Improving safety, efficiency and regulatory aspects of the controlled drug pathway within Paediatric Intensive Care: A Quality Improvement Programme (B181533)

Introduction

The Misuse of Drugs Act 1971 and subsequent Medicine Acts, legally require controlled drug (CD) use be rigorously monitored since they are *'susceptible to misuse and can cause harm',* and to ensure *'unusual or poor clinical practice, criminal activity or risk to patients'* can be detected.[1,2,3,4]

Problem: Known poor regulatory compliance, evidenced by inadequate/incomplete documentation prevents pathway monitoring, putting patients, relatives and staff at risk of harm and professional and criminal investigation.

Methods-2

Interventions were delivered in a step-wise manner **(Fig 2)**:

- Education of 234 nursing staff, mix of didactic and workshop sessions
- 'Learning from Excellence' positive feedback reports sent (n=194)
- Semi-structured Appreciative Inquiry (AI) interviews (n=20) to increase understanding of barriers and enablers, engage staff in other possible interventions and achieve behaviour change through *'Simultaneity Principle'*
- Stock CD ordering process redesign with increased senior nurse oversight, changes to Intended Order Days and review of CD stock levels

Results

'Special Cause Variation', was identified on analysis of CD Requisition receipts, Register administration entries **(Fig 3 and 4)**, and Intended Order Days, most likely due to interventions.

Fig 5 shows the most commonly missed elements of administration documentation was legibility of signatories.

Themes identified from AI interviews were workload/patient acuity and interruptions (barriers) and staff experience, education and culture (enablers). There were no reported incidents related to the interventions.

Figure 1: The PICU CD Pathway with numbered target improvement areas

Figure 2: CD QI Interventions Summary

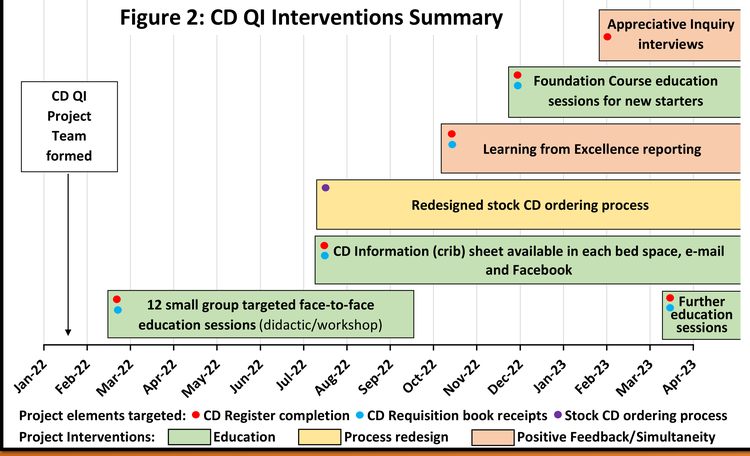


Figure 3: Proportion of Signed CD Requisition Receipts

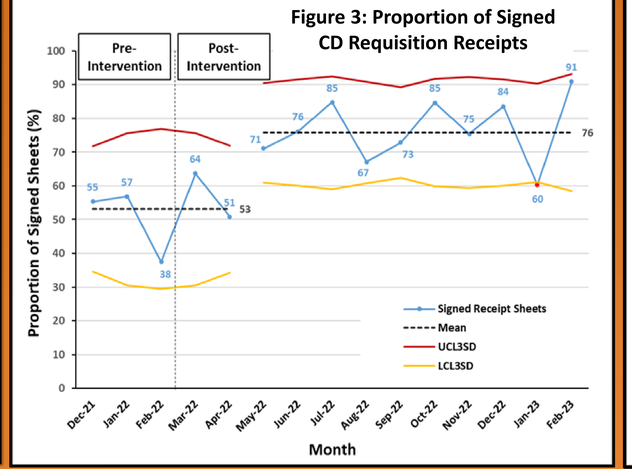
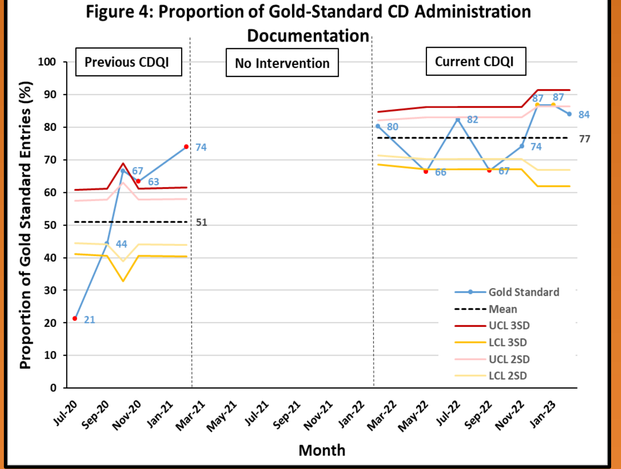


Figure 4: Proportion of Gold-Standard CD Administration Documentation



Aims

Improvement target areas were identified within the Paediatric Intensive Care Unit (PICU) CD Pathway **(Fig 1),** as being those with known poor regulatory compliance, to reduce risk of harm (①②) and where improved process inefficiencies could reduce Pharmacy/PICU nurse workload (③):

① Improve signing of CD Requisition Book (CDRB) receipts to ≥95% within 12 months

② Determine if previous CD QI work on CD Register administration documentation (Jul '20 - Feb '21) had been sustained and further improve 'gold standard' entries to ≥95%, within 12 months

③ Increase CD ordering on 'Intended Order Days', to ≥90% within 12 months

Methods-1

A multi-disciplinary CD Quality Improvement (QI) Project Team was formed, comprising medical, nursing, pharmacy, technical, education team staff and a QI manager. Known concerns were prioritised for intervention **(Fig 1),** driver diagrams created and processes mapped. Interventions to deliver improvement and data required to demonstrate improvement were determined.

Outcome measures: Study design used retrospective audit of:

① CD Requisition receipts (received CD orders): total number of receipts, number signed and signed with legible name. 3-month period pre-, monthly during/post-intervention.

② CD Register *administration* entries: 16 elements reviewed in each entry, with 'gold standard' being full, legible completion. Entries pre- (Feb '22) then bimonthly/monthly post-intervention. 3 CDs (Morphine/ Ketamine/Potassium) reviewed, to represent CD process diversity.

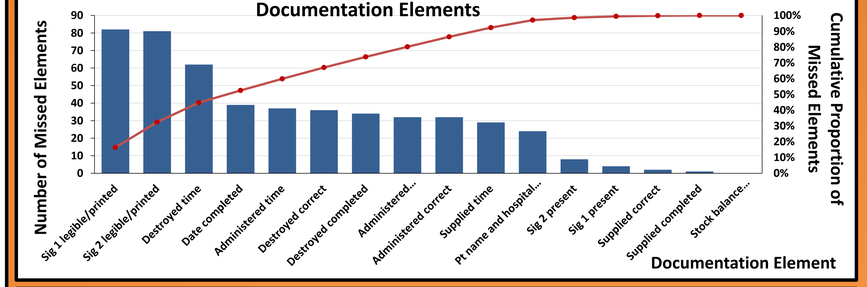
③ CD Register *received CD* entries: counts of day of week order received (proxy for day of week CD ordered) to compare against 'Intended Order Days'. 3-month period pre-, monthly during/post-intervention.

Process measures: Structured electronic survey to assess knowledge pre/post-education and thematic analysis of AI interviews.

Balancing measure: Review of staff-reported incidents from database, to identify failure points of expected CD processes post-intervention.

Data analysis: for ① signed CD Requisition receipts and ② CD Register administration documentation was performed using Statistical Process Control P-type charts (mean/control limits derived from first 10 data points). Pareto chart was used to identify most commonly missed elements of administration documentation.

Figure 5: Pareto Chart of Commonly Missed CD Administration Documentation Elements



Conclusions

Further evidence for positive reinforcement (LfE) as an effective QI methodology to deliver sustained behavioural change.

LfE, as part of a package of interventions, can deliver improvement in CD management, even within the constraints of a paper-based system and a busy clinical environment.

References

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4. Bushe G. 2012. Foundations of Appreciative Inquiry: History, Criticism and Potential. *AI Pract*.14(1):8–20