

QI story, mapped to BAPM NSQI standards

<p>Title of QI project: Golden Drops: An early expressing initiative to improve first day provision of mother's own milk to preterm babies</p> <p>Name & Role: Gardiner G RM, McCormick J N RM, Freer Y RGN RM RSCN BSc Midwifery, PhD, Becher JC FRCPCH MD MBChB. Primary author: Gillian Gardiner.</p> <p>Workplace: NHS Lothian, Simpson Centre for Reproductive Health (SCRH), Royal Infirmary of Edinburgh.</p> <p>Tel / Email: gillian.gardiner@aapct.scot.nhs.uk</p>	
<p>Summary of project (for use on website – max 60 words.)</p>	<p>The Simpson Centre for Reproductive Health in Edinburgh established the 'Golden Drops' project, a quality improvement initiative to improve early provision of mother's own milk to preterm infants less than 32 weeks.</p> <p>This cross-specialty initiative has resulted in an increase in the proportion of preterm infants receiving their own mother's milk in the first 24h from a median of 83% to 100%.</p>
<p>Identifying the need for QI:</p> <p>What were the triggers? (Adverse Events, Guidelines, Service Standards, Benchmarking exercise, other)</p> <p>NSQI 1 – Evidence Based Care NSQI 12 – Benchmarking NSQI 13/14 -Patient Safety</p>	<p>A key objective of the neonatal Scottish Patient Safety Programme (SPSP) is to achieve a 15% reduction in neonatal deaths through the delivery of a Perinatal Wellbeing Package in which 'early maternal breast milk receipt within 24h' is a process measure.</p> <p>In SCRH the NEC rate in very low birthweight (VLBW) babies was 8-10% (2011-14). In 2014, an average of only 60- 65% of VLBW or <30w gestation babies in SCRH received their own mother's breast milk within 24hrs of birth. Early breast milk is increasingly known to have immunomodulatory effects in the preterm gut and that early colostrum may be key in establishing a favourable gut flora, while maternal breast milk protects against necrotising enterocolitis, late onset sepsis, adverse brain development, bronchopulmonary dysplasia and retinopathy of prematurity.</p> <p>Due to these important benefits, since 2014, we have established a local focus for improvement to implement and embed evidence-based practice in improving provision of mother's own milk to preterm babies.</p> <p>In aiming to raise awareness and learn more of the science of lactation, the SCRH in 2015 firstly organised the international conference 'Breast milk: Science and Practice in the Neonatal Unit' which focused on the topic of optimising maternal lactation and enteral health in the newborn. New knowledge was learned about the efficacy of double pumping in increasing milk volumes and the importance of expressing as soon as possible after birth. Historically in SCRH we had used hand expression only for the first 72hrs, and had asked mothers to express within the first 6 hours of birth. An initial improvement drive saw rates of early breast milk approach 90% but by 2017 there appeared to be a loss of momentum and rates fell to a median of around 80% and on some months as low as 50%.</p> <p>The Golden Drops Project was therefore established with an improvement focus in four main areas:</p> <ol style="list-style-type: none"> 1. To achieve staff consistency in information delivery to mothers- Golden Tips 2. To increase staff awareness of the benefits of early breast milk 3. To improve the ease of lactation by establishing a system of 'Golden Basins' 4. To improve awareness of barriers and enablers among staff groups of ways of working and challenges in other work areas

How did you initiate the project, and create momentum?

NSQI 15 – QI structure & resources

The Golden Drops project was initiated collaboratively by devising a multidisciplinary working group of staff from the Neonatal Unit, Labour Ward and Postnatal Wards with champions allocated and actions plans made, with the expectation of actions being met before each meeting. We devised a driver diagram of our aim, primary drivers and change ideas to have an overall aim to which we adhered.

Our initial actions to launch the Golden Drops initiative were:

1. Establishing a multidisciplinary working group who brainstormed the problem and process-mapped the lactation journey (Figure 1)
2. A change in labour ward standard from within 6hrs of birth to within 1hr with a new expressing method of hand massage, double electric pumping then hand expressing.
3. Staff awareness and education:
 - a. Breastfeeding updates across the workforce meeting Unicef guidance
 - b. Education poster
 - c. Information about the Golden Drops project and rationale for early and sustained expressing in safety briefs in all areas
 - d. Staff were allocated shifts out with their usual workplace to understand best barriers and enablers
 - e. Development of ten ‘Golden Tips for Golden Drops’ (Figure 2) were displayed publicly
 - f. We increased staff knowledge by developing a standard PowerPoint slideset which we taught weekly for 8 weeks (Figure 3). We recorded all staff members who had attended, and we trained >80% of staff.
4. Parental support for lactation:
 - a. Antenatal verbal and written education for parents via neonatologist-led ‘Ready, Coming or Not’ discussions.
 - b. Early expressing packs containing written information- later superceded by Golden Basins
 - c. Purchase of more breast pumps in order to be able to support more women with regular expressing as equipment was limited, making it difficult to commence and sustain expressing
 - d. Purchase of Golden Basins which contained all required accessories, including syringes, caps, labels, pump expressing sets. We applied information stickers to basins in order to have at hand information about rationale, technique and cleaning of equipment (Figure 4)

Figure 1.

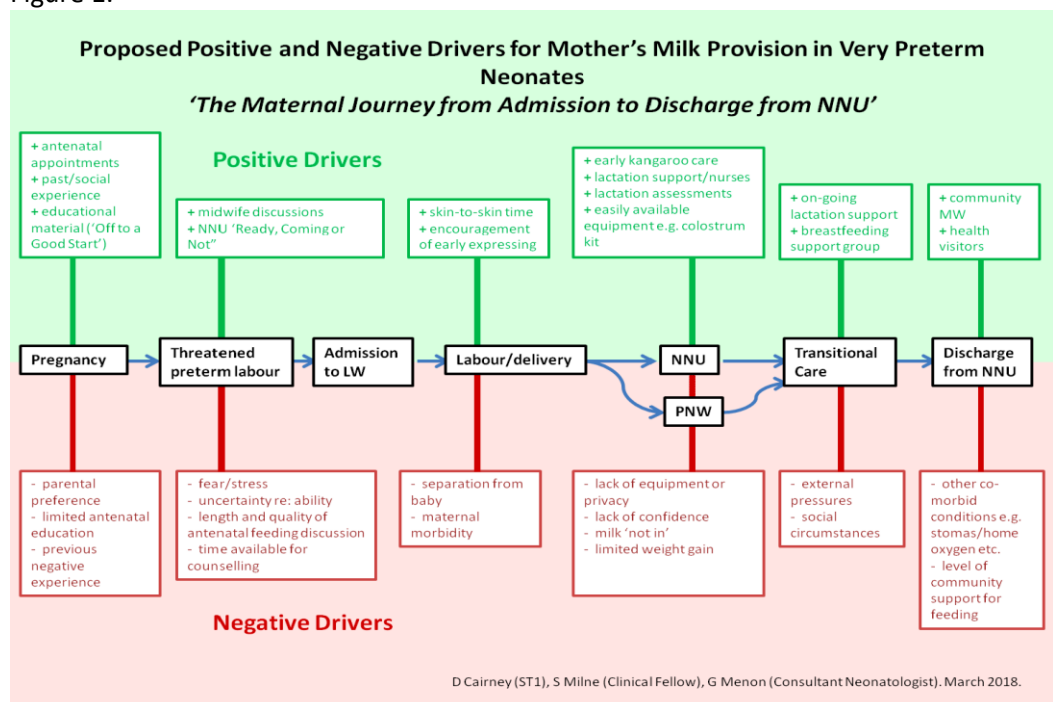



Figure 2



Golden Tips for Golden Drops

Aim: 90% of NNU babies should receive their own mother's milk within 24 hours of birth

Improving NNU baby health using mother's milk

1. Mother's own milk reduces necrotising enterocolitis and sepsis and improves brain outcomes
2. Donor breast milk does not show the same degree of benefit
3. Priming breasts within an hour of delivery improves later milk volumes
4. Massage each breast for a minute to raise hormone levels before pumping
5. Always double pump to stimulate the breasts as this will increase milk volume
6. Hand express after pumping to collect the colostrum/milk
7. Always fully empty the breasts to increase milk production
8. Prime and express 8-10 times in 24 hours and at least once between midnight and 5am
9. Any milk produced by NNU mums should go to the NNU and not be stored in PNW fridge
10. Every drop of mother's milk is precious and can be used

Figure 3



Figure 4.



Golden Basin for Golden Drops

Mother's breast milk:

- ◆ reduces the risk of baby having a serious disease called necrotising enterocolitis
- ◆ reduces the risk of your baby having a bloodstream infection
- ◆ improves your baby's brain development

Technique:

- ◆ start as close as possible to birth
- ◆ prime and express 8-10 times/24hrs
- ◆ hand massage your breasts for 1-2 minutes to stimulate
- ◆ double pump on highest setting that is comfortable for 15 mins
- ◆ hand express for a few minutes to collect milk
- ◆ use syringes or bottles when collecting milk

- ✓ Priming your breasts frequently in first 24-48h helps establish milk flow by day 3
- ✓ Expect little milk (0-3mls) at each expression during the first 48 hours



Golden Basin for Golden Drops



After priming and expressing:

- ◆ Fill the Golden Basin with hot water and detergent and separate the pump parts
- ◆ Wipe clean the clear tubing as this does not go in the water for washing
- ◆ Wash parts that come into contact with milk/breasts and rinse to remove soap
- ◆ Air dry on paper towel for at least an hour and store in clean plastic bag/box
- ◆ Use fresh sterilised bottles or syringes each time you express
- ◆ Write baby's name, date of birth and date and time of expressing on sticker
- ◆ Apply sticker to syringe or bottle
- ◆ Add numbered sticker to show the order in which milk is expressed
- ◆ Take milk immediately to the neonatal unit, either yourself or a member of staff
- ◆ Every expression takes you one step closer to a good milk supply

To gain momentum and increase engagement we carried out the following activities:

1. Branding: The Golden Drops Project- Golden for the connotations of 'precious' and 'special' and Drops to emphasise that even tiny amounts of milk were important to preterm babies (Figure 5)

Figure 5.



2. Staff feedback: we collected monthly audit figures of percentage of babies receiving mother's own milk within 24hrs and 72hrs to gain buy in and show the team the positive outcomes from the hard work undertaken. These figures were displayed in public corridors for staff but also for women and families to read. This demonstrated our ethos of improving neonatal outcomes via safe, effective and evidence-based care.
3. Cake: We held face to face tutorials for staff during the launch week and had cupcakes with the Golden Drops logo- learning by food is always a winner!
4. Aids: we developed laminated staff cards with 'Ten Golden Tips for Golden Drops' for successful early expression and gave these to every member of nursing, midwifery and medical staff in the department (Figure 6).

Figure 6



Describe the role of Multi disciplinary team involvement in your QIP

NSQI 2/5 – Team working & communication

The role of the multidisciplinary team was to form cohesive bonds between the teams, develop shared goals and understand each other’s roles in supporting early lactation. It was important that we worked collaboratively across the three ward areas to establish expressing and support women fully. While our various roles can be different at different time points in a woman’s lactation journey, it was important to develop a shared ethos across the team.

Our shared experience also helped us in understanding the human factors in resistance and yielding to change in order to support staff through this period of change.

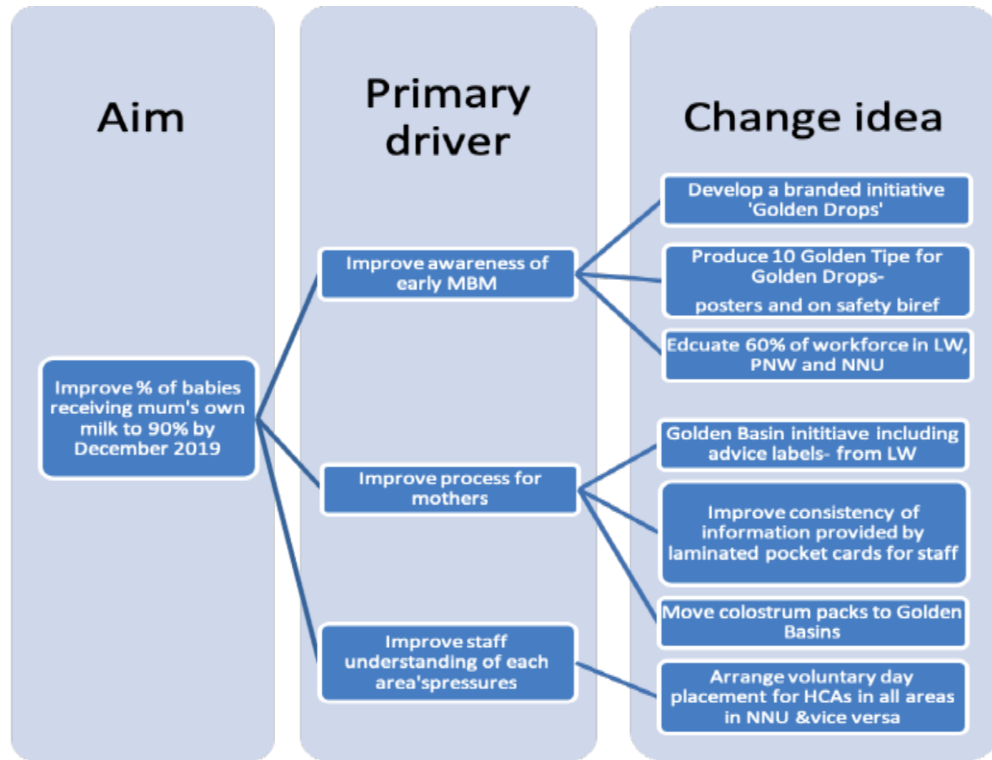
What QI techniques did you use – what worked and what didn’t?

NSQI 15 – QI structure & resources

What worked:

- Working in collaboration across teams
- Setting goals and displaying improvement data
- Using a driver diagram (Figure 7)
- Dissemination of information to parents and staff
- Documentation deep dives to assess when expressing commenced and any barriers
- Plan, do, study, act (PDSA) cycles.
- Process mapping
- Seeking parent experience

Figure 7



What didn't work:

- Difficulty in obtaining reliable data about time to first expression
- Colostrum often not given at feed times or at cares and therefore recorded variably in Badger
- Timescales took longer than expected such as securing funding for new breast pumps.
- The Golden Drops basins all went missing (!) as women thought they were their own personal equipment and took home to continue expressing. We learnt from this and bought new basins, attaching stickers on the sides to return to labour ward on discharge.

How did you embed this in education and training
NSQI 17/18 – Education & Training

This QI was embedded by making it a collaborative project across the unit creating buy in. We increased and shared knowledge by:

- Creation of 10 Golden Tips for Golden Drops
- Teaching package implemented in practice
- Educational posters
- Educational laminated cards as a quick reference guide

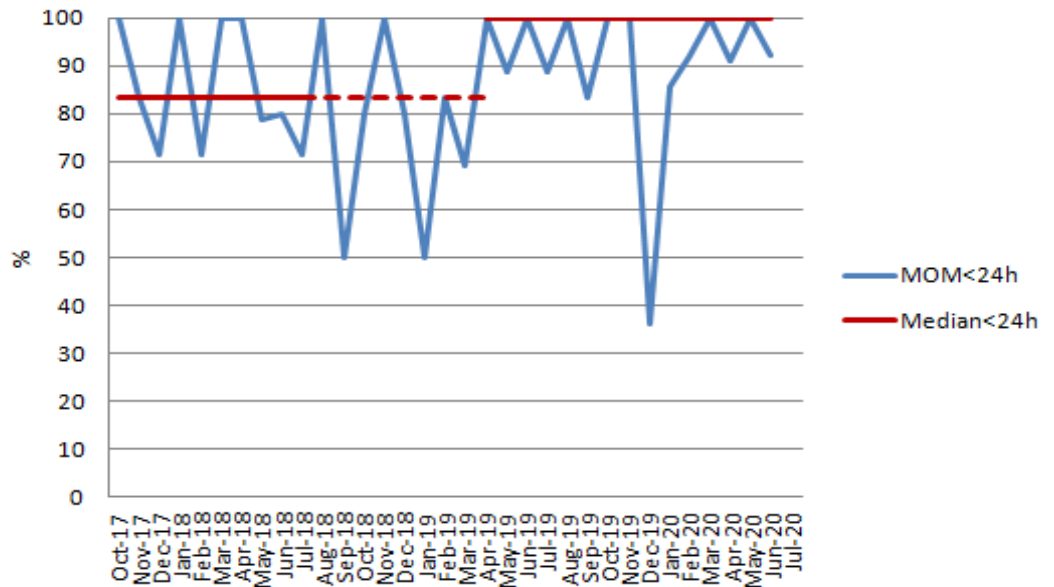
What Parental/Family Involvement did you have?
NSQI 6-10 – Parental partnership in care

There was input from the parental/family involvement within the service Quality Improvement Team and a parent joined our Gut Health group for a short period of time to develop the positive and negative driver diagram.

What was the outcome of your QI project?

The outcome was an overall sustained improvement in the proportion of preterm babies <32w receiving mother's own milk, measured within 24hrs of birth to a median 100% since April 2019. (Figure 6)
An unexpected outcome was the feeling of joint responsibility to support lactation across the service.

<32 weeks: Mum's own milk (MOM) <24h



What 3 points of advice would you give others about to embark upon QI work in their unit?

1. Point 1. Working in collaboration creates buy in through shared goals and shared experience.
2. Point 2. High quality communication within the QI team and throughout the frontline staff is essential.
3. Point 3. Always measure the improvement and make change visible to staff and families, creating a deliberate culture of improvement and safety.