

# Standards of the current protocols on pre-operative fasting for elective surgical...



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The aim of this literature review is to critically analyse and synthesise relevant studies pertinent to the quality and standards of the current protocols on Pre-operative fasting for elective surgical patients.

Whilst the introduction offers a brief synopsis of a literature review, it also comprises of the methodology, and provides a rationale, research strategies and critically analyses all relevant research within the main body, finally it will conclude all the literature and outline implications for change which will then lead on to form the basis for the management of change assignment in module eight.

Parahoo (2006) suggests that a literature review should detail the time frame within which the literature was selected, as well as the methods used to evaluate and synthesize findings of the studies in question. This consequently allows us to identify and critically evaluate all the literature on the chosen topic. The framework chosen to critique the primary research articles was The Critical Appraisal Skills Programme (CASP); the purpose of CASP is to help provide the skills necessary for finding and critically evaluating the best scientific evidence on which to base health care decisions (CASP 1993).

From undertaking the literature review several themes became apparent, the three most significant themes that were identified will be discussed in the main body of the assignment; 1, Understanding the cause of aspiration for patients fasting prior to surgery, 2, the on-going debate for how long the patient should be nil by mouth and 3, barriers in implementing change. Not only are these themes emphasized within the current evidence-based

literature but are further accentuated by personal observation within the hospital environment

When caring for patients it is essential for nurses to use the current best practice and is able to read research critically. Not all research is of good quality or of a high standard, and therefore nurses should not simply take research at face value simply because it has been published (Cullum and Droogan 1999, Polit and Beck 2006). The methodology used for this literature review was both Quantitative and Qualitative research; quantitative research enables the collection of data by means of numbers, proportions and statistics (Coughlan et al 2007).

According to Streubert and Carpenter (2011), guidelines are often based on positivist, quantitative data in accordance with the still prevalent biomedical paradigm. Qualitative research was noticeably scarce by comparison; nevertheless it highlighted the need for further research, not only for members of the multi disciplinary team but also the patients themselves.

### Rationale

The professional rationale for the chosen topic emanates from observing nursing staff whilst on various surgical placements within hospitals. The study has highlighted the lack of consistency with nursing staff as the review of the time-honoured tradition of nil by mouth after midnight has been challenged in recent years, thus causing confusion between nursing staff and patients. According to Saqr and Chambers (2006) it would seem that the current recommendations within the evidence based literature are still not being followed in the UK.

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As a result of this some patients were being fasted for six hours, whilst others were subject to twelve hours, Anderson (2009) suggests that this can cause anxiety, hunger, thirst and dry mouth, it may also cause unnecessary concern about the upcoming procedure.

Although preoperative fasting guidelines have been updated, (the guidelines for fasting in elective patients are as follows:- Patients may drink clear fluids up to 2hrs prior to general or regional anaesthesia, and Patients should not take solid food 6 hrs prior to induction of anaesthesia (Soreide and Ljungqvist, 2006)), patients are still being fasted for too long.

Two British studies were completed, and demonstrated that unnecessarily long fasts still persist (Pearce and Rajakulendran 1999; Seymour 2000); one of these studies found that seventy nine out of ninety surgical patients fasted from liquids for an average of ten hours (range, three to eighteen hours), despite the hospital's policy advising for a two-hour fluid fast (Seymour 2000). Trends in healthcare are continually evolving and changing, and these fluctuations can have considerable implications for nursing practice and have detrimental health implications to patients. The purpose of this assignment is to explore the reasons why patients are still subjected to unnecessarily long fasting times when new guidelines are in place and determine why as nurses we continue to use outdated practice guidelines.

### Research strategies

A commodious search of the literature was undertaken, involving an initial search of the Cumulative Index to Nursing and Allied Health (CINAHL), PubMed, Medline (EBSCO), Cochrane Library – Cochrane Database of Systemic <https://assignbuster.com/standards-of-the-current-protocols-on-pre-operative-fasting-for-elective-surgical-patients-essay-sample/>

Reviews (Wiley) and PsycINFO (OVID), Google was also used to obtain up to date data. Key search terms used were: pre operative fasting, elective surgery, effects of fasting, anaesthesia and nil by mouth prior to surgery.

The amount of hits varied for each search although effects of fasting generated an abundance of hits, at a staggering 13192; therefore it was essential to narrow down the search. Various articles were rejected, such as relating to paediatrics, pre operative guidelines for children and pre-operative carbohydrates treatment.

Each paper was reviewed by title and abstract, furthermore only papers that were written in English were chosen. The research includes articles from various different countries; the search was then limited to show articles which had full Portable Document Format (PDF) and Hyper Text Mark-up Language (HTML), which enabled the paper to be screened for eligibility. Although the research data collected had to be current within the past five years, this was not always possible as relevant articles that were researched were much older, dating from 1946 – 2007.

### Aspiration

It is a medical and legal requirement that a patient must not be anaesthetized without a period of fasting from fluids and food, except in the case of emergency surgery (O'Callaghan, 2002). The rationale behind pre operative fasting is to minimize the risk of patient's aspirating their stomach contents at induction of anaesthesia, which can be potentially fatal (Jester and Williams, 1999, Rowe, 2002, and Tudor, 2006). If material is inhaled it acts as a foreign substance, it is irritating and causes an inflammatory

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reaction, and at the same time interferes with gaseous exchange. The acidic nature of gastric juices is known to cause respiratory embarrassment (breathing difficulties) (O'Callaghan, 2002). A number of research studies have been carried out over the years to determine the reliability of these studies, having said that the collection of the evidence of preoperative fasting was hard to find as it is scattered across a range of journals and most data was out of date.

In the nineteenth century British surgeon Joseph Lister, who founded antiseptic medicine and wrote what may be the first published preoperative fasting guidelines, clearly distinguished between the effects of solids and liquids on chloroform-anesthetized patients. He advised surgeons " While it is desirable that there should be no solid matter in the stomach when chloroform is administered, it will be found very salutary to give a cup of tea or beef-tea about two hours previously" (Maltby 2006). This practice of differentiating liquids from solids in preoperative instruction prevailed until after World War two, when Mendelson documented an asthma-like syndrome of expiratory wheezing, dyspnoea, and cyanosis following the aspiration of stomach contents of patient under general anaesthesia. Soon after, the standard of care for surgical patients was to prescribe NPO after midnight (Maltby 2006).

The practice of recommending NPO (non per os or nil per os, Latin for " nothing by mouth") after midnight on the day of surgery is believed to have originated in 1946 by Mendelson. However clinicians nowadays recognise that this may not be the best approach to fasting for all patients. Revised guidelines have now been published, and the duration of fasting for solid

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food is now six hours and two hours for clear fluids, this has been reviewed by the American Society of Anaesthesiologists (1994) (ASA), Royal College of Nursing (2005) (RCN), Cochrane Database of Systematic Reviews (2004) (Cochrane) and various other bodies.

Originally Mendelson (1946) reported a high incidence of pulmonary aspiration among obstetric patients receiving general anaesthesia.

However recent research shows that pulmonary aspiration is a rare complication of modern anaesthesia, and that prolonged fasting prior to surgery is not necessary, in fact it can lead to adverse effects such as irritability, headache, dehydration, hypovolemia and hypoglycaemia (Hung 1992, Smith et al 1997, and Rowe 2000).

A study of 185, 358 was conducted by Olsson (1986); it revealed that the incidence of X-ray confirmed aspiration pneumonitis after anaesthesia was one in 4, 521. However In a more recent study in 1993, 119, 351 surgical patients confirmed with pulmonary aspiration was determined to be one in 8000, and none of these cases of aspiration led to serious pulmonary complications or death (Warner, 1993).

Although this research was extensive, it did not provide us with the condition of these patients prior to surgery, or what type of surgery these patients had undergone. For example, if a patient suffered Dysphagia, (which is common in persons with neurologic diseases such as stroke, Parkinson's disease, and dementia), they are at greater risk for aspiration. These conditions can suppress the cough reflex (especially when under sedation) (Singh & Hamdy, 2006). As a result of this the study does not give true statistical data, <https://assignbuster.com/standards-of-the-current-protocols-on-pre-operative-fasting-for-elective-surgical-patients-essay-sample/>

furthermore the quantitative data has not been followed up with a current study.

Further studies in which tubes were placed in patients' stomachs to recover gastric contents after anaesthesia induction were also carried out but they have failed to demonstrate a relationship between duration of fasting and gastric volume or pH. For example in one study a Bromosulphthalein (BSP) or phenol red were ingested preoperatively and their dilution measured intra-operatively, by the intra-operative gastric volume, this provided an indication of the degree of gastric emptying.

After ten minutes the concentration of the dye in a five ml sample of gastric contents was measured and from this the participants' intra-operative gastric fluid volume could be calculated (mls), there was virtually no dye detected in the gastric contents, so this indicated that all the pre operative dye had passed out of the stomach, which was more evidence to prove that keeping patients nil by mouth even from fluids from midnight before the surgery, was an unnecessary precaution (Maltby et al 2006).

Similarly a small scale randomised controlled trial demonstrated how a group of patients who were given a light breakfast consisting of a slice of toast and a cup of tea two to three hours before their surgery did not display significantly different residual gastric volumes or pH when stomach contents were aspirated, compare to a control group who were fasted overnight (Miller et al 1983). However this could not be proven as the orogastric tube used for the aspiration was so fine that any large fragments of toast could be left in the stomach, so the validity of this study must be questioned.



Furthermore the research does not state any health problems the patients may be suffering. There are some elective patients where a significant delayed gastric emptying must be suspected. These include patients with gastrointestinal obstruction of any form, diabetes, or cancer in the upper gastrointestinal tract. In patients with systemic disease, the extent of gastric slowing may be highly variable depending on the severity of the disease (Read 1989, and Horowitz et al 2002). To what extent diabetic patients should be nil by mouth after midnight to secure gastric content in the normal range is still not known, therefore more research is needed to address this on-going problem.

Additionally In 2003, a systematic review of twenty two randomized controlled trials found that patients who drank clear liquids up to ninety minutes before surgery were at no greater risk of vomiting, aspiration or related morbidity during anaesthesia; regardless of the volume of clear liquids they consumed (Brady et al 2003). Again the validity of this study has to be questioned as the number of participants was only twenty two and they have failed to address the conditions of the patients prior to surgery.

It has also been discovered that taking oral fluids until two or three hours prior to surgery could have long-term benefits. Gilbert et al (1995) carried out a survey of surgical patients and found that those who had been given fluid up to two hours pre operatively subjectively reported a better recovery compared to their previous experiences of anaesthesia, however they do not convey how they carried out the survey, for example was a questionnaire used, were the patients interviewed and if so what questions were asked.

Moreover what surgery did the patients receive previously; all this  
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information needs to be assessed in order to validate Gilbert et al (1995) findings.

### Guidelines to Fasting

All the above evidence displays that evidence based research has shown that patients are perfectly safe to drink fluids up until two hours pre operatively, and that patients should be fasted from solids for at least six hours pre operatively. But still even though the evidence is out there, patients are still until this date being fasted from midnight before surgery, and there has to be an underlying reason for this. Having reviewed the literature it has become apparent that nursing practice plays a huge part in patients being fasted for longer periods than necessary.

This evidence is what has formed the ASA guidelines, which states a minimum fluid fast of two hours (ASA 1999). Reasons to suggest why this is happening is mostly down to poor nursing practice (Dean and Fawcett 2002).

In a national survey of 1, 337 ASA members, 94% of the respondents were aware of new literature recommending shorter fasting periods before elective surgery, and 68% of those had changed their practice (McKinley et al 1995).

Pandit et al (2000) studied the practices of anaesthesiologists in the United States and found that 62% of participating anaesthesiologists had an institutional policy in place that allowed patients to ingest clearly liquids two to three hours before elective surgery. Thirty five percent allowed patients to ingest a light breakfast six hours before surgery.

It was determined that key factors affecting fasting was down to poor nurse and anaesthesia knowledge of current research findings, and patient education. Pearse and Rajakulendran (1999) Crenshaw and Winslow (2002) also found in their study that patient's knowledge of preoperative fasting was limited. One anaesthesia care provider commented, " I think most patients have no clue why they have to fast" Another stated, " I don't think they understand NPO" (Baril and Portman2007). The nurses believe that some patients do not understand the instructions; what's more one nurse stated that she doesn't think the patients receive any explanation into why they have to be NPO after midnight (Baril and Portman 2007). Nonetheless this study is limited in terms of, clinical investigations were limited to a single site and the sample was quite small. It only reflects the thoughts and opinions of nursing staff and anaesthetists, the patients themselves were not questioned so it does not provide a factual account of patient's perceptions of their knowledge for the term NPO.

A formal, qualitative research study would have revealed more generalized findings and would have enabled the subject to be further research in the future.

Another possible reason for lengthy fasting times is the rapid changing surgical schedules. In a study by Green et al (1996), anaesthesiologists cited the economic impact of delays and cancellations on the surgical schedule as a reason for their reluctance to relax fasting guidelines. Furthermore Seymour (2000) conducted a study of nurses and anaesthetists to assess their knowledge of hospital policy. She reported that less-experienced physicians and nurses did not realize that the hospital had a preoperative <https://assignbuster.com/standards-of-the-current-protocols-on-pre-operative-fasting-for-elective-surgical-patients-essay-sample/>

fasting policy, but five percent of senior nurses and all anaesthesia attending physicians were aware of the policy.

A study conducted by Chapman (1996) selected three surgical wards randomly, 114 patients, thirty-five nurses and fifteen anaesthetists were interviewed using structured and semi structured interview techniques. The patients were found to have fasted for between three and twenty-nine hours, and none of the ward had different times for food and fluid fasts, they just expected the patients to fast from midnight before their surgery. When the nurses were interviewed it was found that they did not feel they had the authority to adopt evidence based practice, and felt it was not within their role to introduce the current research evidence into their ward area (Chapman 1996).

A similar study carried out by Nolan et al (1998), interviewed nurses and the top three barriers found to be stopping nurses implementing current research were, lack of time, poor resources and insufficient authority to implement new practice. Also the nurses surveyed felt organizations aspects were a key barrier, and understanding research and statistics was a problem for them (Nolan et al 1998).

Education is one of the most important components of health care.

Beginning with nursing education, the benefits of diligent documentation must be taught (Anderson 2009). Nurses must understand that what is or is not charted plays an important role in future orders for patients. Noting negative effects of prolonged fasting is important to change current practice.

As a nursing student on the wards, the information given from the

anaesthetists for preoperative patients was to fast them from midnight, regardless of where the patient was on the theatre list. This meant some patients were then being fasted for more than twelve hours. This in turn had an effect on patients as they became very thirsty, nauseas and dehydrated, arguably a recent study completed by Jacob et al (2008) examined the concern of dehydration with prolonged fasting in patients. In contrast to other studies, their study suggests that healthy patients remain normovolemic after ten hours of fasting, and that fluid

Volume overload is possible when anaesthesia care providers treat intraoperative hypotension. This has lead to anaesthetists being persuaded that prolonged fasting is acceptable (Jacob et al 2008).

Previous studies have suggested that change is slow for a multitude of reasons. Some hospitals in the United States have adopted the ASA guidelines; however the guidelines are not being enforced or followed within the UK, which contributes to confusion (Green et al 1996). It is interesting that the RCN published guidelines in 2005 about preoperative fasting, 5 years after the Royal College of Anaesthetists made their own recommendations. What is interesting is that none of this information is new; it is information which has been available for many years.

#### Barriers to implementing research findings

Thomas (1987) found that 55 per cent of nurses surveyed considered six hours to be a minimum fluid fasting time. This was supported by Chapman's (1996) research where nurses were found to be unaware of the appropriate, as opposed to actual, fasting times. Hung (1992) found that, of a total of 36  
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nurses questioned, 19 felt that four hours was a minimum fasting time, 15 thought six hours was appropriate, and two opted for an eight-hour fast. This suggests that some nurses might well lack the knowledge to implement research. Despite those somewhat dated findings, it is difficult to believe that a lack of knowledge still remains a problem in the area of pre-operative fasting.

Nurses are expected to practice according to the best evidence available (Scott and Marfell-Jones 2004) so why are patients going without food and drink for much longer periods of time? Several' different reasons are cited in literature and has been discussed within this literature review.

One is that some nurses do not keep up with current literature and knowledge. Reasons for this could include insufficient time and motivation to read literature, and as previously stated, the lack of access to articles is limited (Woodhouse 2006), also the inability to fully understand research articles because of the academic language used may be other reasons that nurses fail to use the up to date guidelines (Woodhouse 2006). A large volume of research has been conducted on safe preoperative fasting times, yet many nurses are not aware that increasing the duration of the fast does not improve patient safety and that the longer patients go without food and particularly fluids, the greater the risk. Nurses can advocate for the optimal care of patients, but only if they are aware of current best practice.

This advocacy role also requires the nurse to feel confident enough to question medical staff. British researcher Alun Woodhouse has suggested a potential barrier to shortening fasting times is a power imbalance (perceived

or actual) between nurses and doctors (Woodhouse 2006). Some nurses in his study described feelings of anxiety and tension when questioning surgeons' or anesthetists' instructions regarding preoperative fasting. It was suggested that, in general, nurses are less inclined to follow instructions from doctors without question (Woodhouse 2006).

Another example of the delay in current practice was expressed by a group of surgeons with regard to the modernization of fasting guidelines (McLeod et al 2005). They reviewed the recent Cochrane analysis on preoperative fasting in adult to prevent Perioperative complications (Brady et al 2003). They conclude that there was no evidence of increased risk with modern fasting guidelines. Despite these facts, their impression was the of the ASA guidelines a standard fast of NPO after midnight remain the standard practice in the majority of institutions. They believe the old NPO routine allows for a more flexible operating team.

## Conclusion

In conclusion preoperative fasting remains a confusing concept for patients and practitioners. Anaesthesia care providers, surgeons, and nurses must collaborate to create and enforce policies that are safe for patients undergoing surgery (Woodhouse 2006., Stuart 2006., Baril and Portman 2007 and Anderson 2009).

There are a number of ways in which nurses can improve and implement future nursing practice. It is clear prolonged fasting negatively impacts on patients' health and well-being. Nurses should provide coping strategies to patients who are experiencing a dry mouth and who are thirsty due to <https://assignbuster.com/standards-of-the-current-protocols-on-pre-operative-fasting-for-elective-surgical-patients-essay-sample/>

prolonged fasting, (such as brushing teeth, rinsing the mouth etc) (Simini 1999).

There are barriers to changing practice, including systemic constraints, resistance to change, lack of knowledge and/or the confidence to question existing practice. As nurses we are accountable for the care we give to the patients, so it should be our priority to make preoperative fasting less hazardous and more bearable to patients. To protect the patients' well-being, hospital nursing staff must be mindful of what information is being given to patients preoperatively, and give clear and concise information of the importance of preoperative fasting.

If fasting practices are to be based on evidence rather than custom, nurses and physicians must work together to ensure that fasting instructions are congruent with ASA guidelines and that patients' understand them.

Although the data published needs updating, the general consensus of the research demonstrates that the benefits of shortening the fasting period outweighs the risk to the patients.