHS and wider healthcare settings, commissioned by the Department of Health and published earlier this year, has brought to the forefront of everyone's attention just how common it can be for mistakes to happen. Worryingly, the risk of error only increases in a climate like the one we are seeing currently - with staff over stretched and under pressure to deliver more for less. That's why it is more important than ever to look towards automation to ensure that a safety net exists, not only for NHS staff but for patients too.

As the study itself states, the roll-out and optimisation of electronic-prescribing and medicines administration systems in secondary care is crucially important as the benefits are now well documented. At Omnicell we've seen this for ourselves time and time again with our customers. We know from first hand experience that these

systems demonstrate, amongst other things, a substantial reduction in medication-related errors.

Yet despite this backdrop the uptake of these systems remains worryingly low across the NHS estate. The driving factor behind the low uptake is often down to a lack of funds. However we would urge Trusts to look at the level of investment required for automation against a set of other contributing factors. In 2007, the National Patient Safety Agency estimated that preventable harm from medication could cost more than £750 million each year in England. In addition, Adverse Drug Events in England have previously been estimated to be responsible for 850,000 inpatient episodes, costing £2 billion in additional bed-days. There's also the issue of potential litigation costs to the NHS if a medication error is so serious that it affects a patient's quality of life.

The publication of the Department of Health report

should be a wake-up call for us all. It's time for Trusts to start embracing technology to banish errors and improve patient safety. The Global Digital Exemplar programme provides the NHS with a great opportunity to share best practice and demonstrate how technology can reduce errors and improve patient safety as well as creating longer term efficiencies.

There needs to be a system-wide approach so that standards of care are raised across the board. That's why today Omnicell is calling for automated medication administration systems to be implemented alongside EPMA systems to dramatically reduce the risk of medication errors within secondary care.

**Paul O'Hanlon**  
Managing Director  
Omnicell UK&I

# When errors occur. The high cost of mistakes

Earlier this year a report commissioned by the Department of Health found that the scale of medication error is large and the burden to the NHS is significant.

The research was undertaken because, up until now, little information had been available on the harm caused to people as a result of medication errors. The authors of the report looked at data from 36 studies that detailed medication mistakes in primary care, care homes and hospitals.

The report concluded that every year in England 237 million mistakes occur at some point in the medication process. Of these errors, almost three quarters are classed as minor with little or no potential for clinical harm, however the remainder do have the potential to cause moderate and severe harm.

Not only does this cause serious issues around patient safety - it also places a significant burden on an already cash strapped NHS. The estimated NHS costs of

definitely avoidable adverse drug reactions are £98.5 million per year, consuming 181,626 bed days, causing 712 deaths and contributing to 1,078 deaths. Adverse drug events in England have previously been estimated to be responsible for 850,000 inpatient episodes and costing £2 billion in additional bed days. The economic cost of errors varies greatly - from between £60 for each error involving asthma inhaler medication to more than £6 million in litigation claims because of anaesthetic errors.

But with detailed planning and by embracing modern technology that already exists in the market place today, pharmacists may actually hold the key to being able to significantly reduce these figures.

Where mistakes are happening in the medication process in secondary care:



**8.5%** of errors occur during prescribing



**7.1%** of errors occur in transition process



**2.9%** of errors occur in dispensing process



**78.6%** errors occur during administration



**2.9%** of errors occur during monitoring

## Improving patient safety across secondary care.

# Using technology to tackle medication errors

Although it's widely known that electronic prescribing and medicines administration systems in hospitals have the potential to halve the incidence of high-risk medication errors, in November 2017, just 35% of acute trusts (where more than 80% of inpatients' prescriptions are written digitally), and less than 12% of mental health organisations had rolled out the necessary systems.

Electronic prescribing has been embraced by primary care for many years now. It works as a standalone system where doctors write prescriptions while sat at their computer with the patient often beside them.

In secondary care it is different – clinical staff are often rushing around the wards and issuing much more complex prescriptions. As well as electronic prescribing, being able to record the medication taken from the drug cupboard and link its administration to a particular patient is crucially important if we want to significantly reduce the toll of medication errors across the NHS. We need a system that allows the nurse to be able to select the prescribed drug safely, take it to the patient, do all the safety checks, administer the drug and then record its administration. This will ensure the five rights of administration - right drug, right dose, right time, right route and right patient.

By implementing EPMA systems as a standalone system you improve patient safety to a certain degree. But what it doesn't do is protect against the nurse picking the wrong drug or dose from the drug cupboard, selecting out of date stock or administering medication to the wrong patient. Given that over three quarters of medication errors within secondary care happen during the administration process, it's vital that Trusts put systems in place to safeguard against this. Omnicell systems provide this safety net as nurses are able to select the patient and see what drug has been prescribed to them. The unique guiding light system then takes them to the correct drug in the cabinet – significantly reducing the risk of picking errors.

## THE IDEAL SOLUTION

It's by implementing both EPMA systems and Omnicell automated medication cabinets alongside each other that Trusts can really make a difference. By putting the two systems in place together you are strengthening patient safety from the moment the drug is prescribed to the moment the drug is administered to the patient. We are already working with EPMA providers and Trusts across the UK to do just this and establish best practice around safe medication administration.



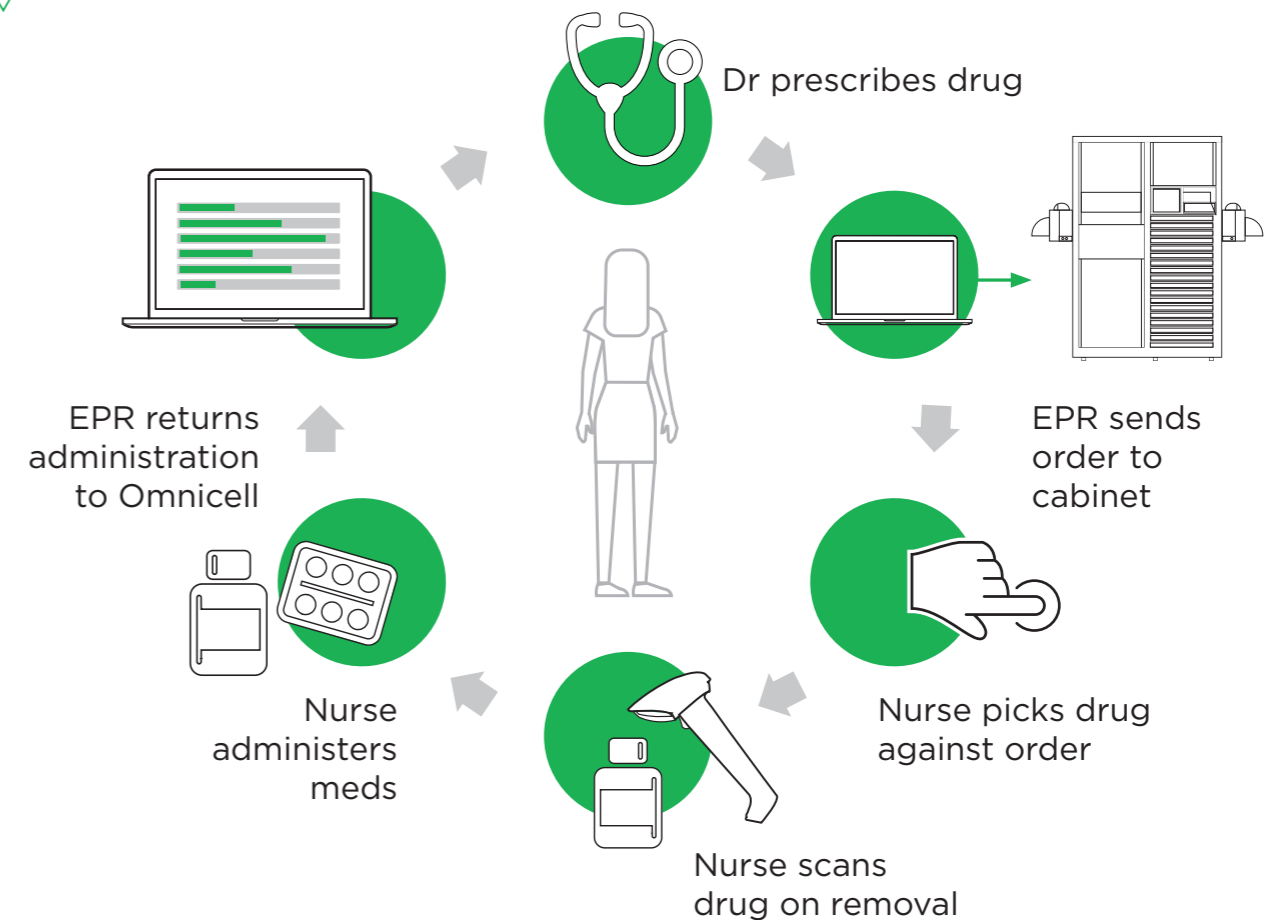
### HOW IT WORKS

- 1 The doctor prescribes the patient medication electronically to the patient via the EPMA system
- 2 The EPMA system sends the prescription to the Omnicell cabinet
- 3 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.
- 4 The nurse then takes the drug and administers it to the patient and this is recorded on the EPMA system.

# Closed loop prescribing A vision for the future?

As part of our EPMA integration work with some hospital Trusts in the UK, Omnicell is now looking at how processes can be strengthened further with a particular focus on what safeguards can be put in place between medication being taken from the cabinet and administered to the patient. As part of this we hope to establish a best practice path forward. One solution could be closed loop prescribing.

### HOW CLOSED LOOP PRESCRIBING COULD WORK

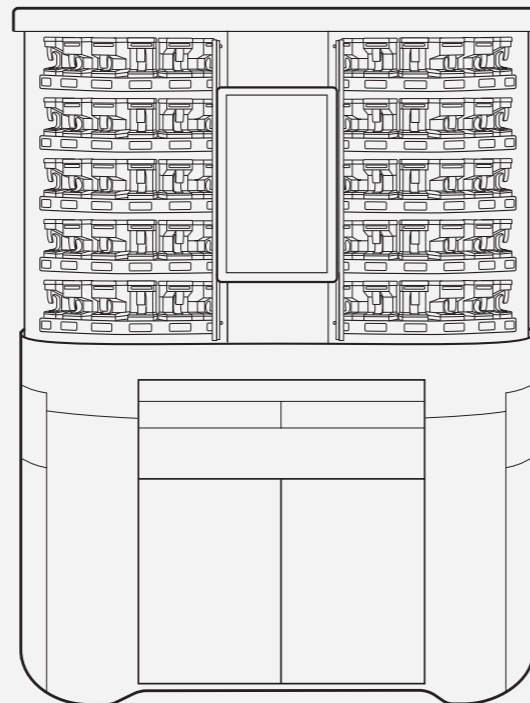


# 1 OMNICELL Platform, many systems

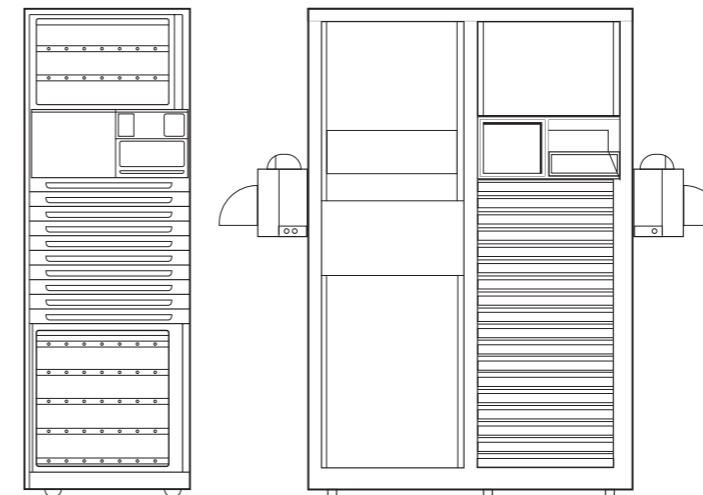
OmniceLL is a total solution provider for patient safety with systems available for all healthcare settings. For secondary care we would recommend having in place the following products to help Trusts to reduce the risk of medication errors:

## VBM

- Automates production of medication adherence packs to ensure patients leaving hospital on complex medication regimes take the right dose, of the right drug at the right time.
- Improved accuracy and reduced checking time with the ability to track and trace each medication packed
- Identifies each drug packed
- Smart medication trays are equipped with barcode and RFID technology, ensuring each pack is audited throughout the entire packing process
- Medication that cannot be filled by the system can be staged in the system to be filled manually at the same time as cassette medication - ensures all medication is checked via vision system before placement in the pack
- Uses on screen and guided filling technology to direct the operator to the correct drug and correct location within manual fill station - significantly reduces human error
- Identifies and validates medication based on size, shape and colour
- Scanning tray barcode triggers system to print the correct patient card



△ **PROVEN VISION TECHNOLOGY VERIFIES EVERY MEDICATION FOR EACH INDIVIDUAL BLISTER ENSURING ACCURACY**



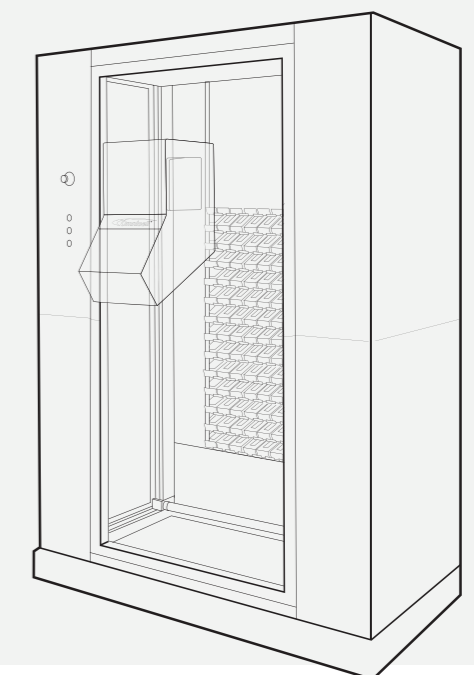
## Pharmacy XT cabinets

- Reducing incidences of missed doses or double doses
- Reducing picking errors thanks to unique guiding light technology
- Managing stock more effectively, avoiding any issues with stock expiry
- Interactive allergy alerts and clinical alerts
- Reducing risk of medication errors
- Automating the controlled drugs process with an electronic CD register making it more secure
- Closing the loop through EPMA integration - so what is prescribed is what is administered
- Secure fingerprint login - no more searching for drug cupboard key so patients get the right dose of the right drugs when they need it.

## Robotic Dispensing System

- More time spent with patients - experienced staff no longer waste time on operational tasks like restocking and stock rotation, machine does this for them
- Medication is sorted, stacked, stored and then picked by the RDS reducing the risk of picking errors. Robot uses picking heads and barcode scanners to identify medication
- Optimisation of expiry date management - ensures patients aren't accidentally given stock that is out of date.

**ENSURE THE ONGOING, SEAMLESS STORAGE AND SAFE DISPENSING OF MEDICATION**



Northumberland Tyne and Wear  
NHS Foundation Trust  
VBM and Automated Dispensing Cabinets

## Automation rollout across Trust reduces medication errors and patient harm and frees up valuable time for medicines optimisation



Northumberland Tyne and Wear NHS Foundation Trust provides mental health, learning disability and neuro rehabilitation services across North East England.

The Trust is a Global Digital Exemplar site 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.

“ We’ve had really positive experiences with Omnicell technology. It’s now clear that the VBM will allow us to almost eliminate pharmacy dispensing errors in medication adherence packs. I believe as much as what can be done around improving the human element of pharmacy processes 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 Health NHS Foundation Trust**

### The goals of implementation were to...

- release nursing time back into face to face patient care.
- enhance productivity to make the best use of limited pharmacy resource.
- enhance patient outcomes by expanding the reach of the clinical pharmacy service.
- save money and develop the commercial potential of the Trust.

### Benefits of installing VBM 200F for medication adherence packs

The Trust has commissioned Newcastle University to do an independent evaluation of the benefits but so far automation has:

#### Significantly reduced medication error rates for dispensing patient adherence packs.

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 after a three month period. This meant that machine itself provided 100% accuracy throughout the dispensing process.

While using the automated system, a small element of human interaction is still required and this did result in a minimal number of errors within the 3 month period (0.17%) either before or after the automated dispensing had occurred. Further staff training is helping to resolve these issues and it is thought that increasing the number of prescriptions dispensed by the VBM could reduce the risk of any potential human error even further.

As a result, six months after implementation the pharmacy is so confident with the accuracy provided by the system that they are now planning to remove the second pharmacy check completely.

#### Reduced time taken to dispense medication adherence packs and number of staff required in the dispensing process.

Prior to implementing the VBM, it took on average 20 minutes to manually prepare one pack. Post automation this was reduced significantly to just 3 minutes per pack. As a result the pharmacy estimate that 2-3 WTE staff roles have been saved by the installation of the VBM. This has allowed staff to pursue more clinical roles including:

- continued development of optimisation strategies to improve patient outcomes and cost effectiveness of medicines
- advising patients on their medication and working as part of a multi-disciplinary team to educate patients on important steps to improve and maintain their health.



0%  
of errors associated with automated dispensing system



2-3  
WTE  
staff time saving



17  
minute  
saving per pack



# Northumberland Tyne and Wear NHS Foundation Trust

## VBM and Automated Dispensing Cabinets

### Developing the commercial potential of the Trust

The academic study and process validation will enable the Trust to approach neighbouring Acute Trusts to offer to provide safe and reliable dispensing of their patients' medication adherence packs. This will provide NTW with a new revenue stream as well as saving the Acute Trusts money as they will no longer have to outsource to external organisations - ensuring money is kept within the NHS.



Automating the dispensing of monitored dosage systems reduced the frequency of errors and the risk of harm for patients. Automation reduced both the time taken to dispense monitored dosage systems and the number of pharmacy staff required in the dispensing. This enables pharmacy staff to spend more time in clinical roles which also contributed to patient safety.



**Ewan Maule,**  
Deputy Chief Pharmacist,  
NTW Health NHS Foundation Trust



### Benefits of installing Automated Dispensing Cabinets on the wards

The Trust has over 30 Omnicell cabinets installed across over half of its wards. Stock in the cabinets is managed by pharmacy teams on the sites who work directly with the wards. This means that nursing staff are freed up from medicines management and can spend more time with patients, further improving patient safety. Since installation CQC have inspected the wards with Omnicell cabinets and are complementary about improvements to the quality of care they facilitate. The cabinets have reduced the risk of concerns in relation to safe and secure management of medications.

#### Benefits delivered by the cabinets include:



**0.4 WTE** nurse time released per wards



**10-15%** drug spend savings



**99.75%** medicines available for administration when and where needed - ensuring patients receive medication on time



**29%** reduction in overall medicines supply transactions

**64%** reduction in incidents relating to controlled or misusable medicines



For more information about how automation can help you banish medication errors at your Trust email [automationsalesuk@omnicell.com](mailto:automationsalesuk@omnicell.com) call us on 0161 413 5333 or visit [www.omnicell.co.uk](http://www.omnicell.co.uk)

References: Acute Care and Workforce, Acute Care and Quality & CQC Investigations and Quality Policy, The report of the Short Life Working Group on reducing medication-related harm. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/683430/short-life-working-group-report-on-medication-errors.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/683430/short-life-working-group-report-on-medication-errors.pdf) (accessed March 2018)



Omnicell is inviting all NHS Trusts to visit the Customer Experience Centre in Manchester to meet with their team of experts and learn how ward-based automation can help to improve patient safety.

**To arrange an appointment**  
email [automationsalesuk@omnicell.com](mailto:automationsalesuk@omnicell.com)  
or call 0161 413 5333

[www.omnicell.co.uk](http://www.omnicell.co.uk)

SAFE  THE NEW UK STANDARD OF CARE  
✘ BANISH MEDICATION ERRORS