Nursing babies of insulin-dependent diabetic mothers on the postnatal ward

Although diabetes in pregnancy can lead to severe complications in some babies most have no complications at all and others present with transient problems that can be managed effectively on the postnatal or transitional care ward. The challenge that the SCBU staff faced was how to transfer the care of these babies to the midwives on the postnatal ward while ensuring safe and effective care.

Ann Elliott
RGN, RM, ENB 904, ENB 998
Ward Sister, Special Care Baby Unit
York Teaching Hospital NHS Foundation Trust
ann.elliott@york.nhs.uk

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Key points

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1. The Quality Improvement Skills Programme (QuISP) can be used as a means to introduce and sustain changes to practice.
2. A pathway of care for babies of insulin-dependent diabetic mothers was developed to prevent separation of mother and baby.
3. The pathway was implemented utilising the Plan, Do, Study, Act (PDSA) cycle.

The NICE clinical guidelines relating to diabetes in pregnancy, re-issued in 2008[1], state that 'the baby should stay with the mother unless extra neonatal care is required.' York hospital does not have a transitional care ward and the babies of those mothers on insulin were therefore routinely admitted to the special care baby unit (SCBU). Discussions had taken place over a period of time, relating to transferring the care of these babies to the midwives on the postnatal ward. Unfortunately none of these discussions had led to any changes being instigated possibly, due to a lack of awareness as to how to take this forward in a safe and efficient way.

QuISP

An invitation to become involved in a Quality Improvement Skills Programme (QuISP) provided the impetus to make these changes. The programme was being facilitated by Bliss and the Improvement Foundation. (The Improvement Foundation ceased operating in February 2010). Since then, Bliss has continued to offer a similar change management programme (the Bliss Quality Improvement Programme BQIP) The programme is a series of three workshops designed to equip teams with the tools and skills required 'to better influence, introduce and sustain changes in their practice[2].'

Approval was granted for accepting the invitation and to ensure a mixed approach a multi-disciplinary group came together. The group included:

- the ward sister from the SCBU (who was also nominated as the group leader)
- the matron for Child Health (to present a management and hospital overview)
- the matron for Midwifery Services (to represent the midwives point of view)
- one of the consultant paediatricians (to cover medical aspects)
- a member of the patient quality and safety team.

Defining the problem

The first formal workshop focused the group's attention on defining the problem with the aid of tools that included 'The improvement journey'[3], 'Root cause analysis (5 whys)'[4] and the Ishikawa (Fishbone)[5] diagrams. With the help of these tools, the group identified that the issue to focus on was whether it would be possible to nurse babies of insulin-dependent diabetic mothers (IDDM) on the postnatal ward thus preventing separation of mother and baby.

Planning stage

Having defined the problem, it was time to move on to how to implement changes

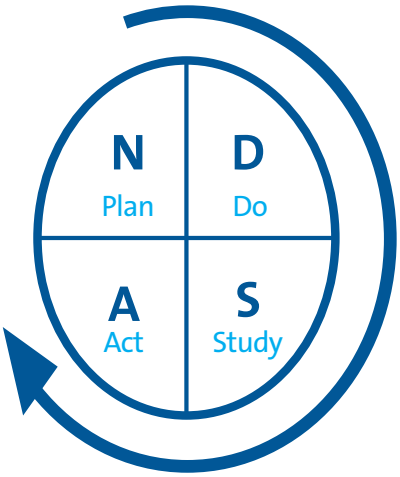

FIGURE 1 The PDSA improvement model.

using the PDSA[3] (Plan, Do, Study, Act) improvement model (**FIGURE 1**). This proved to be a very useful tool and enabled the group to remain focused on specific areas.

At the outset of the programme no information was available as to how many babies were involved and of those, how many had presented with other clinical problems that would have necessitated admission to the unit. Therefore the first stage of the PDSA cycle, the planning stage, started with a review of the medical and nursing notes of all babies of IDDM admitted to the unit during 2008. A list of babies was obtained using the Trust maternity computer system and any baby that had been admitted for other reasons was excluded, leaving 35 sets of notes to be reviewed.

It soon became apparent that the majority of these babies had required little or no medical input: 30 of the babies admitted could have stayed with their mothers. The remaining five developed problems which would have required them to be transferred to the unit later on. Points that were reviewed included:

Age on admission – how soon were the babies being admitted. There was a local agreement in place that unless there was another clinical reason for admission the baby should stay with his/her mother for the first couple of hours after delivery. It quickly became apparent that there was a significant variation in the timing of admission.

Age first blood glucose test was performed and the result of this test – NICE guidelines[1] state that 'Blood glucose testing should be carried out routinely in babies of women with diabetes at 2-4 hours after birth.' It became apparent that the majority of the babies had had their blood glucose checked well before the minimum two hours postnatal age (**FIGURE 2**). This was possibly due to the fact that they had been admitted to the SCBU and staff felt that they should be checking the blood glucose. However to commence before the recommended time is not informative, as babies experience a physiological transitional fall in blood glucose level in the first hours after birth[6]. Hawdon[6], describes how the baby can be at risk of possible iatrogenic harm due to blood glucose levels being tested and acted upon too soon after delivery, as highlighted in the CEMACH enquiry in 2007[7].

Method of feeding – there was

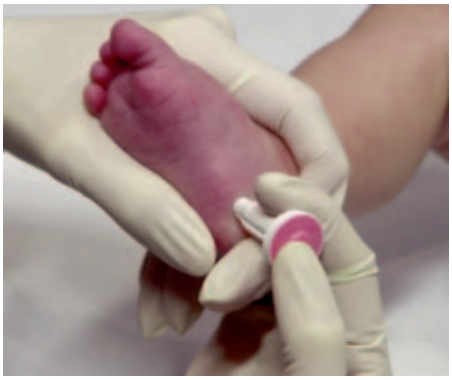

FIGURE 2 Using a lancet to perform a heel prick and obtain a blood sample for testing.

significant variation in how these babies were being fed with some of the breast fed babies being offered supplementary feeds either by tube or by cup, with others being taken to their mothers for breast feeds.

Overall time spent in hospital – would transferring the care of these babies to the postnatal ward impact on the overall time spent in hospital? This was important as it was felt it could impact on bed availability on the postnatal ward. It transpired that there would be no significant impact on the overall length of stay.

Documenting proposed changes

During the second workshop the group discussed change and transition and were tasked with producing a process map. This was taken back to the unit and, along with other information, was displayed on the unit notice board allowing staff to read, discuss and comment on the proposed changes. It became apparent that there were anxieties and concerns regarding the proposed changes both from the neonatal staff and the midwives. This fitted in with another aspect that had been discussed in the second workshop – that of moving out of the comfort zone[8] into the discomfort zone, but without pushing staff into the panic zone.

In order to address these concerns it was decided that a very clear pathway of care would be drawn up so that all staff involved knew what to do and when to do it. The pathway included guidelines advising on how to prevent hypoglycaemia, including feeding the baby within 30 minutes of birth, when to check the blood glucose and the symptoms of hypoglycaemia – apathy, lethargy, stupor, coma, irritability, jitteriness, tremors, apnoea, cyanosis, poor feeding, vomiting, hypotonia, weak or high pitched cry, seizures. A record sheet was included as well as a flow chart of the care pathway. The idea was to ensure that the whole care pathway was user friendly.

Trialling the changes

Following development of the care pathway the group moved on to the 'Do' of the PDSA cycle. To ensure that the pathway was useable, it was decided that it would be trialled on the SCBU first. This would allow changes to be made in a controlled environment as well as minimising confusion on the postnatal wards.

During the final workshop, sustainability was discussed in relation to changes made and how to manage the process of sustainability. To ensure sustainability and also to ensure that safe and effective care was being delivered, it was decided to review the changes over the first year.

Implementing the changes

Two months after the first workshop, the care of babies of IDDM was transferred to the midwives on the postnatal ward. The midwives on the ward at the time were enthusiastic about the change and it was their suggestion that they undertook this. Initially the midwives were asked to inform SCBU when an IDDM was admitted on to the delivery ward so that if necessary the staff from the unit would be able to offer support and this would be built in to the workload for that shift. As a back up to this, the midwives on the postnatal ward were also asked to inform the unit when the mother and baby were transferred to their care.

Having completed three of the four parts of the PDSA cycles it was decided that unless it became apparent that there were problems with the change, a review would take place four months after the changes were first introduced.

Evaluation

Over the first four months 14 babies whose mothers were on insulin were born. Of these, five were admitted to SCBU for other clinical reasons. Of the remaining nine babies only one required subsequent admission to the unit with hypoglycaemia. This baby was managed with hourly milk feeds and was soon back with his mother on the postnatal ward. At the time of the review it was decided that the only action that needed to be put into place was a general reminder regarding documentation, otherwise it was felt that the change had so far been successful.

To ensure that the changes were being

sustained, a further review took place after 10 months. A further nine sets of notes were reviewed with two being discounted as the babies were admitted to SCBU for other reasons. Of the remaining seven all but two had a copy of the care pathway in their notes and none of the babies required admission to the unit later on. The documentation on the care pathways showed compliance with the recommended timings for blood glucose assessment. The postnatal ward had informed the staff of SCBU about only two of the babies. It is not yet known whether this is because staff were now feeling confident regarding the care of these babies, or because of variation in the way different midwives work and respond to the pathway.

Reflections

Overall it has been agreed that the change has been successful. The group is therefore back at the 'P' of the PDSA cycle and can start looking at the next project. At the present time babies less than 36 weeks' gestation are admitted to the unit, so the next project could be assessing the possibility of changing this to 35 weeks or perhaps reviewing the weight criteria for admission.

During the workshops, it became apparent that individuals within the group had different learning styles and different personal styles; there was a mix of reflectors, activists and theorists. This mix led to time spent planning but also movement forward taking place.

From a personal perspective the insight into personal learning and leadership styles and the opportunity to acquire new skills have gone beyond the problem initially identified. They are being utilised in many ways and the challenges faced have moved us out of our comfort zone on occasions, but the group continues to move forward and progress to new challenges.

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