

the non-compliance was caused by confusion over the discrepancy between blood sugar levels measured on bedside and blood gas machines. This led to a guideline amendment that blood sugars less than 2.5 mmol/L should now be confirmed with capillary gas sample. A further staff survey showed improvement in guideline familiarity.

**Lessons learnt** Success of this quality improvement project relied on information from all members of the multidisciplinary team. Their survey responses helped us identify interventions required. We feel the presence of human champions to continue reinforcing the message has helped us maintain good practice.

**Message for others** Our main message is the value of human factors to maintain good practice and involving all members of multidisciplinary team in quality improvement work. Our project has also shown the importance of addressing problems at all levels.

#### G514 SMALL, SMART AND SUSTAINABLE; CHANGES WITHIN A ZAMBIAN CHILDREN'S WARD

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10.1136/archdischild-2015-308599.467

**Context** This work was performed at St Francis Hospital, Zambia between February and July 2010. St Francis is a 340 bed hospital in rural Zambia. The number of Medical Staff at the hospital varies from 4 to 20 relying predominantly on volunteers. Zambian Clinical Officers perform a role similar to an Advanced Nurse Practitioner and there are many Midwives, Nurses and students.

The Paediatric ward has an Intensive Care (IC) area with eight beds, two oxygen concentrators, one suction machine and no infusion pumps. There are 28 malnutrition beds, 68 general beds and 18 cots. Inpatient numbers range from 3 to 300 depending on seasonal variation.

**Problem** My intention was to investigate antibiotic sensitivity to respiratory pathogens. In reality, performing such a study in five months is impossible. You have to manage the acute workload, overcome cultural and language barriers whilst gaining the trust of the staff. My agenda quickly changed.

The admission of a child would typically entail a journey on foot to the hospital, a queue at Outpatients, an assessment by a Clinical Officer then a queue for a cannula. Very sick children would be placed in an IC bed meaning they were reviewed twice a day. New admissions would be seen by a doctor the following morning. No child would have observations recorded.

**Intervention** Firstly we addressed the problem of children arriving at the ward in a hypoglycaemic coma. We made glucose water and cups available to anyone waiting in the queue at outpatients. Secondly, when possible we assigned a Clinical Officer to paediatric triage so that children were a priority. We rearranged the Intensive Care area to create more beds and introduced an incubator for the acutely unwell babies with malnutrition. We created a portable emergency trolley from a disused wooden cart.

The biggest change was a medical presence on the ward from 08.00–18.00. A daily ward round was conducted and the afternoons spent reviewing those in the IC area and new admissions. The aim was to ensure patients had a nasogastric tube sited with regular glucose water and other appropriate medication. A national blood shortage meant provisions were made for parent to child or staff to child transfusions. We gave tutorials on recognising the acutely unwell child and Neonatal teaching.

**Abstract G514 Table 1** Paediatric mortality rates January – June 2010

Month	Jan	Feb	March	April	May	June
Admission	850	768	828	808	1016	530
Deaths	91	79	73	68	80	42
Percentage	10.7%	10.3%	8.8%	8.4%	7.8%	7.2%

**Results** Results were assessed by examining mortality statistics over the 5 month period as can be seen in Table 1. We presented these results to the hospital and the statistics were used in a Government bid for funding for a permanent Paediatric Clinical Officer.

**Discussion** Projects attempted in developing countries require time and planning. Advance contact with the hospital and knowledge of resources is essential but can be difficult with poor internet access and work pressures. Current Specialist Training does not lend itself easily to significant time out of programme. However in a short period of time, by addressing small problems and setting achievable goals, quality improvement measures can be made and have a lasting effect.

#### G515 PEST – PRESCRIBING ERROR SURVEILLANCE TEAM

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10.1136/archdischild-2015-308599.468

**Context** This quality improvement project was carried out at a large general paediatric hospital. The project was performed on our medical and surgical inpatient wards, involving all prescribing healthcare professionals.

**Problem** There had been numerous minor and moderate prescribing errors identified via DATIX and CPSQ meetings, the majority not affecting patient care and were identified prior to administration of medication, thus avoiding serious incidents. However, they caused delays in treatment and sub-optimal, timely patient care. This inefficient practice wastes time and resources of nurses, doctors and pharmacists in identification of errors and re-prescribing of medication.

**Assessment of problem and analysis of its causes** This problem had already been identified at CPSQ meetings and the medication errors were ongoing despite improvement in prescribing training at staffing induction.

A multidisciplinary meeting involving doctors, senior nursing clinicians and the pharmacy lead was held to identify common errors. The prescribing errors were primarily illegible handwriting, inaccurate history taking, confusion with drug names, inappropriate use of decimal points, incorrect completion of drug charts and use of verbal orders and abbreviations. Clinicians were often unaware of errors, with colleagues amending drug charts, with no direct feedback to the person making the error.

**Intervention** Our quality improvement intervention was to implement a “zero tolerance policy” of prescribing errors, such that no medication would be given until correctly prescribed. No verbal orders were accepted. All errors once identified were photographed by paediatric pharmacists. All photographic

evidence was then communicated to the consultant who directly discussed it with the individual responsible, either face-to-face, or via email. Individuals' results were published monthly. The intervention was timed so that it would there would be no staff change over.

The information was relayed back to the multi-disciplinary team in a teaching session, highlighting the numbers and types of errors using graphical evidence.

**Strategy for change** The implementation was simple once agreement had been reached with the pharmacy team who wished to prioritise a reduction in prescribing errors. The main stakeholders involved were the pharmacy team, senior nurses and consultants. Results were disseminated as previously described. It was expected that change would occur slowly initially, with the project needing to be ongoing as medical staff rotate every four months.

**Measurement of improvement** A total of 204 errors were identified in the four months prior to the zero tolerance policy being implemented, and assigned according to staffing posts. These included 26 errors at consultant level, 53 at registrar, 74 SHO errors, and 51 for other prescribing posts.

In the first month of our project being initiated, there were a recorded 74 errors, with the biggest reduction being between this and the second month (34), with a further 34 errors in the third month, reducing to only 10 by the fourth month. This demonstrated a clear trend in reduction of prescribing errors.

**Effects of changes** There was a dramatic decrease by 81% in total errors.

Additionally there has been a generalised perceived but unmeasurable improvement in efficiency of distribution of medication.

**Lessons learnt** This was a surprisingly simple intervention with excellent results. However it has been hard to maintain momentum at continuing this analysis.

**Message for others** This was a simple project to implement and to demonstrate improvement. It improves individual accountability and self-awareness.

There is potential to develop a phone application capturing errors and sending feedback to prescribers, producing a league table.

Since incorrect medical prescribing has been identified as being the single most preventable cause of patient harm (previous studies identifying errors in one in eight charts), this could form part of a formal assessment in the e-portfolio, with doctors providing annual error reports.

G516

#### IMPROVING PAEDIATRIC PRESCRIBING PRACTICE IN A DISTRICT GENERAL HOSPITAL THROUGH IMPLEMENTATION OF A QUALITY IMPROVEMENT PROJECT

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10.1136/archdischild-2015-308599.469

**Context** This quality improvement project was carried out in the paediatric ward of a district general hospital in Northern Ireland. This work was carried out as part of a cross-border patient safety collaborative organised by the Co-operation and Working Together Group (CAWT).

**Problem** Prescribing errors are a recognised cause of adverse incidents having a direct effect on patients. They impact on the doctor-family relationship and result in breakdown of trust. The

existing incident reporting system underestimates medication prescribing errors.

**Assessment of problem and analysis of its causes** A retrospective analysis of prescribing errors between January and December 2013 identified two errors, felt to be secondary to underreporting. Subsequently a baseline audit was performed reviewing patient demographics, allergy status, generic prescribing, drug dosage, timings, drug reconciliation, antibiotic prescribing (indication and duration) and legibility. Twelve drug charts were analysed highlighting 32 errors. A driver diagram identified three components contributing to prescribing errors and relevant tests of change were developed. The three primary drivers included; education and communication, practical prescribing changes and medicine reconciliation.

**Intervention** Seven tests of change were implemented comprising of: presentation of baseline data, staff completion of an online learning module, introduction of a safety notice board, inclusion of data to the nursing safety brief, introducing a medication administration checklist, ensuring staff access to a regional patient information system, appointment of a ward pharmacist and finally developing a pocket-sized antibiotic reference tool.

**Study design** This was a quality improvement project performed using plan-do-study-act (PDSA) cycles and multiple audit cycles.

**Strategy for change** Each intervention was implemented sequentially over a 6 month period and effectiveness assessed by ongoing audit. Ten drug charts were selected at random by the staff nurse allocated to medications on the day of audit. Results were collated in a run diagram in order to disseminate progress to the team.

**Measurement of improvement** The charts were audited using a pre-designed proforma and the total number of errors counted. These were subcategorised and results displayed in graphical format after each intervention. In total seven audit cycles were completed. The number of errors including percentage change following each intervention is as follows: Intervention 1; 32 (+19%), Intervention 2; 31 (+15%), Intervention 3; 17 (-37%), Intervention 4; 12 (-56%), Intervention 5; 15 (-44%), Intervention 6; 7 (-74%), Intervention 7; 10 (-63%).

**Effects of changes** The changes led to a global improvement in paediatric prescribing- a reduction in errors of 63%. This represents a significant improvement in prescribing practice thereby reducing the potential impact on patients of prescribing errors. The main difficulty encountered during the PDSA cycles was regarding resistance to change and buy-in from junior medical staff. Continued encouragement helped to address these issues.

**Lessons learnt** There were two unsuccessful PDSA cycles; presentation of baseline data and completion of an online learning module. This quality improvement project was performed in the six months prior to changeover of staff. It would have been a beneficial project during the initial six month period in order to improve sustainability and patient safety within the trust.

**Message for others** We need to introduce permanent and successful measures to reduce prescribing errors in order to minimise the impact of staff changeover and knowledge deficits. The most significant change followed the introduction of a patient safety notice board which reduced the number of errors from 31 to 17. This represents a percentage reduction of 45% following a single intervention. It follows from this that education and awareness is paramount to continued professional development and quality improvement.