BLENDED FOOD FOR ENTERAL FEEDING VIA A GASTROSTOMY

Suzanne Brown explains how one hospice has helped families to provide their children with a blended diet, while ensuring they are aware of the risk factors.

Abstract
A blended diet for enteral nutrition is defined as home-made everyday food blended to a smooth ‘single cream’ consistency. At present, blended food is not recommended as a first choice. However, the wishes of parents who prefer to use blended food for their child need to be respected, and hospice policy for Children’s Hospice South West is to replicate home conditions as far as possible. Therefore guidelines have been created for use of a blended diet. However, benefits in physical and emotional health need to be balanced against risks of tube blockage, contamination and digestive upsets.

Keywords
Blended food, children’s nursing, digestive system, enteral feeding, gastrostomy, hospices, palliative care, paediatrics, risk assessment

IN THE PAST TWO years, there has been an increase in the number of families requesting that their child with a gastrostomy be fed blended food, rather than formula, while staying at Little Bridge House, Children’s Hospice South West. Attempts to tube feed have been made over several centuries, but advances in enteral feeding were made only with the advent of antibiotics and the development of the first polyethylene tube and feed pumps in the 1950s. At this time, there were efforts to produce broken-down, synthesised formula, but problems with poor tolerance resulted in kitchens being asked to prepare feeds from blending regular, well-tolerated foods (Chernoff 2006).

With advances in medicine, children and adults started to survive longer with life-limiting conditions, acute illnesses and premature birth, although many required nutritional support via tube feeding (O’Gorman 2012). The 1980s saw the development of commercially made, nutritionally complete, sterile formulas, which reduced incidence of contamination, tube blockage and problems that could arise with diet kitchen blends (British Dietetic Association (BDA) 2013).

Today, blended food for tube feeding (blended diet, blenderised diet) is defined as home-made everyday food reduced to a smooth consistency to enable it to be given by gravity, syringing or via a feeding pump, through a gastrostomy button or percutaneous endoscopic gastrostomy (PEG) (O’Gorman 2012). Where there are prescription costs, strict insurance schemes or just lack of availability of enteral formula, families may opt for blending food, or this may simply be their preferred choice (Lambert and Meng Han 2009).

Aims
This article aims to explain the gathering of information and process of risk assessment that took place between June 2012 and January 2014 to formulate practical guidelines that may enable care staff at the children’s hospice to administer blended food via a gastrostomy when judged appropriate.

Investigation
For the use of blended food, a risk assessment was required and development of guidelines had to be approved by the clinical governance team. Initial online searches revealed little. Nine dietitians based at a variety of UK children’s hospitals were contacted.

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to gauge their experiences of blended diet and whether they had any guidance for its use.

Initial feedback was not encouraging, with many reporting that it was not NHS policy and that National Institute for Health and Care Excellence (NICE) guidance (NICE 2012) only recommended the use of formula for enteral feeding, supported by the British Association of Parental and Enteral Nutrition.

Last year, in recognition of the growing interest in the UK about the use of blended food, the BDA (2013) issued a policy statement, indicating that it does not recommend the practice of blending home-made food for enteral tube feeds and it fully endorsed the use of licensed, evidence-based and sterile formulas. The BDA, however, affirmed that dietitians have a duty of care to patients and to meeting their clinical needs, while respecting the emotional needs and preferences of families/carers. Dietitians should ensure that families receive individualised information to enable them to make an informed choice about using liquidised food, and should perform a risk assessment for tube blockage, microbial contamination and compromise of nutritional stability, while ensuring that they protect themselves as individual practitioners by following their employers’ clinical governance, risk management frameworks and guidance (BDA 2013).

Benefits and potential problems
By April 2014, Little Bridge House was used by 15 children, known to care staff, who had at least one meal a day of blended food via a gastrostomy (Figure 1). Anecdotal evidence from families on their experiences reported improvements in:

- Condition of hair and skin.
- Mood and sleeping at night, especially in the absence of overnight feeds.
- Reflux, and reduction in the use of anti-reflux drugs (Pentiuk 2011).
- Bowel function.

Parents gain a sense of empowerment and control in meeting a basic need of their child, and this desire to feed and nurture cannot be underestimated (Lambert and Meng Han 2009). In a qualitative study on feeding children with cerebral palsy by Sleigh (2005), parents said that gastrostomy feeding lacked emotional content, and they mourned the loss of nurturing if a child no longer ate.

However, there can also be problems associated with blended food, such as:

- Tube blockage.
- Potential damage to the stomach lining, gastrostomy button.
- Risks of contamination and infection.

The manufacturers of the gastrostomy button Mic-key (Vygon) and Classic Mini (Applied Medical Technology) state in their literature that their tubes can be used for home-made blended food, recommending that this should be under the supervision of a dietitian (BDA 2013). Both devices can be routinely replaced in the home. The smallest tube, the 12FR, has an end diameter of 2.3mm.

To reduce the likelihood of blockage, it was decided that food cooked and prepared at the hospice would be blended to a smooth consistency (stage one baby food, like ‘single cream’) using a blender, then put through a metal sieve with holes of 1mm diameter. To maintain patency, the gastrostomy button would then be flushed with a minimum of 20ml of water.

It is not unheard of for families to use blended food via PEGs. If blocked, these require replacing in hospital, often under anaesthetic. This affected a few children, but it was decided to continue with the feeds, provided parents were aware of the implications.

For the smallest PEG tubes, such as 9FR with an internal diameter of 1.9mm, feeds would need to be blended well and sieved through a metal sieve with holes of 1mm diameter, to ensure the mixture contains no lumps big enough to block a 1.9mm tube. The PEG should be flushed with a minimum of 30ml of water to maintain patency (measurements confirmed by manufacturers).

During discussions with local dietitians, concern was expressed that plunging/syringing – using a 50ml syringe with a plunger to bolus feed – could cause damage to the stomach or gastrostomy device. Unable to find any guidance specific to this, a practical demonstration was devised using a plastic
should study food hygiene online, to reduce risk of contamination to feeds in the home.

Guidance outlined for Little Bridge House aimed to state that blended food prepared at home should arrive at the hospice frozen and be stored in the freezer, labelled clearly with the child’s name, date of preparation and contents, before defrosting in the fridge, then used within 24 hours. Freshly prepared food would be blended at the time of serving and either used immediately or stored in a clean, sealed container in the fridge for no more than 24 hours. Three methods of reheating were agreed, depending on parental preference and provided feed had been prepared in accordance with food hygiene and storage recommendations (Box 1).

Once a feed has been reheated, anything left over must be discarded (World Health Organization 2007). All equipment should be washed thoroughly in hot soapy water, rinsed and drained immediately after use. Gastrostomy buttons and PEGs should be flushed until the tube appears clear.

Other considerations
Little Bridge House encourages families to engage with their dietitians, and provides information leaflets produced by some South West dietitians. Children who have not previously eaten orally will need to be ‘weaned’ and monitored for allergies. For those who find it difficult to tolerate large volumes, it may take time to move from slow pump feeds to bolus feeds, requiring forward planning. To help with volume tolerance for formula and blended diet, there is some anecdotal evidence from families who have found it useful to give a bolus of water 30 minutes before a feed; this is to prepare the stomach by washing out previous feed and stretching it (O’Gorman 2012).

Many families describe an improvement in reflux and constipation when using blended food. However, a few find that some foods can make reflux
worse, which requires continuing use of anti-reflux medication. Some children are also reported as not being able to cope with a sudden introduction of non-soluble fibres, causing constipation.

Other considerations for families are the costs of food, blenders and time spent on planning and preparation. Blended diet is not as convenient as formula and entails forward planning for days out and holidays. It is also thought that the process of cooking and preparing foods can cause loss of some nutrients, although it can enhance others (Lambert and Meng Han 2009).

Discussion
There are pros and cons to enteral formulas; preparations are sterile, easy to use and in most cases do not require modification. Only powder forms will require time spent in preparation. Provided formulas are stored correctly before and after opening, they are safe microbiologically and their nutritional content, macro- and micronutrients, can be relied on (Lambert and Meng Han 2009).

However, formulas do not contain all the components found naturally in foods, such as antioxidants and bioflavonoids, which are considered important in the long-term prevention of disease. These cannot be added, due to legislation prohibiting their use, as well as lack of evidence on safe and appropriate levels to add (Lambert and Meng Han 2009).

Those taking solely sterile preparations will not have the supply of necessary bacteria, which is gained from consuming a normal diet and helps maintain the normal function of the gut. However, formulas containing fibre do have a probiotic component, which may contribute to the maintenance and proliferation of healthy gut flora. Probiotic preparations such as live yogurt or capsules of bacteria could also be administered (Lambert and Meng Han 2009).

Perhaps inadvertently, individuals fed enteral formulas long term could be missing out on components that occur naturally in food and that are potentially essential to their health and wellbeing (Lambert and Meng Han 2009). In a Canadian paediatric hospice, Siden et al (2009) identified a group of enteraly fed children with chronic life-limiting conditions (non-cancer), who developed progressive intolerance to their feeds. Symptoms included worsening reflux, vomiting, abdominal bloating and pain. Despite changes to treatment, these children had repeated episodes before the end-of-life phase of their illness. This raised the question as to whether progressive paediatric enteral feeding intolerance is a new prognosticator for children with life-limiting illness. As yet, there are no adequate explanations for such intolerance, whether this is due to deficiencies in nutrients, inadequacies in standard formulas, problems in the gut nervous system or in its communication with the central nervous system (Siden et al 2009).

There appears to be little evidence or research that directly compares formula with blended diet for the enteral nutrition of children. The author is aware that that one UK university is interested in researching the health, social benefits and implications of blended diet. In North America, one company has developed a shelf-safe product for gastrostomy feeding made from ‘real food’, which it aims to distribute worldwide.

Conclusion
Blended diet is not recommended as a primary choice for enteral feeding and therefore may not be supported by all those involved in a child’s care, such as schools and respite placements. However, with careful consideration, risk assessment and communication with local dietitians, Little Bridge House has been able to develop practical guidelines that support and replicate care received in the home for families who choose to use blended food for gastrostomy feeding.

References