IHI OPEN SCHOOL
for health professions

PRACTICUM SUMMARY REPORT

Project Title: **Reducing Errors in Paediatric Prescribing**

University/Organization Name: **The University of Dundee**

Health System Sponsor Name: **NHS Tayside, Paediatric Department**

Aim of project (1-2 sentences)

The Department of Child Health aims to achieve a prescribing error rate of fewer than 10 total errors per 1000 completed drug prescribing criteria in ward 29 of Ninewells Hospital by 12/12/11.

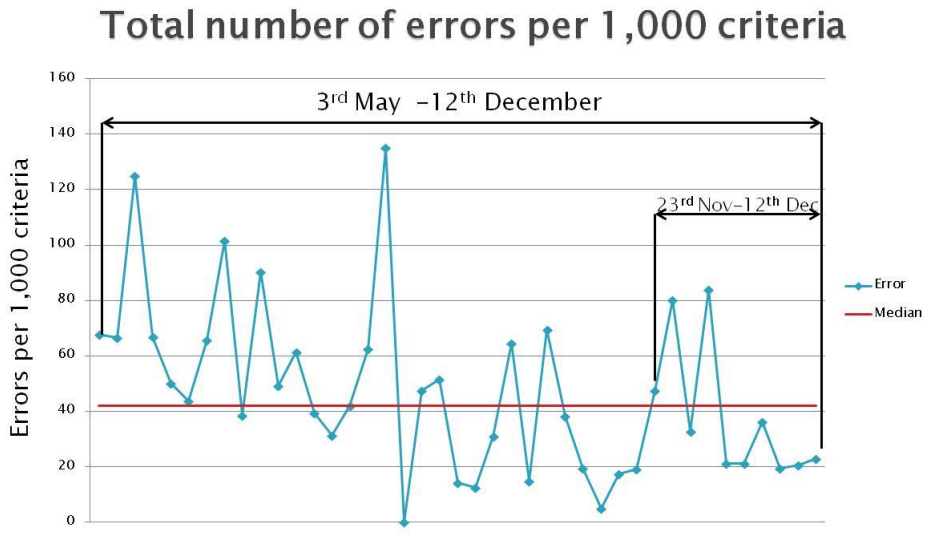
Planned changes tested (2-3 sentences)

Prescribing error data was continually collected in order to monitor the reliability of prescribing. Prescribing staff and their educational supervisors were then informed of their individual error rate by email message. This message included a detailed breakdown of which prescribing standard errors had been made under. An anonymised bar chart of this information was displayed in the doctor's room, allowing staff to compare their own error rate with that of their peers. A bar chart showing the distribution of all errors across the 18 prescribing standards was also displayed. A pharmacist led teaching session was then delivered to all new medical staff. This teaching was aimed at emphasising the importance of safe prescribing, highlighting the main differences involved in paediatric prescribing, and raising awareness of the most commonly made prescribing errors. Finally, members of staff were surveyed for their views on the potential for harm of each of the 18 standards. Participants were asked to grade all standards from 1-3(low to high risk of harm). This was part of an attempt to develop a 'top 5' bundle of prescribing standards to be used in future auditing.

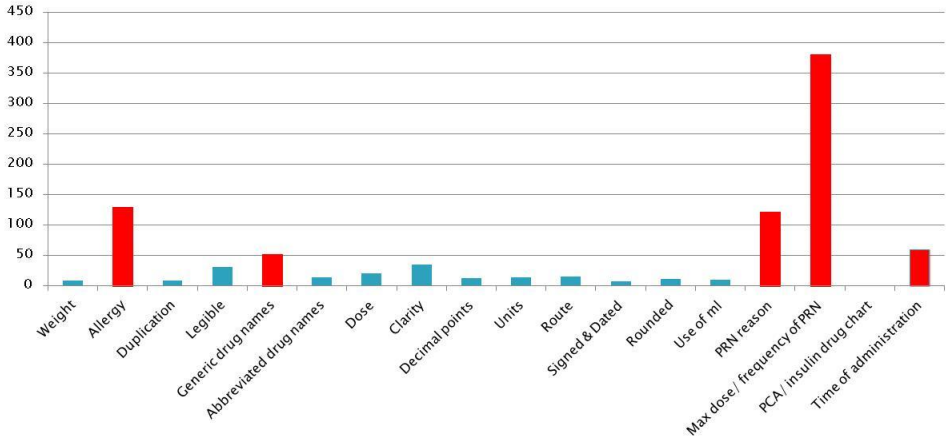
Predictions (2-3 sentences)

We predicted that the number of errors being made on ward 29 in-patient prescriptions would initially be between 10 and 70 per 1000 completed drug prescribing criteria.
We predicted that our initial error rates would be higher than that found by medical staff who had earlier carried out the same audit.
We predicted that actively observing error rates on in-patient prescriptions would lead to a reduction in the number of errors being made.

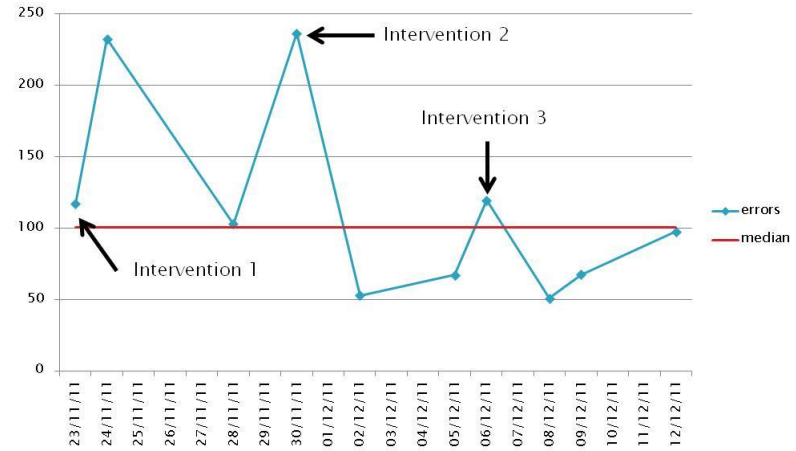
Results



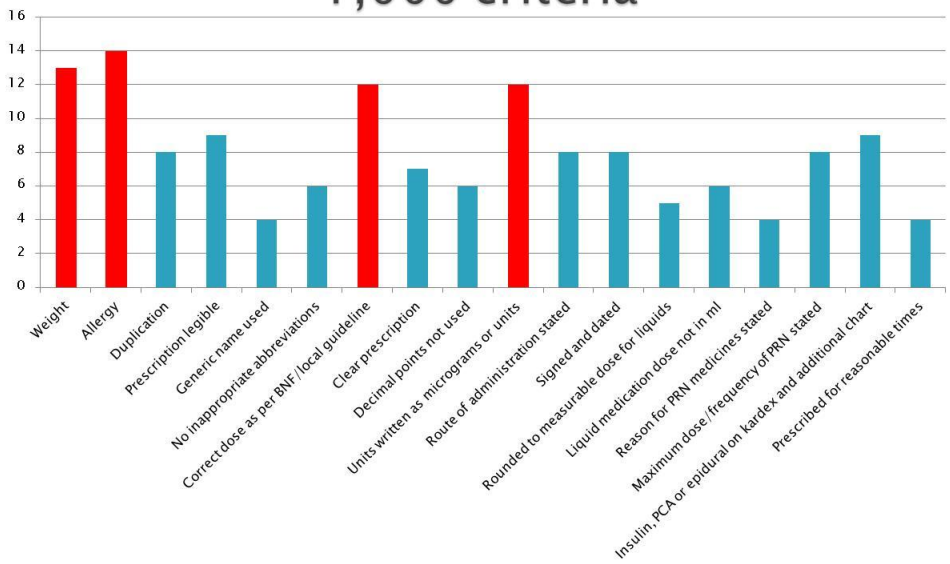
Errors by 1,000 criteria

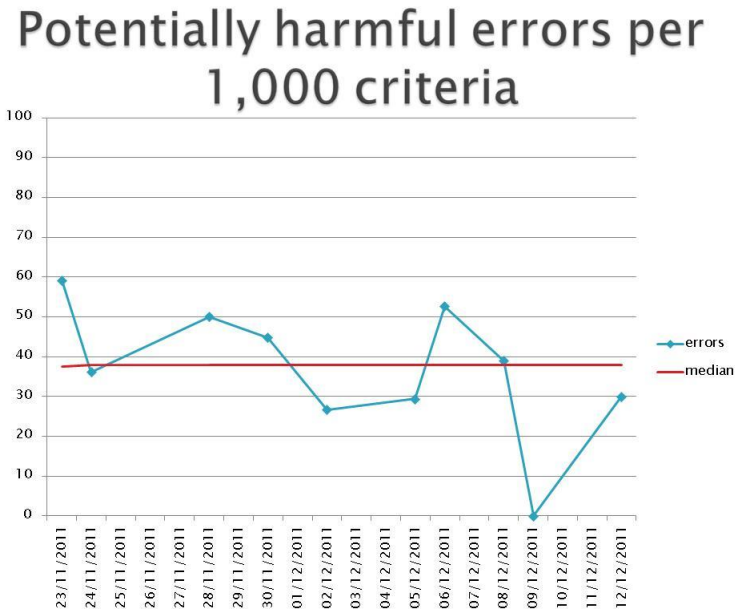


Common errors per 1,000 Criteria



Potentially harmful errors per 1,000 criteria





Summary of results (3-4 sentences):

Between the 23rd November and the 12th December 2011, the total number of in-patient prescribing errors had fallen from 47.6 errors per 1,000 criteria to 22.9 errors per 1,000 criteria. Between May and December there has been an overall reduction in errors with a shift noted during our intervention period. The most commonly made error was the omission of the maximum frequency or dosage of as required medications. Allergy errors were surveyed to have the highest potential for harm. Providing feedback and educational support to prescribers had the biggest impact on reducing prescribing errors.

Learning (4-5 sentences)

Comparison of questions, predictions, and analysis of data:

Our predictions that the number of errors in pediatric inpatient prescriptions would initially be between 10 and 70 per 1000 completed drug prescribing criteria were correct and, as predicted, this was higher than that found by medical staff who had earlier carried out the same audit. It was anticipated that actively observing error rates on inpatient prescriptions would lead to a reduction in the number of errors being made, and this proved to be accurate, however the most effective means of reducing errors proved to be providing feedback to staff and their education supervisors on their errors. We found a shift in the error rate below the median, suggesting that our interventions had an effect on the accuracy of prescribing in the department. Medications prescribed 'as required' (PRN) were the biggest source of errors, and this may provide an area for future improvement work. Auditing all drug charts for all 18 standards was time consuming and not sustainable and so we created a bundle of 5 errors to be audited on an intermittent basis; allowing staff to take charge of this project themselves.

Impact on systems (3-4 sentences)

Discuss the project's significance on the local system and any findings that may be generalizable to other systems:

This project made the local system safer by reducing prescribing errors. We also noticed staff made more of an effort to prescribe accurately and were more aware of quality improvement efforts in the department as a whole, and we believe this was due to a shift in the culture as a result of our project. We found that providing feedback to individuals had the greatest effect on lowering the rate of errors in prescribing. This could be exported to other systems as an effective method of bringing about an initial improvement.

Conclusions (3-5 sentences)
Summarize the outcome of the project. Is this project sustainable? What are the requirements for sustainability?

This project found that providing feedback to prescribing staff on their individual errors leads to a significant reduction in the number of errors made on future prescriptions. In its current format, this project is not sustainable. To be sustainable, a 'top 5' bundle of prescribing standards needs to be developed using data on most potential for harm, most common sources of error and most important for patient centredness. This bundle could be used to audit a random selection of 10-20 drug charts on a monthly basis.

Reflections/Discussions (5-7 sentences)
Discuss the factors that promoted the success of the project and that were barriers to success. What did you learn from doing this project? What are your reflections on the role of the team?

This project was successful as it was well planned and organised, and was strongly supported by staff in the ward – pharmacists, consultants and nurses. It was also based on improvement methodology and we feel this helped towards its success. Our success was limited by our difficulties in measuring harm consistently and we found sustaining improvement to be challenging. Our quality improvement project was valuable to us as individuals is it improved our ability to handle and analyse a data set, in particular planning its analysis prior to collection, allowing only the necessary data to be recorded. We developed our understanding of quality improvement by working through the IHI e-modules while simultaneously carrying out our project. This aided our understanding of the modules as we were able to test the theories we had learnt in a clinical environment. We developed our abilities to work as a team, playing to the strengths of each member, dividing responsibilities and communicating well to ensure tasks were done well and on time.

By signing this document (electronic signature is acceptable), I attest that the information provided by the learners in this project is accurate.

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AUTHORIZATION
Do the learners, faculty sponsor, and health system sponsor authorize this project for publication at www.ihi.org?

√ **Yes** ☐ No