RAPID MEDCHART
ROLLOUT DELIVERS
SEAMLESS eMEDS
SOLUTION

SUCCESSFUL EMEDS IMPLEMENTATION ENHANCES PATIENT SAFETY AT NORTHERN BEACHES HOSPITAL

In 2019, with a focus on improving patient safety and medication management, the project team at Northern Beaches Hospital (NBH) began an important phase in the hospital's digital journey: the implementation of electronic medications (eMeds).

Electronic medication management is integral to New South Wales Health's digital health strategy. The top priority with an eMeds solution was to reduce medication errors – an all-too-common source of incidents in hospitals – through electronic prescribing, supply, administration, clinical and pharmacy review and medication reconciliation. The MedChart eMeds solution achieves this by improving prescription legibility, providing sophisticated dosage calculation and complex infusions functionality and incorporating best practice clinical decision support available to clinicians at the point of patient care.

In addition, from a practical point of view, clinicians needed a solution that could pull SNOMED-encoded allergy information from the EMR, that would then send discharge medications back to the EMR and to the health information exchange enabling clinicians in the local health district to see patient data. Project organisers wanted the integration to be as seamless as possible so clinicians could sign onto eMeds from the EMR to view and record the information they needed in both applications.

As a part public, part private hospital, it was also crucial that the eMeds solution had PBS script functionality and that the solution was proven in both public and private hospital settings.

CUSTOMER FACTS

- 486 Beds
- 14 Theatres, 2 Cardiac Catheter Labs, 4 Procedure Rooms
- 50 space Emergency Department
- Critical and Intensive Care
- Maternity
- Mental Health and Addiction
- Paediatrics
- Renal
- Cancer Care
- Cardiac
- Orthopaedics
- 830,000 Medication Orders annually
- 2.1 million medication administrations annually
- 86 Complex Infusions daily.

"In my experience, selection of and achieving adoption of an electronic medication management system requires a deep working knowledge of required and desired eMeds functionality. Solution demonstrations can be very slick and un-experienced eMeds users often don't pick up on the overlooked business processes and workflows which are critical to adoption," said Kate Richardson, clinical applications specialist at Healthscope and a senior member of the implementation team at NBH.

SELECTING AND IMPLEMENTING THE SOLUTION

The hospital selected MedChart as its eMeds solution for several reasons. First, MedChart fitted all NBH's criteria around integration, and second, members of the implementation team had had positive experiences with the solution in modernisation programs at other hospitals. MedChart also includes several unique features that benefit a hospital-wide solution including:

· A highly sophisticated customer configurable rules engine allowing clinical decision support to meet local clinical practices and requirements

· "And & Then" orders that allow users to link related orders to the same drug in the one prescription, such as 40mg to be given in the morning and 20mg at lunchtime

· Approved route groups enabling multi-route drug orders coupled with bespoke documentation at administration, removes the risk of duplicate dosing via different routes

· A reference viewer that enables easy access to electronic references (such as MIMS, AMH, Therapeutic Guidelines) from within MedChart

· Offline charts, providing safeguards to accessibility in downtime or disaster scenarios

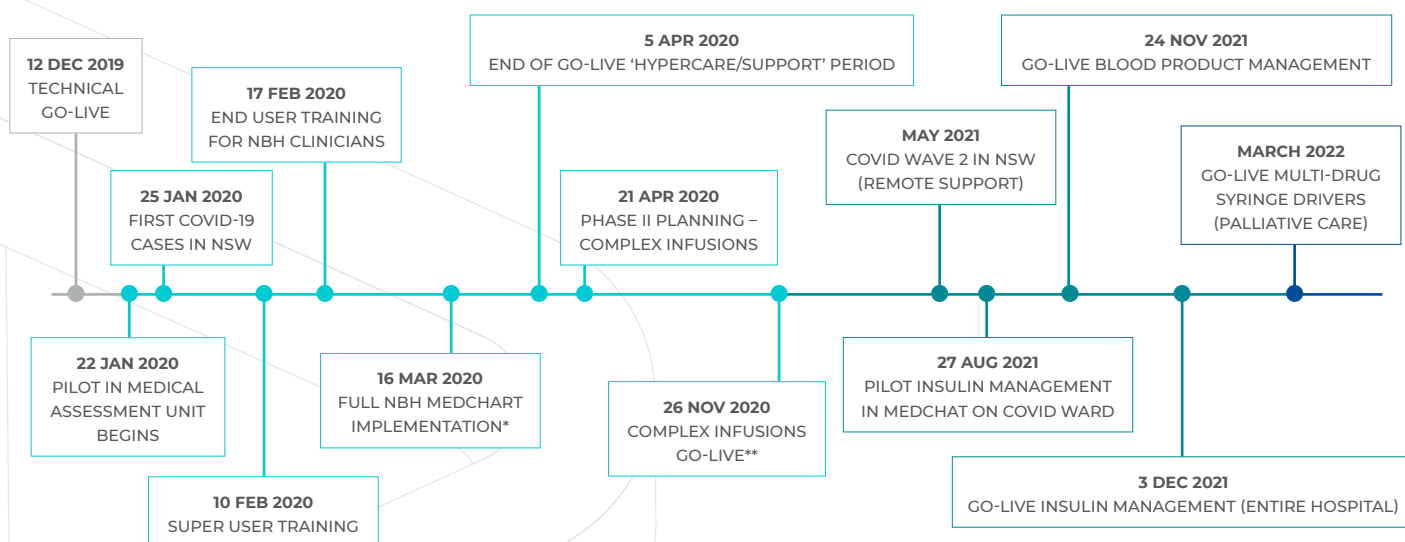· Frequent and simple updates of underlying drug files.

The implementation process began with an evaluation by the medical assessment unit in January 2020, after which the hospital began an extensive training and adoption program.

To improve comfort with the solution, members of the implementation team asked clinicians for input on aspects of the design. While it wasn't possible to include all requests, engaging clinicians in the process was well received and helped to ensure satisfaction with MedChart's functionality from the outset. Key to change management was the positive and significant input from many of the VMOs, Nurse Educators and the third part Pharmacy provider. Some of the typically harder groups to engage with were eager and hands-on.

Next, the project leaders, in parallel with broader rollout preparations, organised extensive training through an e-learning package developed by Dedalus. "We found even those clinicians who were familiar with other systems in the public sector picked up the MedChart solution in seconds," Ms. Richardson said. "In fact, you could see the relief on their faces with how easy the solution is to use and the delight when they realised how many extra useful features MedChart has over other solutions they have used."

To enhance clinician mobility and MedChart access points, 60 iPads were configured and distributed to the wards. These hand held devices optimise medication administration processes. Time saved between drawing up the medications in drug rooms and administering at the bedside is 5-7mins.

Another element that was integral to a fluid and well-received implementation process was bringing a team from Dedalus on site to work with the NBH implementation team. The Dedalus team included an expert in the solution as well as some of the developers from India.

12 DEC 2019
TECHNICAL GO-LIVE

17 FEB 2020
END USER TRAINING FOR NBH CLINICIANS

5 APR 2020
END OF GO-LIVE 'HYPERCARE/SUPPORT' PERIOD

24 NOV 2021
GO-LIVE BLOOD PRODUCT MANAGEMENT

25 JAN 2020
FIRST COVID-19 CASES IN NSW

21 APR 2020
PHASE II PLANNING – COMPLEX INFUSIONS

MAY 2021
COVID WAVE 2 IN NSW (REMOTE SUPPORT)

MARCH 2022
GO-LIVE MULTI-DRUG SYRINGE DRIVERS (PALLIATIVE CARE)

22 JAN 2020
PILOT IN MEDICAL ASSESSMENT UNIT BEGINS

16 MAR 2020
FULL NBH MEDCHART IMPLEMENTATION*

26 NOV 2020
COMPLEX INFUSIONS GO-LIVE**

27 AUG 2021
PILOT INSULIN MANAGEMENT IN MEDCHAT ON COVID WARD

10 FEB 2020
SUPER USER TRAINING

3 DEC 2021
GO-LIVE INSULIN MANAGEMENT (ENTIRE HOSPITAL)

*Full NBH MedChart implementation. All patient areas (ED, ICU, wards, maternity, paediatrics) using patient centric model.
**Complex infusions go-live (maintenance fluids, sequenced infusions, heparin, cardiac drugs + inotropes, maternity drugs, iron, TPN, enteral feeds).

"It's amazing what you can build with your developers and a solutions expert in the room with you," Ms. Richardson said. "It was a most satisfying, productive work environment because we could see the progress happening together, and it resulted in a very rapid build, which was so important given our tight timeline for go-live."

FROM GO-LIVE TO BROAD HOSPITAL ADOPTION IN 11 DAYS

Perhaps the biggest potential obstacle for the project was the timing. The project received go-live approval from the NBH Executive Steering Committee in March 2020 at the start of the COVID-19 pandemic. The team planned a rapid implementation with just a three-week rollout to reduce mission burn. As it turned out, MedChart was up and running within just 11 days.

Day one of rollout was off to a good start thanks to the support of a project manager and team of nine adoption coaches recruited from the nursing staff, who worked enthusiastically and tirelessly to get everyone on board. The emergency department was first to go-live and it was a speech by the head doctor who set the tone for the roll-out – "You are probably all wondering why we are going live today with COVID happening. I know the stress levels are very high but the reality is a paper chart is a source of contamination you have to hand around to multiple people, so eMeds will change the game – let's just do this"

The implementation team followed a patient-centric model, so as patients moved from admission points to theatres or the various wards, the MedChart rollout followed them. Thanks to the many engaged clinicians who wanted to go faster with adoption, a large number of departments adopted electronic meds well before their planned dates. By day eight, the junior medical officers were pushing to get everyone on board to speed up the process and the 24/7 support team was able to drop back from overnight on-site support to on-call support.

"We gained executive support to take a JMO off the floor, who walked around the hospital and helped each team convert the remaining paper charts to electronic meds, and by day 11 the whole hospital was up and running," Ms. Richardson said.

In the following six months, complex infusions for maintenance fluids, cardiac medications, electrolytes and TPN / enteral feeds were implemented. When COVID hit hospitals for a second time, insulin, which had remained on a speciality paper chart became extremely difficult to manage clinically. Clinicians could not move the paper chart in and out of the isolated rooms and were attempting to use photographs of the paper chart so it could be reviewed remotely. "The Respiratory Dr in-charge of the ward escalated this issue to the NBH Executive and within two hours we turned around

WITHIN 18 MONTHS, THE COST OF IMPLEMENTATION HAD BEEN EFFECTIVELY COVERED BY THE SAVINGS MADE THROUGH REDUCTION IN POTENTIAL ADVERSE MEDICATION EVENTS[1].

managementof insulin from paper to eMeds by building quick lists to support the prescribers and giving a speedy lesson in documenting BGLs in the EMR to nurses" Ms. Richardson said.

ADDING UP THE BENEFITS

The MedChart implementation team at NBH drew on robust data developed by the internal quality team to help chart medication safety incidents after adoption. With the adoption of eMeds and rollout of complex infusions, NBH has seen a 2 fold reduction in total medication incidents and a corresponding decrease in adverse drug events. eMeds is delivering real benefits in patient and medication safety.

The team also monitored potential cost savings using a published model based on the reduction in adverse events per admission[1]. Within 18 months, the cost of implementation had been effectively covered by the savings made through reduction in potential adverse medication events.

A priority benefit is the frequency and efficiency of drug updates. "With MedChart, monthly drug updates are quick and easy to do, ensuring data is up to date," Ms. Richardson said. "This is an absolute must for us, because we need to make sure the PBS data is current for our scripts."

The implementation benefits all stakeholders, most importantly patients and clinicians but also carers, general practitioners and other hospitals in our local health district.

"What has made this so seamless is the collegiality of the Dedalus team in working with other vendors," Ms. Richardson said. "In addition, the fact that MedChart integrates so well with our EMR and patient administration system ensures support across our systems and that has been key for us."

INTO THE FUTURE

The fast, smooth rollout has benefits beyond quick adoption: it also builds further trust in the implementation team as we plan and execute the next stage of the rollout.

Our digital eMeds journey has just begun. High on our agenda is finding solutions for intra-operative/anaesthetic charting and incorporating eTP – Electronic Transfer of Prescriptions. Bringing outpatients into the eMeds mix will help with medication management for patients regularly attending outpatient departments and for those that need to move between inpatients and dialysis or infusion centres.

Ms. Richardson and the team are also considering how best to develop reports and dashboards in a standardised, manageable way to better address requests coming from clinicians and the quality department.

Across every aspect of the project – from the initial rollout to the ongoing improvements and bringing new departments online – the focus has always been on improving patient medication safety and optimising digital health workflows for clinicians, enabling a seamless end-to-end patient journey.

1. Cost-effectiveness analysis of a hospital electronic medication management system' Westbrook JI, et al. J Am Med Inform Assoc 2015:0:1-12. doi:10.1093/jamia/ocu014

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