Nursing management of patients who are nil by mouth


Summary
This article examines how to manage patients who are nil by mouth (NBM) and maintain optimal nutritional status. Pre-operative fasting and other reasons why patients might be NBM, methods of administering nutritional support and nursing considerations, such as mouth care, urine output, intravenous therapy and skin assessment are also discussed. The article provides an insight into the psychological effects on patients who are NBM and emphasises the importance of patient education.

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Keywords
Enteral and parenteral nutrition; Fasting; Pre-operative fasting; Pre- and post-operative care

PATIENTS MIGHT BE designated nil by mouth (NBM) for a variety of reasons and for varying lengths of time. Some patients can be kept NBM for a relatively short time before undergoing anaesthesia, while others may undergo a NBM status for longer periods, for example, severely impaired pharyngeal clearance following a cerebrovascular accident (CVA). Patients might have had surgery or radiotherapy to the head or neck, have carcinoma of the head or neck area, have a fistula of the oral cavity or oesophagus, have a non-functioning or inaccessible gastrointestinal (GI) tract as a result of a bowel obstruction, toxicity or have undergone major abdominal surgery (Aylott et al 2004). The nursing management of patients who are NBM is important to ensure that the individual is not exposed to the damaging physiological and psychological effects of prolonged fasting.

This article aims to examine some of the reasons why a patient may be kept NBM and draws on the nursing assessment and management of such patients. In addition to physiological monitoring the article emphasises the importance of the psychological preparation and management of patients before and during the NBM period.

Reasons for keeping patients nil by mouth
Patients are commonly kept NBM before undergoing anaesthesia, however, there are a number of other common reasons.

Dysphagia
This can be defined as an abnormality in swallowing and occurs in approximately 45% of patients admitted to hospital with a CVA (Royal College of Physicians 2004). Dysphagia causes problems with the oral phase of swallowing, which may present as a difficulty containing liquid in the oral cavity, difficulty in chewing or initiating swallowing of food (Corcoran 2005). It is vital that a dysphagia-trained nurse or speech and language therapist completes a swallowing assessment within 24 hours of admission so that nutrition is not withheld for longer than is appropriate (Corcoran 2005). While awaiting a swallowing assessment the patient will be kept NBM and hydrated via an intravenous (IV) infusion. If the patient’s pharyngeal clearance is severely impaired, the patient will be unable to ingest sufficient amounts of food to sustain life, and enteral feeding will be required (Palmer et al 2000).

Pancreatitis
This is defined as acute inflammation of the pancreas, and it can be acute or chronic. The severity varies and can range from mild oedema to severe necrosis and haemorrhage (Heitkemper et al 2007). Pancreatitis causes problems with the oral phase of swallowing, which may present as a difficulty containing liquid in the oral cavity, difficulty in chewing or initiating swallowing of food (Corcoran 2005). It is vital that a dysphagia-trained nurse or speech and language therapist completes a swallowing assessment within 24 hours of admission so that nutrition is not withheld for longer than is appropriate (Corcoran 2005). While awaiting a swallowing assessment the patient will be kept NBM and hydrated via an intravenous (IV) infusion. If the patient’s pharyngeal clearance is severely impaired, the patient will be unable to ingest sufficient amounts of food to sustain life, and enteral feeding will be required (Palmer et al 2000).

Pancreatitis is a life-threatening condition and is associated with a mortality rate of 5-10% (Longmore et al 2004). There are many causative factors but the most common are increased alcohol consumption and gallstones. These account for the majority of episodes experienced by patients (Hughes 2004).

Pancreatitis can cause problems with most major systems of the body so close monitoring is required. During the acute stage, the patient will be NBM to reduce stimulation of the gut and production of pancreatic enzymes.
much quicker than solids (Phillips et al 2002). There are many factors that can cause an intestinal obstruction to either the lower or upper GI tract. These include a prolonged paralytic ileus, cancer of the bowel, inflammatory bowel disease (Hughes 2005) and retained rectal foreign bodies (Turner 2004). A patient with a small or large bowel obstruction will be NBM as the fluid levels in the gut can rise quickly, which causes the bowel to dilate and peristalsis to cease. This prevents water and minerals from being absorbed, leading to a fluid and/or electrolyte imbalance (Torrance and Serginson 2000). It is essential, particularly before a patient goes to theatre, that any imbalances are corrected through an IV replacement regimen, which will also help to maintain haemodynamic stability.

**Pre-operative fasting**

The nursing responsibility of fasting patients before an anaesthetic is one of the common daily practices on a surgical ward. It is a medical and legal requirement that patients must not be anaesthetised without this period of fasting, except in cases of emergency surgery (O’Callaghan 2002). This is to reduce the risk of vomiting and regurgitation and the possible aspiration of gastric contents during anaesthesia (Seymour 2000), which could cause aspiration pneumonia or asphyxia. There has been significant interest in pre-operative fasting and, despite evidence that shortened fasting times do not increase the patient’s risk of a harmful event, there are still wide variations in clinical practice in the UK (Royal College of Nursing (RCN) 2005).

The focus of this article is the nursing management of patients who are fasting or are being kept long-term NBM and it is, therefore, beyond its scope to discuss in detail the evidence base for decreased fast times. However, it is important to note that the RCN has published guidelines for perioperative fasting in adults and children (RCN 2005). These guidelines provide recommendations for good practice based on evidence and suggest that patients should no longer be fasted for periods of eight to 12 hours before surgery but should follow the ‘2 and 6 hour rule’ for adults and the ‘2-4-6 hour rule’ for children, indicating safe times for intake of fluids and solids.

It is now known that gastric emptying times of fluid and food are different with fluids clearing much quicker than solids (Phillips et al 1993), and, as such, water can be taken for longer than solid food. For adults it is safe to take in water up to two hours before induction of anaesthesia and for food (solids, milk and milk-containing drinks) six hours. Children can take in water and other clear fluids up to two hours before induction of anaesthesia, breast milk up to four hours before and formula milk, cow milk or solid food up to six hours before (RCN 2005). As with any guidelines there will always be exceptions to the rule and where anaesthetists believe that a patient might be at a particularly high risk of aspiration during anaesthesia a longer fast time can be ordered. Such high-risk patients include those who are obese, have gastroesophageal reflux and diabetes (RCN 2005).

Prolonged fasting times can arise for a variety of reasons, including a lack of knowledge by clinical staff, patient choice, or cancellation or reordering of theatre schedules. If the patient does experience a prolonged fasting period the body will draw on its own reserves and enter a period of catabolism, which can leave the patient with insufficient strength and energy to negotiate post-operative recovery (Rowe 2000).

Intake of fluid and food in the initial post-operative period is often poor for a number of reasons. It might be because of anorexia induced by stress, poor gastric motility, pain or nausea (Wood 2005). The nurse should provide the patient with guidance and encouragement to achieve a nutritional intake to meet his or her individual requirements. In the case of major abdominal surgery, oral food and fluids will be started once the surgeon is satisfied that gastric emptying and gut function have resumed. This can take many days (Wood 2005) and further nutritional support might be needed.

**Nutritional support**

Nutritional support refers to a variety of methods of administering nutrients to patients to encourage optimal nutritional status (Aylott et al 2004). In the case of the patient who is NBM such methods include enteral tube feeding and parenteral nutrition. Depending on the length of time the patient is to be kept NBM, all patients should be appropriately assessed for the need for nutritional support techniques. Nursing staff should ensure that they are familiar with the techniques used so that patients can be managed and any complications detected swiftly.

**Enteral tube feeding**

This is the administration of a formula feed into the patient’s GI tract by a tube (Lutz and Przytulski 1997) and might be used either in the short term or on a more permanent basis. There are several different feeding tubes available. **Nasogastric (NG)/naso duodenal (ND)** This is the most common tube feed and is suitable for short-term feeding for less than four weeks
Confirming the position of nasogastric tubes in adults

- Check if the patient is on acid inhibiting medication
- Check for signs of tube displacement and measure tube length
- Reposition or repass the tube if required
- Aspirate using 50ml syringe and gentle suction

Aspirate not obtained

Do not feed
- If possible, turn the patient onto his or her side
- Inject 10-20ml air into the tube using syringe
- Wait for 15-30 minutes
- Try aspirating the tube again

Aspirate obtained (0.5-1ml)

Do not feed
- Advance tube by 10-20cm
- Try aspirating the tube again

Aspirate obtained (0.5-1ml)

Test using pH strip indicator
- pH 6 or above
- pH 5.5 or below

Do not feed
- Leave for up to 1 hour
- Try aspirating again

pH 6 or above

Aspirate not obtained

pH 5.5 or below

Do not feed
- Seek advice
- Consider replacement or repassing the tube and/or checking position on X-ray

(NPSA 2005)

Proceed to feed

Hydration is also important for patients with oxygen therapy and/or an NG tube because the mucous membranes of the nose and mouth need to be moist (Hughes 2004).

Gastrostomy Where feeding is required for longer than four weeks a gastrostomy might be more suitable. A percutaneous endoscopically guided gastrostomy (PEG) tube is commonly used and, once inserted under sedation, the patient does not have to undergo the uncomfortable tube insertion associated with the NG technique. The PEG tube is held in place by a flange, inflated balloon or flexible dome (Aylott et al 2004). For longer-term feeding the tube can be replaced with a silicone button which lies flush with the patient’s skin, making it less obvious and more cosmetically acceptable.

Jejunostomy If the patient has undergone surgery to the stomach or has a pyloric obstruction, a jejunostomy is preferable. The fine-bore catheter is passed into the jejunum and exits through the abdominal wall.

Monitoring for potential complications and ensuring optimal nutritional status of the patient are essential in those undergoing enteral feeding. Body weight, full blood count, urea and electrolytes, blood glucose, fluid balance, tolerance to feed, quantity of feed taken and care of the tube and stoma site are all important aspects of the nursing management of these patients – some of which are discussed further in this article.

Parenteral nutrition This type of feeding is administered via any route other than the GI tract (Lutz and Przytulski 1997). Solutions containing all of the nutritional requirements to meet the daily needs of the patient are administered, usually via a central vein. With careful attention peripheral veins can also be used in the short term by using a peripherally inserted central catheter (PICC). However, this is not the preferred method because of complications, such as thrombophlebitis associated with the use of smaller veins (Colagiovanni 1997) and the risk of extravasation causing tissue necrosis.

Total parenteral nutrition (TPN) is useful in patients with GI obstruction, a prolonged ileus or uncontrolled vomiting and diarrhoea, however, as a result of the nature of delivery via a central catheter, the patient is exposed to risk of complications such as infection. The catheter insertion site should therefore, be observed frequently for signs of infection and phlebitis. A transparent dressing should cover the insertion site to ensure continuous monitoring of the site and only be changed as required (Jevon and Ewens 2002).

For the patient receiving TPN, the nurse must ensure that aseptic technique is maintained at the bedside when administering feeds.
Administration sets should be changed every 24 hours and a dedicated lumen should be used and labelled specifically for TPN. Medications should not be injected through this lumen as many medications are incompatible with TPN. Rates of TPN delivery should not be estimated and a volumetric pump should be used to ensure accurate delivery of the feed (Wood 2005). If there is any remaining feed left in the bag after 24 hours this should be sent back to pharmacy and not administered to the patient.

In addition to those complications that should be monitored for the patient receiving an enteral feed, the nurse should also be aware of the metabolic complications associated with TPN (Aylott et al 2004). If the patient shows signs of fluid overload, hyper or hypoglycaemia, raised urea and phosphate, or hyper or hypokalaemia, the feed regimen and composition must be adjusted. The patient’s vital signs should also be monitored, in particular temperature which will give an indication of sepsis.

**Other nursing considerations**

**Mouth care** This is an essential nursing procedure that should be considered an integral part of the general hygiene of a patient, yet many patients do not receive adequate mouth care while in hospital (Adams 1996, Evans 2001). The assessment of a patient’s oral health and the delivery of appropriate oral care can prevent potential infections, distress and discomfort, as well as reducing the risk of dental and systemic disease (Xavier 2000). It is well documented that patients who are unable to take adequate nutrition and fluids or have had a period of pre-operative fasting are predisposed to poor oral hygiene putting them at risk of such complications (Xavier 2000, Evans 2001).

When patients are unable to eat or drink the mouth becomes dry and the nurse needs to provide appropriate and adequate oral care to keep the mouth clean and reduce infection. In addition, patients might need oxygen therapy that will also dry the mouth. Where patients require nutritional support, such as enteral and parenteral nutrition, effective oral care is also important particularly as a result of inactivity of the oral structures.

Patients should be offered regular mouth washes and given clean equipment for them to provide their own oral care if they are able. A lip lubricant might also be appropriate to moisten the lips, prevent cracking and help provide a natural barrier for potential infection (Xavier 2000).

**Monitoring urine output** Monitoring the patient’s fluid balance is important, as dehydration will affect the patient’s fluid and electrolyte balance as a result of a disturbance of the normal homeostatic mechanism. Correcting this imbalance is essential in maintaining the equilibrium of the body’s internal environment (Bopp 2007). Therefore, measuring and recording urine output should form part of the patient’s assessment and help determine fluid requirements. Thus, to ensure perfusion of the renal system, the patient’s urine output should be a minimum of 0.5ml/kg/hr (Judson 2003). To assess the overall fluid balance all measurements need to be recorded on a fluid balance chart for accuracy alongside any IV fluids, feeds or flushes.

In addition to monitoring the amount of urine the patient is excreting, the nurse should also observe the colour of the urine. When a patient is dehydrated, the urine will be more concentrated and may appear darker in colour. This is because the pituitary gland releases an anti-diuretic hormone in an attempt to preserve fluid levels and restore homeostasis through reabsorption of water in the renal tubules (Springhouse 2005).

**Laboratory tests** The use of laboratory tests is important in obtaining a baseline measurement of a patient’s nutrition but also the effects of being NBM and/or receiving enteral or parenteral nutritional support. Laboratory data include results from blood, urine and stool tests. The results of these tests will reveal much of what a person has eaten, what his or her body has stored and how nutrients are being used by the body (Lutz and Przytulski 1997). Commonly, blood is taken from patients who are long-term NBM or receiving nutritional support and analysed for glucose, protein or fat content.

Patients are particularly at risk of becoming dehydrated. Normally patients respond to the thirst reflex by drinking fluids and eating foods that have a high water content, however, the patient who is NBM is unable to do this. Diagnostic tests may show a raised haematocrit, urine specific gravity, serum osmolality and sodium level (Springhouse 2005) and these need to be acted on if found.

Dehydration is poorly tolerated and the nurse should observe the patient for signs of fatigue, weakness, hypotension, tachycardia and circulatory failure. In addition to vital signs the nurse should inspect the oral mucosae, jugular venous pressure and skin turgor to detect dehydration (Keshav 2004).

**Blood glucose monitoring** It is important that patients with diabetes are given a 5% dextrose infusion in conjunction with a sliding scale of insulin when required to be NBM to avoid potential hypoglycaemic episodes (Wood 2005). Alongside this, regular blood glucose monitoring should be carried out and the infusions titrated accordingly.

If the patient is receiving a parenteral feed then concentrated glucose solutions will be incorporated. The nurse should monitor the
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blood glucose level of the patient carefully as stated in the local policy, but at least every four hours (Colagiovanni 1997). As previously discussed the feed must be given through a volumetric pump to ensure that the infusion rate is controlled and potential fluctuations in glucose administration are avoided.

**Intravenous therapy** IV hydration is usually provided by 0.9% sodium chloride or 5% dextrose. It is important to remember that this provides fluid replacement only and even dextrose is of little nutritional value in the quantities given (Wood 2005). Therefore, the nurse should frequently monitor the patient and if nutritional intake does not commence as expected, the provision of alternative support should be assessed and instigated.

Strict fluid balance should be adhered to. This is important to ensure an actual balance rather than a perceived one. In addition, cannula sites should be checked regularly for signs of inflammation or phlebitis, and replaced according to local policy. IV fluids should only be discontinued once the patient is managing adequate oral intake and urine output. Consideration must also be given to sensible and insensible fluid loss through respiration, sweat and defecation.

**Skin assessment** The body uses food for energy, growth, maintenance and tissue repair. A decreased nutritional input may predispose the patient to the development of pressure ulcers and contribute to impaired healing of wounds (Dealey 2005, Wood 2005, Bale and Jones 2006). For the surgical patient, this risk is heightened because of the effects of anaesthesia and associated hypotension, hypothermia and reduced blood flow (Shoup et al 2005). Therefore, careful monitoring of these patients is particularly important.

Skin has a natural resilience to help an individual overcome any potential problems causing it to breakdown. Efficient metabolism means that the skin requires between 2.0-2.5 litres of fluid per day (Bale and Jones 2006). Therefore, a skin assessment can form a baseline of the initial findings and ongoing assessments provide information of the effectiveness of care. In this assessment, clues to determine if a patient is dehydrated can be assessed by inspecting the skin for Maxwell’s sign (Cox 2004). This is where a skin fold on the patient’s forehead is pinched and when released should rapidly return to its original position. If slow, this indicates that the patient has decreased extracellular volume (Bopp 2007). In addition, the skin should be inspected for early signs of damage, dryness and wrinkles (Dealey 2005). In older people this may be more difficult as their skin may already be dry, wrinkled and non-elastic.

**Psychological effects**

Alongside the physical effects of being NBM, the patient is also exposed to many psychological effects. Cronin (2000) wrote of patients and nurses being contextually distant because the nurse did not understand the experience of the patient who is kept NBM. Patients are often nursed in bays in which other patients are able to eat and, therefore, seeing the food and smelling it can have an effect on the patient’s desire to eat. There are emotional complications from the stigma of being unable to eat, which is viewed as a largely social activity (Hamdy 2004). Patients often feel isolated during mealtimes as others eat together with the patient’s feelings being compounded by the label attached confirming their NBM status (Cronin 2000). This social isolation will inevitably alter the patient’s perception of his or her worth, body image and response to being NBM.

In trying to understand patients’ experiences when planning care, the nurse should remember that the wishes of the patient are paramount. Healthcare professionals should explain carefully, in an unbiased and clear way, the rationale for any proposed nutritional therapy (Wood 2005) and await consent. Patient education is vital in managing the individual who is to be kept NBM, no matter how long, and will go some way to addressing some of the patient’s psychological needs.

**Patient education**

While the reluctance of clinical staff to adopt minimum fasting times is noted in the literature, the reluctance of patients to follow written instructions and to fast for longer than necessary has also been noted (Best et al 2004). For the pre-operative patient, the pre-assessment environment is useful for giving instructions to patients about their NBM status both pre-operatively and post-operatively. Patients need to be reassured that they can and should maintain their oral intake until instructed to stop. Information should be given about mouth care to aid comfort during pre-operative fasting. Clear information should be provided on when it will be expected that the patient can begin to eat and drink following the procedure (Best et al 2004). Patients should also be made aware of the potential complications associated with their NBM status or their enteral/parenteral feeds—such as the signs and symptoms of hypoglycaemia—so that they can report any changes to staff. Patients who are to be kept NBM for longer periods of time and are receiving parenteral
nutrition should be taught how to manage their feeds (if appropriate), aseptic techniques and monitoring for complications, such as infection.

**Conclusion**

It is important that all members of the multidisciplinary team are involved in the care of a patient who is NBM to ensure a co-ordinated approach to nutritional management is achieved. Nurses should ensure they are aware of the most recent guidelines on safe fasting times for pre-operative patients and integrate them into local policy. For those patients who are long-term NBM, nurses must ensure frequent and appropriate assessment of nutritional state and implement nutritional support systems. Patients on such systems will require correct management and communication from nurses and other members of the multidisciplinary team. The nurse should focus on the physiological, psychological and social effects on the patient who is NBM to provide effective, holistic care.

**References**


