

Efficient Service Monitoring

Using Electronic Medication Management System Generated KPIs



Background

Key Performance Indicators (KPIs) are used regularly to monitor service provision and staff performance against measurable targets for quality improvement. Paper audits are time-consuming and only offer point-in-time data. Implementation of electronic medication management in Cerner® PowerChart provided the access to real-time data reporting.

This project aimed to establish and monitor KPIs by utilising data extracted from PowerChart at two tertiary referral hospitals: Concord Repatriation General Hospital (CRGH) and Concord Centre for Mental Health (CCMH).

Action

KPIs were implemented at both facilities in December 2018. CCMH initiated feedback of KPIs to individual pharmacists in March 2019. CRGH began a VTE stewardship pharmacist quality improvement project in May 2019 and began documentation with "VTE" coding. Feedback of KPIs to individual pharmacists was rolled out to CRGH in September 2019.

Description

Managers developed KPIs based on SHPA Standards of Practice and National Safety and Quality Health Services Standards for Medication Safety. Table 1 lists KPIs for each facility where eMeds data is utilised. To assist with navigating the PowerChart reporting challenges including the point-in-time nature of data and timeliness of data availability, Health Informatics staff explored the possibilities of different reports available within the system (see Table 2). Tailored business intelligence reports were generated monthly to monitor rates of medication history completion (from medication history entry data) and pharmacist clinical interventions (from Ad Hoc form data).

Specific free-text codes were developed and entered into a text field on Ad Hoc forms to further categorise KPIs (e.g. "ICU TF" for medication reconciliation during ICU transfers, "VTE" for the additional pharmacist role to note VTE stewardship activities).

With the number of intervention reports growing steadily close to 1000, this has necessitated the creation of a separate database to process the volume of data, allowing for data clean-up, analysis to differentiate entries for statistical purposes used to track trends, from entries which should be reviewed and reported to address clinical issues.

KPIs were reported to pharmacy staff, clinical leads, and Drug Committees. The database also allowed reporting of interventions performed by each pharmacist. Each pharmacist's intervention numbers were also fed back to the individual.

KPI	CCMH	Current Target	CRGH	Current Target
Medication History completion rate	✓	75% for 2 wards 25% for average of all wards	✓	50% per ward
Number of pharmacist interventions	✓	3 per pharmacist per day	✓	1 per pharmacist per day
Number of counselling episodes	✓	Not specified	✓	1 per pharmacist per day
Monitoring of specific services eg ICU, ED, Haem/Onc, VTE stewardship	N/A	-	✓	Not specified

Table 1. KPIs for each facility

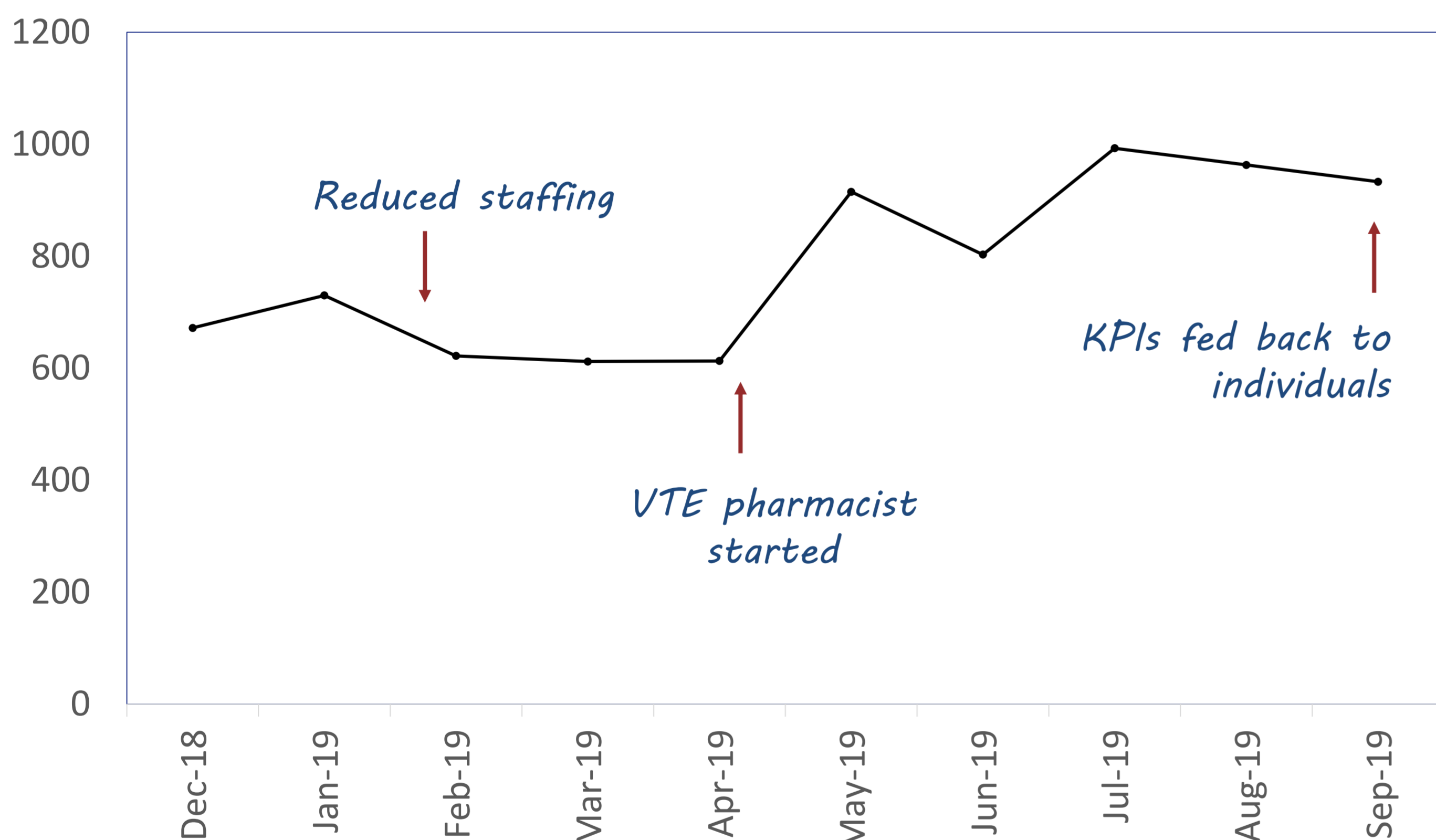
Evaluation

Recording of interventions in the eMeds system has increased the rate of reporting compared to paper or other forms of electronic records, increasing the accuracy and providing a better indication of the pharmacists' role.

For CCMH, monthly feedback of each pharmacist's individual intervention rates post commencement of tool usage resulted in a significant increase in the monthly total clinical intervention number. The average number of interventions increased to 210.43 from 58.67 ($p = 0.0005$). For CRGH, general staffing levels had the greater impact on intervention reporting.

These have been helpful to individuals' progression and to service managers. KPIs for individuals are used during performance reviews. Reports generated have been useful to support hospital accreditation and will be implemented across the district. CRGH initiated feedback of KPIs to individual pharmacists in September 2019 and the impact on intervention numbers will soon be measurable.

CRGH Pharmacist Interventions



CCMH Pharmacist Interventions

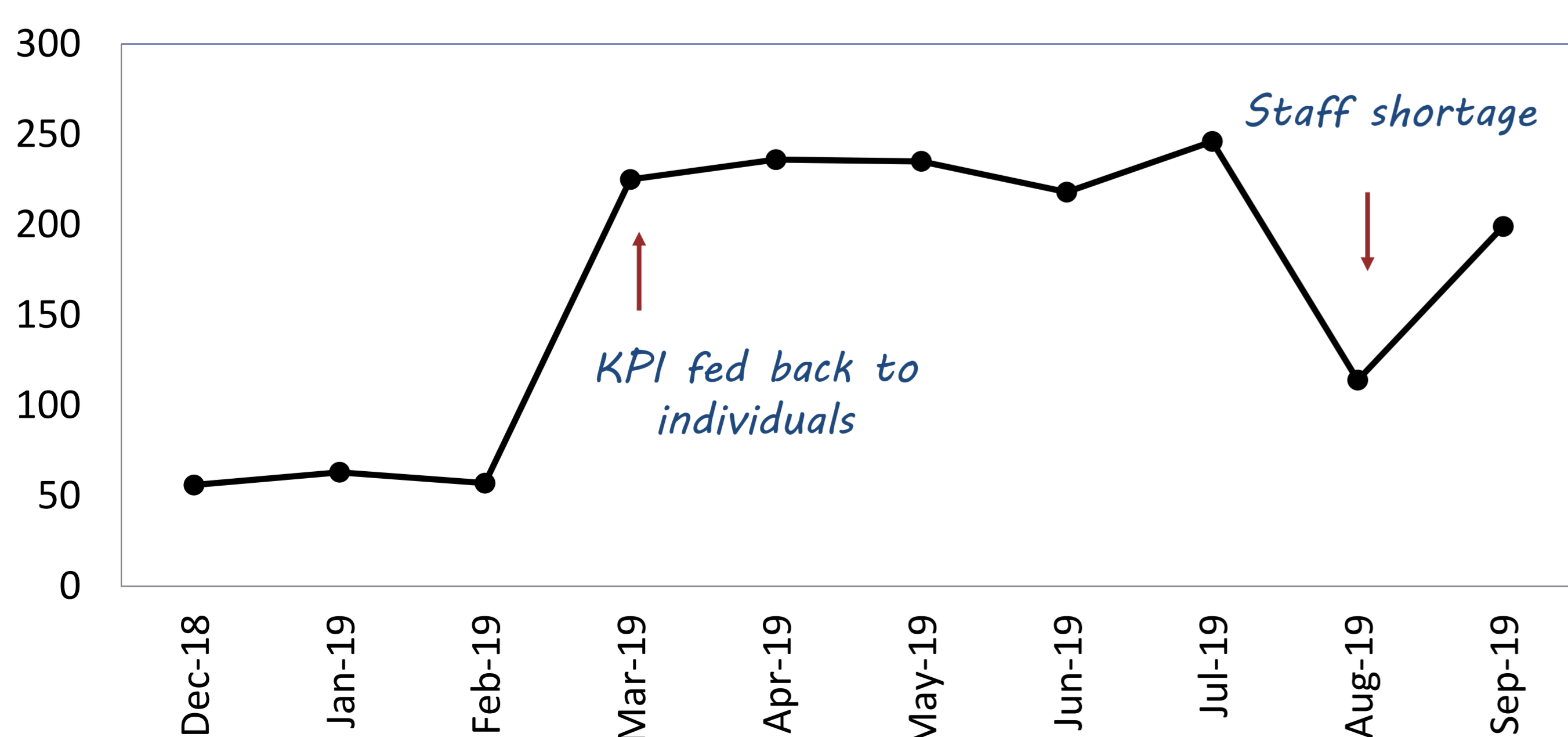


Figure 1. Almost four-fold increase in pharmacist clinical intervention rates from a monthly average of 58.67 to 210.43 post commencement of KPI implementation ($p = 0.0005$).

Contact: Joanna.Tsang@health.nsw.gov.au

PowerChart Reporting

Data Acquisition Application	Discern Analytics	Business Intelligence (BI)	Explorer Menu
Data Output	Raw dataset	Raw dataset, Customised dashboard	Customised report
Usage	Medication related audits	KPIs Standard 4 accreditation compliance	Departmental operations
Pros	Able to design own report	Automated report sent to user's email	Standardised report for specific parameters Real time data available Access available to all eMR users
Cons	Request for access required Real time data not possible with up to 24 hours delay	Request for access required Real time data not possible with 24 hours delay	As reports are standardised, parameters cannot be changed to suit user's needs

Table 2. Different methods of reporting in Cerner PowerChart

Implications

As PowerChart is rolled out across health services, having established KPIs allows different facilities to compare service levels, generating benchmark data to support business cases for resource requirements. Comparison between states may identify discrepancies in these surrogate outcomes for patient care, highlighting the need for improved staffing in states such as NSW and ACT.