Automation technologies pave the way for improved patient care and discharge planning

GIG CYMRU NHS WALES | Bwrdd Iechyd Prifysgol Bae Abertawe Swansea Bay University Health Board

Swansea Bay University Health Board has implemented an innovative integration solution to improve patient care. The solution integrates electronic patient information between the national Patient Administration System, Myrddin, and the Swansea Bay University Health Board developed Clinical Portal. By keeping the two systems synchronised, patient information is more accurate and discharge planning can be undertaken more effectively.

This solution has been achieved using SX, NDL's RPA Platform, to transfer activity between the two systems. This approach avoids the requirement for staff to double-enter information into two systems and provides Swansea Bay University Health Board with an integrated patient care pathway. In the **first seven months following go live, over 100,000 automatic transactions** have been completed, giving staff more time to care for patients and reducing typographical errors, which can adversely affect patient safety.

The Challenge

Swansea Bay University Health Board was established in 2009 following the merger of Swansea and Bro Morgannwg NHS Trusts, and the Swansea, Bridgend and Neath Port Talbot LHBs. It now covers over 500,000 patients and has four general hospitals.

The merger of the two organisations created data quality issues and a mismatch in the Patient Administration Software used by staff. In the East of the Health Board, staff used an in-house Patient Administration System (PAS) and Clinical Portal, while the West had replaced an iSOFT PAS with the Welsh national PAS, Myrddin. One key aim of the merger was to enable patients to have unified care pathways across any facility in the Health Board. This needed to be supported by synchronised and real-time data transfer across all wards and clinics into one central PAS.

Key Benefits

Seamless data transfer supporting patient care pathways

More time to care

Removed wasteful duplicated data entry

Improved data integrity

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> SX has given us a platform to take forward electronic ways of working, which helps with efficiencies across the organisation and gives clinical staff more time for patients. Without it, if we still wanted to have live lists on wards, we would have needed an army of clerks to re-key all data the following week. In short, all transactions – and there were 101,794 transactions in the first seven months - would have to be duplicated. The savings and efficiencies are plain to see.
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> Matthew John, Head of ICT Programmes, Swansea Bay University Health Board
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The Solution ↓

In 2010, SBUHB decided to bring together the two halves of the Health Board in a way which would both combine care pathway management and reduce the wasteful practice of duplicated data entry. The Health Board evaluated the available options and elected to implement Myrddin across the entire organisation but also wanted to supplement this with the existing clinical portal as used in the East and introduce the same ward system in the West.

> **A PAS is the crux of the management of administrative data in every hospital. If you want to bring the clinical world into the electronic world, you need to keep the PAS happy from admission to discharge.**
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> Matthew John, Head of ICT Programmes
> Swansea Bay University Health Board

The scale and complexity of this challenge was significant: in particular, the key requirement was to be able to update patient records between the PAS and ward portal in real time. But critically the solution needed to be robust enough to ensure reliable management of an estimated half a million transactions per year.

Myrddin presented significant integration challenges. According to Matthew John, "we needed to find something which would give us control and wouldn't depend on national resources." The Informatics Team explored using either web services or APIs and concluded there was either nothing cost-effective or suitable available, or there were insufficient resources nationally to provide the support that would be needed. The team therefore needed to find a different approach.

The Solution

After a successful proof of concept, Swansea Bay University Health Board opted instead for SX, NDL's RPA Platform. The NDL's Digital Transformation Suite is a cost-effective, flexible and versatile alternative for integration which avoids the need to use individual vendor APIs or adaptors. It links to and from the front office or joins back-office applications together, thus dramatically improving business processes and workflows and removing the wasteful process of re-keying data.

Due to the complexity and scale of the project, Swansea Bay University Health Board implemented the solution in two phases. In the first phase, it integrated the existing clinical portal in the Eastern area with Myrddin. The development team profiled nine key Myrddin screens, covering actions such as admitting elective or emergency patients, transferring or discharging patients and undoing transfers or admissions. Each of these presented different challenges: they included drop-down lists, radio buttons, check boxes, custom-made lists and tables. Optical character recognition was also used to identify and select certain items. Even more important was the need to ensure that transactions were processed in the right order to preserve the integrity of patient records as they continued through their care pathway: this would ensure that clinicians always saw the most up-to-date information.

Because of the volume and business-critical nature of the transactions taking place, which would have a profound impact on patients' records and the care they received, the system was rigorously and successfully tested before going live. It immediately supported high levels of patient management, with on average **330 transactions but sometimes up to 600 transactions** taking place each day across the Eastern region.

Swansea Bay University Health Board then moved on to the second phase of the implementation, which introduced the clinical portal to the Western region and integrated them with Myrddin. This has enabled sharing of data across the entire organisation, supporting a key aim of enabling patients to transfer to and from any facility in the health board.

According to Matthew John, "we were able to use the experience of phase one to ensure the smooth

appreciate the need for consistent data. There were also new elements to Myrddin by the time of phase two and we were able to transfer this new functionality back to the Eastern area".

The Benefits

The integrated clinical portal and PAS are now successfully operating across the whole of ABMU, with **on average 1171 transactions taking place each day. This has removed the need for staff to double-enter into separate systems the 1000-plus items of data generated daily**, enabling more time to be devoted to patient care.

It has also reduced the possibility of typographical errors, which can impact on patient safety. But, more importantly, staff can record real-time patient information in one system which is automatically updated in the other; this can then be presented to them at every stage in the patient journey at any facility, ensuring consistency of information across the whole organisation.

> **The integration has given us the flexibility to progress with our strategy of having seamless data transfers between wards and the PAS across our entire region. Without it, we would have had to retreat in our way of working: we've been working live electronically on wards since 2005 but this would not have been able to continue. It has also enabled us to inform the national programme about the benefits of working electronically on wards**
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> Matthew John, Head of ICT Programmes
> Swansea Bay University Health Board

What's Next?

Swansea Bay University Health Board is now moving on to extend its use of SX. The next project is to underpin the transfer to data into Myrddin at a new outpatients unit which will open shortly in Swansea. The unit will use self-service kiosks for patient check-ins while referral to treatment information will be entered electronically in the clinic: this data will all be transferred directly into Myrddin via SX. Further plans include the use of SMS and emails for patient communications and then the possible introduction of mobile working for community nurses, using both SX and MX, NDL's Mobile Application Platform.

For more information about NDL's Digital Transformation Suite;

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