Changing practice by the earlier introduction of tube feeding at home

The practice of offering long-term nasogastric home tube feeding packages of care to the parents of compromised babies has become an accepted and almost routine part of neonatal care. However the practice of short-term nasogastric feeding within neonatal community care is relatively new and untapped. By introducing these changes to feeding practice, the future of neonatal discharge pathways and duration of hospital stay may be revolutionised.

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Key points

Bissell G., Wood A., Peak S., Woodward D., Towers A., Nettleton L., Miall L. Changing practice by the earlier introduction of tube feeding at home. *Infant* 2009; 5(5): 150-54.

1. Promoting early progression of feeding in the community helps the infant's integration into the family unit.
2. The future of neonatal discharge pathways and duration of hospital stay may be revolutionised by introducing of short-term nasogastric NGT feeding within neonatal community care.
3. This project offers a comprehensive guided approach to short-term home NGT feeding for infants and their parents or carers.
4. The early home feeding practice has proved to be very successful with parents/carers.

Both multiple birth and low birthweight babies frequently experience extended periods of time within the neonatal unit (NNU) environment, due mainly to their inability to establish oral feeds. This results in increased pressures on already stretched resources[1], and the perceived analogy of 'bed blockers' of the over 34 weeks' gestation infant encroaching on resources[2]. As demands for cot capacity have increased both locally and regionally, it was surmised that care may be delivered in different ways. One solution was to offer families the opportunity to establish feeds at home through the early introduction of short-term home nasogastric feeding of infants.

The benefits extend beyond economic and resource acuity to the promotion of physical and psychological benefit to the family unit[3]. By promoting early progression of feeding in the community the infant's integration into the family unit is greatly enhanced, helping the family to restore a sense of control over their infant's care and progress[4]. The early transfer home of infants can also alleviate the family's problem of travelling to the NNU, benefit families with siblings, and help to establish breastfeeding through 24 hour feeding contact in the home environment with their mothers[5] (**FIGURE 1**).

Project impetus

The first impetus to establish this project came from a set of triplets born at 29 weeks' gestation. The triplet's mother was very keen to establish breast feeding, but because of child care commitments for her eldest daughter she was unable to room in on the NNU with her babies. Furthermore each triplet had a very different feeding pattern from that of its sibling. In an effort to re-unite these babies with their family as soon as possible, the Neonatal Outreach Team (**FIGURE 2**) decided to offer the family the opportunity of taking their babies home with a plan for short-term NGT feeding. The parents were extremely keen, so an adapted educational package was devised: one that had traditionally been used for babies going home with long-term tube feeding needs. The outcome was extremely successful with three thriving babies and very happy parents (**FIGURE 3**).

The second impetus to this project came primarily from a need to increase ways in which to promote early discharge. Short-term NGT feeding at home ensured cots were not unnecessarily blocked and allowed the admission of new infants.

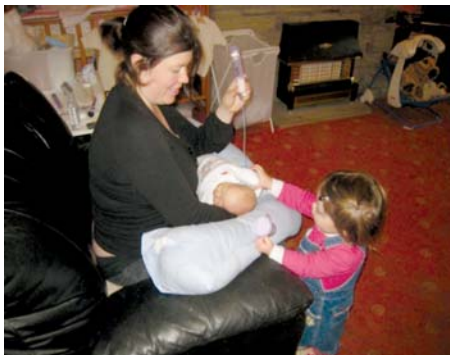

FIGURE 1 Tube feeding at home enables the infant to become a part of the family unit.

Project aim

The initial aim of the Neonatal Outreach Team was to introduce a new safe package of care tailored to the individual needs of an identified infant and family who required short-term home NGT feeding.

Project management

Although there is a large body of literature that describes the practical techniques of

Neonatal Outreach Nurses

"In the last decade, improvements in neonatal care have decreased mortality for the sick and preterm neonate, resulting in an increasing trend to discharge smaller and more vulnerable neonates into the community". (Gennaro & Bakewell-Sachs, 1991)

The Service

- The Neonatal Outreach Nurses are experienced nurses who have specialist knowledge of neonatal conditions
- The nurses provide care to babies in hospital on the Neonatal Unit or in the Transitional Care Ward
- Care is continued into the home
- The service is provided by five nurses, who generally offer seven days a week cover to all of Leeds

What are our Aims ?

- To provide early discharge planning
- To enable parent involvement and responsibility
- To empower families to care for their infant
- To promote earlier discharge home and reduce the need for re-admission
- To be an integral part of the multi-disciplinary team
- To provide a seamless transition from hospital to home
- To keep the family unit together

Who Do We Care For ?

- Our work includes any infants with an issue that concerns those caring for them.
- Importantly we care for the whole family as a unit.

- Prematurity
- Low birth weight
- Feeding problems, failure to thrive, including babies with NGT feeds and electric feeding pumps
- Chronic lung disease, including oxygen dependent babies
- Special needs such as drug and alcohol withdrawal
- Cardiac anomalies
- Babies who have had surgery
- Neurological sequelae/haematological problems
- Metabolic and chromasomal disorders
- Palliative and terminal care

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FIGURE 2 The role of the Neonatal Outreach Team.

FIGURE 3 Now healthy two-year-olds, Aoife, Aine and Ailish were born at 29 weeks' gestation and tube fed at home until breast feeding was established.

- Telephone enquiry of experience of short-term home NGT feeding
- Review of literature for NGT home feeding
- Discussion at Clinical Operation Meetings to introduce concept and trial of practice
- Team coaching sessions
- Risk assessment documentation
- Policy guideline (parent led)
- Robust programme of teaching and follow-up in community
- Parental teaching package of three way options developed
- Trial roll out to NNU parents offering choice of home NGT feeding

TABLE 1 Project strategy.

NGT feeding, there appears to be a paucity in published articles that reflect the whole process and associated documentation required to deliver a safe and effective home feeding programme to the neonate. To ensure success of the project the team formulated a strategy of implementation over a six month period as outlined in **TABLE 1**.

Identification of discharge home criteria

To qualify for the early discharge on short-term home NGT feeding, the criteria listed in **TABLE 2** were identified as prerequisites for the infant and family to fulfil. These guidelines ensure the safety and effectiveness of the infant and family home feeding package of care.

Considerations for a staged discharge approach

The safety and efficacy of any home feeding programme is dependent on the individual assessment of the needs of each patient and family; integral to this is forward planning and communication between the tertiary and secondary health services[3]. Therefore NGT feeding discharge planning requires a multidisciplinary staged approach, with the families being offered supplemental discharge preparation within the NNU before home integration, ongoing community nursing support in tandem with hospital neonatal consultant case responsibility.

The initial stage of assessment for suitability for infant home NGT feeding is initiated by nursing staff within the unit. Should there be identification of major feeding difficulties in infants then short-term home NGT feeding would not be considered as an option for families. However once identified as a feasible option, further discussions with a consultant neonatologist, unit staff and the Neonatal Outreach Team ensue, usually culminating in a decision to pursue the home feeding option for parents.

It is at this point that further discussions with parents/carers concerning the need for short-term NGT feeding may be introduced. Careful consideration of the parent's feelings and abilities to cope with home feeding should equally be noted, avoiding any pressure to comply to taking their baby home earlier than they feel able to do so[4,8]. If parents do decide to consent to the route of earlier home discharge then they must understand the principles of taking their infant home with an NGT *in situ*[9].

Within this home NGT feeding pathway of care, parents/carers are introduced to two feeding packages A and B. After discussion a decision may be made as to which package parents would consent to for short-term home NGT feeding. The

1. Infant must be >34 weeks' corrected gestation
2. Infant is able to maintain axilla temperature >36.5°C
3. Infant is able to demonstrate stability in blood sugar levels (in case there is a delay in receiving a naso-gastric feed when the NGT comes out)
4. Infant is able to take 2-3 breast/bottle feeds well with good co-ordination in 24 hours
5. Infant must have finished all monitoring for at least 48 hours and be self-ventilating in air
6. If diagnosised with gastro-oesophogeal reflux, then infant is on treatment and symptom control has been achieved
7. Infant is medically fit for discharge
8. Infant must be gaining weight (actual weight unimportant)
9. Parent/carers must have completed a NGT feeding teaching package; inclusive of documentation and be confident in all aspects of care
10. An individualised risk assessment has been undertaken and troubleshooting flow diagrams for NGT feeding are available to reduce potential practical problems
11. The Neonatal Outreach Team (NOT) is able to provide a good quality, safe service, with appropriate staffing levels and equipment[4,6,7]

TABLE 2 Criteria for inclusion.

Neonatal Outreach Team had in the past offered a long-term feeding package of care (package C) which was applied to parents dealing with infants with major long-term feeding problems (neuro developmental).

Package A

Parents/carers learn to check the tube is correctly positioned but do not wish to learn to pass the NGT. The infant must be on a regime of half breast/bottle and half NGT feeds, and it is anticipated that the infant will go on to all oral feeds within a few weeks.

Package B

Parents/carers learn how to safely pass a NGT and check it is correctly positioned. The infant must take at least 2-3 breast/bottle feeds well with good co-ordination in 24 hours, and it is anticipated that the infant will go on to oral feeds within a few weeks.

The strategy for a staged approach to home NGT feeding is underpinned by processes within the NGT Discharge Framework (**TABLE 3**) which must be adhered to in order to minimise practice risk.

1. Viability of home NGT feeding practice for infant and consultation with parents/carers
2. Determine if parents/carers consent to package A or B and Neonatal Outreach Team complete individualised risk assessment
3. Commence appropriate education package and practice competency components (routine discharge planning runs parallel to this)
4. All components of NGT feeding pack completed and all aspects of competency documentation completed with the 'Agreement of Care' contract for parents and carers prior to discharge home (including basic life support)
5. Ensure all necessary equipment required for home NGT feeding is provided to enable safe delivery of care
6. Encourage rooming in on unit prior to discharge home (can be done prior to completion of education package)
7. Discharge can only take place when all those involved are satisfied with the final decision to take the infant home
8. The medical discharge summary must be available on day of discharge (stating short-term tube feeding in it) and the baby cannot be discharged without this discharge summary for parents to take
9. The following framework must be adhered to by all parents/carers who elect only to follow package A whereby the NGT becomes dislodged or removed:
Between 17:00 and 08:00 hours if the infant is unable to complete the required volumes of milk by bottle or breast the parents/carers must telephone the unit and arrange to return to the unit for the replacing of the infant's NGT

TABLE 3 Home NGT discharge framework.

Pilot project results

The initial trial of introducing this new practice was piloted on one NNU site.

- A total of eight short-term NGT feeding babies were audited at home discharge
- All parents opted to learn how to pass a NGT
- 2-29 days NGT *in situ* at home

Outcomes

- Reduction of 105 hospitalised NNU days stay
- No untoward incidences recorded
- No re-admissions to hospital with feeding-related problems
- Positive response from parent experience
- Positive response from multidisciplinary team

Current practice results

Following on from the success of the pilot project, this new practice continued to be rolled out across the neonatal service in Leeds (two NNU sites and two Transitional Care sites). The current trends from a recent 2007-2009 audit are shown below.

- A total of 40 short-term NGT feeding babies audited at home discharge
- Five parents opted not to learn how to pass a NGT
- <1-29 days NGT *in situ* at home

Outcomes

- Reduction of 475 days hospitalised NNU days' stay
- No untoward incidences recorded
- No re-admissions to hospital with feeding-related problems
- Positive response from parent experience
- Positive response from multidisciplinary team

Discussion

The practice of early home NGT feeding proved to be an undeniable success, measurable in both terms of economic and social outcomes. By considerably reducing the infant's days of hospitalisation, this released greater potential for bed capacity in the Neonatal Services. The Neonatal Outreach Team were also able to negotiate a tariff payable by the PCT for each home visit generating further income to help offset any financial implications for the potential increase in workload or extra resources required. Though there were in fact no significant rises in the home visiting case loads, the team also utilised telephone exchanges with the families on a fairly regular basis to elicit the progress of infants and to assess the family's coping abilities.

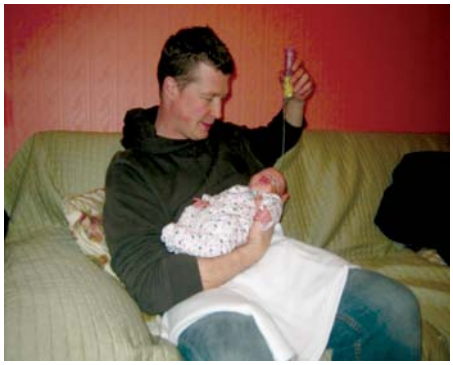

FIGURE 4 Home tube feeding gives dad a chance to bond with his baby.

From the aspect of risk management there were no infant re-hospitalisations and zero untoward incidents reported. In terms of parent satisfaction the early home feeding encouraged better bonding, family unity, and improved continuity in breastfeeding (**FIGURE 3**). In support of these outcomes some testimonies from mothers who engaged in the early home feeding practice are shown in **FIGURE 4**.

All these mothers clearly describe a positive experience that addressed their individual needs. The mothers also seem to express a mutual agreement in the themes salient to the success of early home NGT feeding; a willingness to tube feed at home; information and practice; and back-up support whilst in the community.

"We were just so happy to take Daisy home, and tube feeding her was not as hard as we thought." *Mum to Daisy – 28 weeks' gestation, tube fed at home 15 days.*

"Tube feeding at home was a fantastic idea; it helped us to take all the girls home at the same time." *Mum to Aoife, Aine and Ailish – 29 weeks' gestation, tube fed at home until breastfeeding established.*

"I was very anxious at first, but I had lots of help with all the tube feeding information, and I was really pleased with all the support we got when Yusef came home." *Mum to Yusef – 26 weeks' gestation tube fed at home for 15 days.*

FIGURE 5 Testimonies from mothers.

FIGURE 6 Daisy was born at 28 weeks' gestation and tube fed at home for 15 days.

Conclusion

The practice of short-term NGT feeding within neonatal community care is a relatively new and untapped practice. Even the initial reservations of some health professionals to accept this revolutionary discharge pathway did not detract from the successful change in feeding culture. As it became the standard practice, parents and carers themselves pursued the new feeding option, and it is they themselves that have begun to take the lead. It has proven to be a safe and effective way to promote early discharge and establishment of breastfeeding.

The team aim to collect further data relating to the gestation of infants both on discharge and their gestation once they have established all oral feeds at home; though the team reiterate the practice has more holistic value than just lowering gestational discharge age, saving of days and cost.

The introduction of this innovative practice won the 2008 Innovations Award given by Chiesi.

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