**QI story, mapped to BAPM NSQI standards**

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| **Title of QI project:** NeoThermal: Reducing Rates of Neonatal Hypothermia, a Quality Improvement Project  **Name & Role:** Dr Claire Evans - Previous Paediatric Trainee, Dr David Bartle – Consultant Paediatrician  **Workplace:** Neonatal Unit, Royal Devon & Exeter NHS Foundation Trust | |
| **Identifying the need for QI:**  What were the triggers?  (Adverse Events, Guidelines, Service Standards, Bench-marking exercise, other)  NSQI 1 – Evidence Based Care  NSQI 12 – Benchmarking  NSQI 13/14 -Patient Safety | Postnatal hypothermia in neonates is associated with increased morbidity and mortality1. Including:   * intraventricular haemorrhage2 * necrotising enterocolitis3 * hypoglycaemia4 * worsening respiratory distress syndrome5   Resuscitation Council guidance6 and the National Neonatal Audit Programme (NNAP)7 recommend a target temperature range of 36.5°C-37.5°C  Our 2015 NNAP data showed only 61% of admissions less than 32 weeks were within this range. On review, 23% of all admissions had a temperature below 36.5°C  We wanted to improve neonatal thermoregulation in order to improve the outcomes for our babies.  **Aim**  >90% of infants admitted to the neonatal unit from delivery have an admission temperature of 36.5-37.5 degrees. |
| **How did you initiate the project, and create momentum?**  NSQI 15 – QI structure & resources | We initially reviewed temperatures at several points during the patient pathway. This allowed us not only to identify key stages where interventions were needed but also highlight the importance of neonatal hypothermia to all staff involved prior to making any changes.  We then presented this data to staff in order to improve their understanding of the problem and the need for change prior to implementing any of these.  We recruited at least one member of each group of staff involved to provide practical support and encourage momentum of the project. |
| **Describe the role of Multi disciplinary team involvement in your QIP**  NSQI 2/5 – Team working & communication | This project relied upon the involvement of the neonatal unit nursing staff and doctors, midwives and the obstetric team. In order to ensure this project was successful we engaged appropriate individuals:   * Opinion leaders - consultant paediatrician, consultant obstetrician and neonatal unit matron took on this role as they have influence through authority and status. * Team leader – a quality improvement fellow to coordinate and project manage. * Champions – a neonatal nurse and a midwifery matron – to support, market and ensure momentum for the project continued.   ***How did we involve everyone?***  Communication cells happen on an alternate weekly basis where nursing and midwifery teams get together and discuss any training issues, current on-going projects and any other issues. This project was discussed at these to ensure knowledge was disseminated throughout nursing and midwifery teams.  The project was also discussed at regular daily handovers between nurses, doctors and midwives. |
| **What QI techniques did you use – what worked and what didn’t?**  NSQI 15 – QI structure & resources | The consolidated framework for implementation research9 was used to inform the implementation strategy for this project, highlighting all areas that needed addressing from external organisations such as the South West Neonatal Network to local resources, the characteristics of the intervention itself and the knowledge and capabilities of the individuals involved. It was useful to use this as a guide to ensure we had covered all necessary areas.  We used a plan-do-study-act approach which went well with the stepwise implementation of this care bundle. It also allowed for peoples knowledge and skills around the project to be improved before the next change was put in place. |
| **How did you embed this in education and training**  NSQI 17/18 – Education & Training | An education programme regarding neonatal hypothermia was developed for the neonatal nursing staff that was carried out at every evening handover for a week to ensure the majority of staff had received this.  The project and the new guideline was presented at the local neonatal unit teaching sessions. |
| **What Parental/Family Involvement did you have?**  NSQI 6-10 – Parental partnership in care | We have ongoing conversations with SNUG (our family support group) about any changes we are making to the care of babies. |
| **What was the outcome of your QI project?** | **Methods**  A multifaceted care bundle was implemented that included a nursing education programme, hat use, weighing infants in towels, drying and wrapping of infants by obstetric team during delayed cord clamping, polythene bag use for infants <34 weeks gestation and exothermic mattress use during transfer if a temperature <36.5ºC was measured post delivery. This was implemented in a stepwise manner.    IMG_E5285.jpg  **Image:** Sterile Baby Blanket – now included in caesarean section kits to allow drying and wrapping of baby during delayed cord clamping.  **Results**  346 infants were included, 167 at baseline and 179 post intervention. Infant axillary admission temperature increased from 36.86ºC to 37.01ºC (p value <0.01). The number of infants with a temperature <36.5ºC decreased from 18.6% to 9.5% (p value 0.01) at baseline versus post intervention.  Slide1.jpg  **Conclusions**  The care bundle was associated with a significant improvement in thermoregulation. Ongoing close monitoring of neonatal temperature is essential to prevent the proportion of babies with hyperthermia, increasing since these changes have been implemented. |
| **What 3 points of advice would you give others about to embark upon QI work in their unit?** | 1. Point 1 – ensure there is a leader from each staff group involved. E.g. having an obstetrician and midwife involved in the project really boosted the project uptake/involvement from their teams 2. Point 2 – aim to make small but meaningful changes 3. Point 3 – it takes time – much longer than you would expect to just change a few simple things |

**References**

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