

Written evidence submitted by Frimley Health NHS Foundation Trust (PHA0076)

Pharmacy Robotics at Frimley Health NHS FT

Background and summary

Robots were first introduced to hospital pharmacies in the UK in 2001 to speed up dispensing and minimise picking errors. These benefits for patients and staff have subsequently led to their adoption across the NHS. Initially, robots were exclusively used in dispensing, and it was a further 10 years before ward box filling robots for stock items were introduced.

In 2013 we approved installation of a robot in the pharmacy stores at Wexham Park Hospital (which was then part of a separate trust from Frimley Park) to provide both dispensing and ward stock supply functions. Following formal tendering we chose an overseas supplier to provide a stores-based robot to pack stock items directly into ward boxes within pharmacy stores. This was supplemented with a UK sub-contractor to provide a pneumatic tube system enabling the robot to dispense full packs directly to the dispensary, about 200 metres away.

As part of the process, we had carefully considered the option for two separate robots (one for dispensing and one for stores distribution) but the additional cost was not affordable at that time, so the tube system distributing from a single source robot was favoured. The new system was in use from late 2013.

Experience of the single robot and utilisation of pneumatic tubes (2013-2022)

The improved efficiency and benefit of reduced picking errors was quickly realised within pharmacy stores. For example, at our other acute hospital site of very similar size at least six additional members of staff were required to complete orders. Receipt and storage of all items into the pharmacy stores was also streamlined, with improved accuracy regarding inventory control.

However, the reliability of the pneumatic tubes proved problematic, and continuing attention was required to rectify issues. The team developed troubleshooting techniques and workaround to alleviate the issues, but frequent downtime throughout the lifespan of the system was frustrating for staff and service users. Additional issues arose in 2018 when the robot supplier decided to disinvest in the pharmacy robotic market and transferred its operation to another overseas sister company. Many of the strong relationships that had been built up with the supplier were therefore lost and it became apparent that the new supplier was much less interested in the UK market (the Wexham Park installation was one of one two from this company in the UK).

Because the new supplier used different components to its predecessor, it became clear that a major upgrade was also needed to enable the new supplier to take over ongoing maintenance, at significant additional cost. Overseas travel restrictions during Covid-19 delayed this upgrade and increased the risk of further downtime of the robot.

Introduction of automated drug cupboards (ADCs) 2019

In 2019, with the opening of a new emergency and urgent assessment centre at Wexham Park Hospital, cabinets supplied by Omnicell were installed as part of the new build, enabling improved drug storage and security across the facility.

In 2021, a business case was approved to install these cabinets in all the trust's main hospitals (Wexham Park, Heatherwood and Frimley Park).

Introduction of our Epic electronic patient record system

In August 2020, Frimley Health awarded the contract for its electronic patient record (EPR) solution to Epic. This was to include a migration from the JAC© pharmacy stock control system to the equivalent Epic system, called Willow©, and would therefore require a new interface to the pharmacy robot.

Immediately after the EPR contract was awarded we began discussion with the pharmacy robot supplier asking for timescales and costs for this change. As this information was not forthcoming, we looked at a contingency option of replacing the Wexham Park pharmacy robot.

Although we faced extremely challenging timescales, the trust approved a new business case in September 2021 to replace the single stores-based robot with two separate robots – one based in stores and one in the dispensary. Our ADC supplier Omnicell was approached via the NHS procurement framework agreement to ask if they could meet our deadline of early 2022 (which would give us enough time for testing and training of staff ahead of the EPR go-live). Omnicell confirmed they would be able to deliver to this deadline.

The added perceived advantages of procuring the new robots from our current ADC supplier Omnicell were four-fold:

- Frimley Park Hospital already had a pharmacy dispensing robot from Omnicell that would need an interface for Epic.
- ADC cabinets from Omnicell were being rolled out across the trust so the pharmacy robot would have direct communication capabilities to the cabinets.
- Having two separate robots would eliminate the problems we experienced with the pneumatic tube system.
- Epic and Omnicell are both US-based global companies with experience of working together. They are also more widely used in the UK so much less likely to disinvest in this market.

As a result, we signed a contract for new robots from Omnicell© in September 2021, and we served notice on the suppliers of our original robot and pneumatic tube system.

Installation of Omnicell robots ,2022

Pharmacy, Omnicell, and trust infrastructure teams (Estates and IT) worked together exceptionally well, and the new robots were installed and interfaced with the existing pharmacy system within just four months. It meant that everything was ready to switch to our new Epic EPR on its go-live date a few months later (the EPR go-live date was pushed back to June 2022 for unrelated reasons, but the system would have been ready to switch over in time for the original go-live date of March 2022).

Go-live with Epic EPR

The Epic go-live was a massive project that involved simultaneously switching more than 200 separate IT data systems into one single electronic patient record. Overnight the trust had leapt from one of the less digitally advanced trusts in the NHS to among the leaders.

As part of go-live, pharmacy migrated to the Epic Willow pharmacy module on the EPR go-live weekend in June 2022 across the organisation. This also involved the transfer of all in-patient

prescribed medications from the previous paper-based system onto the electronic patient record, a task undertaken almost exclusively by pharmacists.

Implementing the pharmacy Willow module and interfacing the three robots (one older version in the Frimley Park dispensary and two new robots at Wexham Park in dispensary and pharmacy stores) was not without challenge. During that initial phase we held daily meetings with representatives from pharmacy, Omnicell, Epic and trust managers to resolve issues regarding stock levels, inventory control and label production.

2023-24

Although the EPR go-live event in June 2022 involved a complete switch over of all systems, we always knew that fully realising the benefits of the new EPR would take several years.

The initial transition and integration of Epic with the robots threw up some functionality issue in Epic that needed to be rectified to ensure the stock levels was being corrected accurately when dispensed. Further essential changes have vastly improved integration, resulting in fewer stock discrepancies and leaner, more efficient stock management and dispensing.

Overall, the integration of the robots has had a positive impact. The robots have successfully helped with more efficient dispensing, fewer picking errors, and better patient safety by ensuring the right product is dispensed as prescribed to the right patient. Patients are more likely to have faster, safer dispensing of medication and therefore a better experience. Technological advances have also contributed to earlier finishing times in the pharmacy.

Robots can also reduce costs by reducing waste, therefore supporting sustainability. Slicker processes have enabled pharmacy staff to focus more on patient facing activities.

Integrating Epic with the Omnicell ADCs presented technical challenges and we had to refine and calibrate medications several times to ensure cabinets were fully integrated. Automated restock orders for ward stock replenishment worked well and supported distribution channels. We are currently auditing the difference compared to traditional cabinets on wards, but we fully expect that the ADC replenishment process will be proven to be significantly more efficient.

Integrating Epic with our robotic dispensing systems and drug cabinets has brought many additional capabilities, and work continues on these in order to fully realise the benefits of Epic. Some of these capabilities include scheduled dispensing ward stock overnight without manual intervention.

Among ongoing improvement works we have identified so far are:

- Reduce pharmacy cabinet stock discrepancies and identify the root causes of any issues.
- Integrate pharmacy stores robots and workflow with ward stock replenishment.
- Improve Omnicell cabinet interfacing to increase the efficiencies of autogenerated purchase orders.

In summary, we have seen several benefits from investing in pharmacy robots, automated drug storage cabinets and a new EPR. The closed loop dispensing system between Epic and Omnicell means cross checking of patient, medication and prescription can be done digitally. This has reduced the risk of errors and improved patient safety.

March 2024