# Closing the Loop in Paediatric Medication Management

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## Background

Closed Loop Medication Management (CLMM) describes a fully electronic medication management cycle. This consists of computerised prescriber order entry (CPOE), clinical decision support (CDS), pharmacist verification, dispensing software integration, secure management of medications, positive patient identification (PPID), barcoded medication administration and electronic documentation of this on the electronic medical record. Many hospitals nationally have moved to implement the initial stages of the CLMM cycle with CPOE, CDS, and pharmacy integration. Our hospital is the only Australian paediatric hospital where ongoing fully closed loop medication management has been implemented in a pilot ward.
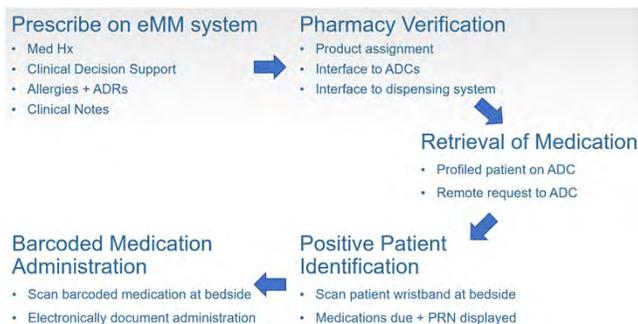


## Objective

To develop and implement the remaining elements of CLMM which include Automated Dispensing Cabinets (ADCs) for medication management, Barcode enabled positive patient identification, Unit Dose Packaging (UDP) of medications and barcoded medication administration to fully digitise the medication management cycle at a paediatric hospital over a two year period.



## Action

In 2018 a project team was established, comprising a project manager, business analyst and three clinicians. Members of the team visited international and national hospitals with existing digital systems to gain exposure.

Local solutions were developed and included the implementation of ADCs in a profiled and non profiled modes, development of a new patient wristband to allow for scanning, unit dose packaged products and a solution to allow for scanning at the bedside.

A staged approach was used to delivery various solutions to selected wards across the hospital, which included deployments of ADCs, PPID, BCMA and UDP. One ward in the hospital was selected to implement the full pilot of closed loop medication management as a proof of concept in a paediatric environment.

## Evaluation

Currently, there are ADCs implemented in 6 different wards and in the emergency department. From the 6 wards, 2 wards (22 beds) have also implemented PPID at the point of dose administration. There is 1 ward that also has BCMA enabled at the point of administration. This is enabled via the Cerner Medication Administration Wizard allows for PPID and BCMA through the scanning of encounter specific patient wristbands and scanning of barcoded medications which are due within 90 minutes, PRN or overdue on the EMM.





## Discussion

The utilisation of ADCs, PPID and BCMA along with EMM enhances paediatric patient care, reduces medication errors, and improves patient safety and business efficiency.

Aspects of CLMM can be tailored and incorporated to address an organisations clinical and business requirements, with more aspects implemented as the hospital becomes an increasingly digital hospital.