

Six 30 min appointment slots were scheduled per week, during which nursing staff completed the clinic-proforma, performed investigations, chased and conveyed results to parents and sent a GP letter.

**Study design** Audit and observational study of service outcomes were undertaken 6 months after implementation of the new service.

**Strategy for change** Prior to implementing the service approval was sought from the paediatric nursing manager and the clinical head of the Trust's Women and Children's directorate. No extra funding was needed as there was no additional requirement in staffing or clinic-hours. This took 18 months to implement.

**Measurement of improvement** An audit of the nurse-led jaundice clinic was performed measuring the same outcomes as the doctor-led clinic audit in 2010. In 2013 only 18% of infants had additional investigations performed and 100% of these had a documented clinical indication (81% of infants had additional investigations in 2010 with 20% having clinical indication). 92% of infants had stool colour check performed (51% in 2010), 100% had spilt bilirubin performed (91% in 2010) and 100% had clean catch urine dip performed (81% in 2010). 5% of infants in 2013 were followed-up (30% in 2010), and overall 8% had identified pathology (5% in 2010).

**Effects of changes** The nurse-led clinic has led to a significant reduction in unnecessary investigations and follow-ups, and consistency of service for families. Nursing skills and clinic-efficiency were optimised. The cultural challenges of shifting from a doctor to nurse-led service were overcome with a focus on organisational values and collaborative multi-disciplinary working.

**Lessons learnt** The core skills and strengths of different team members can be harnessed to overcome organisational inefficiencies and improve the quality of patient-care. Empowering nurses to run the clinics using transformational leadership enhanced multi-disciplinary team functioning.

**Message for others** Changing a system is possible with multi-disciplinary team working. Audit is a valuable tool for identifying problems and assessing change.

G513

### THE RHINO PROJECT, A QUALITY IMPROVEMENT PROJECT TARGETING EARLY DETECTION AND REFERRAL OF NEONATES WITH HYPOGLYCAEMIA

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**Context** We describe an ongoing multidisciplinary quality improvement project at a maternity hospital with a busy level 3 neonatal unit. The project involved all staff caring for newborns including midwives, nursery nurses, health care assistants and doctors.

**Problem** Hypoglycaemia is a common presentation in newborns and second most common reason for term infant admissions to neonatal units in England. Delayed recognition and treatment of hypoglycaemia can lead to serious neurological deficit and death.

**Intervention** An NHSLA audit was carried out in July 2012 to assess the care of neonates at risk of hypoglycaemia. This showed multiple problem areas including neonates not being managed as per the guideline and "at risk" neonates being monitored using incorrect proformas or not being monitored at all. The audit also revealed unnecessary glucose monitoring of some neonates who no longer required it. A survey of all staff involved in newborn care was carried out and factors contributing to the problem were identified at all levels. At an organisational level, there were obsolete proformas on the ward with different thresholds for referral and three differing guidelines available on the intranet. At team level, the survey revealed that midwives felt it was difficult to contact a neonatal SHO for referral and that there was lack of consistency in advice provided. At an individual level, staff indicated a lack of education regarding the guideline and testing revealed a lack of familiarity, especially amongst trainees.

**Strategy for change** Obsolete proformas were removed from clinical areas and out of date guidelines from the intranet. The current guideline was streamlined and summarised with the addition of a bedside algorithm. An education programme was implemented to disseminate this information, called the RHINO project, an acronym for Referral/Review for Hypoglycaemia/Hypothermia detected during Newborn Observations. Colourful posters were prominently placed on postnatal wards and teaching sessions were organised at postnatal ward handover to call attention to posters and key messages. Nursery nurses based on postnatal wards also continue to act as champions for the project to reinforce the message. Hypoglycaemia guideline education was added to the induction programme for new doctors.

**Measurement of improvement** Further audits carried out at 1, 4 and 18 months showed 100% compliance with almost all criteria, compared with 68 to 89% in the original audit (see Table 1). An audit of neonates admitted to the neonatal unit with hypoglycaemia during the 6 months following implementation of the programme showed 100% and 91% compliance with thresholds for referral and admission respectively. Case review identified

Abstract G513 Table 1 Audit results

Criteria	Standard	July 2012	Jan 2013 (n)	Apr 2013 (n)	July 2014 (n)
Use of appropriate pathway in appendix	100%	68%	100% (14)	100% (14)	100% (15)
Infants 'at risk' of hypoglycaemia to have monitoring proforma completed	100%	89%	100% (14)	100% (14)	100% (15)
Time to first feed and skin to skin documented in notes	100%	86.6%	100% (14)	100% (14)	100% (15)
Was an at risk proforma present in the notes	100%	89%	100% (14)	100% (14)	100% (15)
Were sugars measured at appropriate times	100%	89%	100% (14)	100% (14)	93% (14)

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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**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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**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