

Utah State University

DigitalCommons@USU

---

Undergraduate Honors Capstone Projects

Honors Program

---

5-2006

## Dysphagia and Nutrition in the Elderly

Amanda Panting

Utah State University

Follow this and additional works at: <https://digitalcommons.usu.edu/honors>



Part of the [Dietetics and Clinical Nutrition Commons](#)

---

### Recommended Citation

Panting, Amanda, "Dysphagia and Nutrition in the Elderly" (2006). *Undergraduate Honors Capstone Projects*. 765.

<https://digitalcommons.usu.edu/honors/765>

This Thesis is brought to you for free and open access by the Honors Program at DigitalCommons@USU. It has been accepted for inclusion in Undergraduate Honors Capstone Projects by an authorized administrator of DigitalCommons@USU. For more information, please contact [digitalcommons@usu.edu](mailto:digitalcommons@usu.edu).



# **DYSPHAGIA AND NUTRITION IN THE ELDERLY**

by

**Amanda Panting**

**Thesis submitted in partial fulfillment  
of the requirements for the degree**

of

**DEPARTMENT HONORS**

in

**Nutrition and Food Sciences**

**Approved:**

---

**Thesis/Project Advisor**

*Tammy Vitale*

---

**Department Honors Advisor**

*Janet Anderson*

---

**Director of Honors Program**

*Christie Fox*

**UTAH STATE UNIVERSITY  
Logan, UT**

**2006**

# **Dysphagia and Nutrition in the Elderly**

**Key words:** dysphagia, nutrition, elderly, geriatrics

**Abstract word count:** 125

**Word count:** 2,573

**Amanda Panting**

**Dietetic Student**

**Utah State University**

**309 E 700 N #2, Logan, UT**

**[amandap@cc.usu.edu](mailto:amandap@cc.usu.edu)**

**April 14, 2006**

## **Abstract**

Dysphagia and nutrition in the elderly go hand in hand. As age increases, bodily functions decrease. The loss of function causes an increased susceptibility to swallowing disorders and possible malnutrition. Dysphagia in the elderly increases mortality and morbidity rates (3). This paper discusses causes, symptoms and consequences of dysphagia. Swallow studies and various feeding techniques are examined. Alzheimer's disease, dementia and stroke are diseases that are commonly seen among patients with dysphagia (3, 10). Alternative nutrition via enteral feeding has been shown to increase survival rate (14, 15, 16). The ethics of prolonging death or prolonging life through nutrition support are examined. The dietitian's role is to provide information in order for an educated decision to be made according to the medical and personal goals of the patient and to support those decisions (19).

## **Introduction**

One of the last thoughts that crosses one's mind when eating food is how the food gets from the mouth to the stomach. For many people, especially the elderly, swallowing can be a problem that decreases their ability to be properly nourished. Dysphagia and nutrition are interrelated and are often a component of end of life decisions and complications.

According to the Merck Manual, dysphagia is an "impairment or difficulty in the swallowing of food or liquid while traveling from the oral cavity to the stomach" (1). Dysphagia can make it difficult to maintain an adequate nutritional status. People experiencing swallowing difficulty are often at risk of malnutrition and dehydration.

## **Causes, Functions, and Types of Dysphagia**

An increase in susceptibility of dysphagia is caused by aging and decreased body functions. Some of the body's functional decline leads to decreased swallowing reflex,

decreased neuromuscular control, various diseases, and dental complications (2). About 10 percent of people over 50 years old have reported dysphagia. With the number of elderly experiencing swallowing difficulties, an increased morbidity and mortality rate associated with dysphagia has been reported (3).

The major diseases causing dysphagia in elderly are Alzheimer's disease, dementia and stroke. Other causes include chronic obstructive lung disease, congestive heart failure, dehydration from diuretics, neuromuscular disease, cancer, pneumonia with aspiration history, and pulmonary disorders (4).

The two types of dysphagia are esophageal and oropharyngeal. Oropharyngeal dysphagia symptoms occur immediately after swallowing, whereas the esophageal symptoms are delayed. Getting adequate food and fluids to stay nourished is difficult due to the different symptoms related to dysphagia. An example would be aspiration of food, where negative feelings toward food may be elicited, and lead to a decrease in the desire to eat, resulting in malnutrition. Other symptoms related to swallowing disorders include swallowing delay, changes in speech such as hoarseness, pain upon swallowing, aspiration of the ingested material, weak cough, drooling, pocketing of food, nasopharyngeal regurgitation, and repetitive efforts to swallow. Consequences of dysphagia consist of dehydration, choking, aspiration, malnutrition, pneumonia, upper respiratory infections, and even death (5).

### **Swallow Studies**

Assessment of the swallowing function is imperative in determining treatment. Five different tests are available to diagnose and determine the degree of dysphagia. The tests include barium radiography, videofluoroscopy, upper endoscopy, fiberoptic nasopharyngeal

laryngoscopy and esophageal manometry. One of the most common is barium radiology, also known as modified barium swallow.

Barium is an alkaline earth metal element used in the form of barium sulfate or barium salts. Barium sulfate and barium salts are radiographic and appear on an x-ray (6). Swallowing of different textures and foods is assessed by applying barium to food and allowing the patient to ingest it while being x-rayed. The barium coated food is shown through the x-ray, therefore enabling the assessment of abnormalities in the transit through the oral and esophageal cavities. Modified barium swallows are used to examine abnormalities in the oropharyngeal swallowing function. The test is conducted by the speech language pathologist and a radiologist.

Swallow studies are conducted to determine risk of aspiration and to assess the passage of material into and through the oral and upper portion of the esophagus. The different textures of food assess the patient's oropharyngeal function and tolerance. The tolerance level indicates different textures of food which may be eaten without risk of aspiration or obstruction (7).

### **Nutrition Care**

Difficulties with swallowing can cause nutritional complications including anorexia, weight loss, dehydration, and refusal to eat. Complications can be detrimental, especially to the elderly who are already nutritionally compromised. The objectives of nutritional care include preventing choking and aspiration of foods and beverages, providing foods that stimulate the swallowing reflex, and promoting weight maintenance or gain if indicated. A patient's diet should be individualized according to specific needs. Other goals include correcting nutrition deficits and preventing pressure ulcers due to poor nutritional status and weight loss. Supporting independent eating or appropriate alternatives and maintaining good hydration status are additional components of nutrition care (4).

Different techniques can be used to help decrease the risk of aspiration once swallow studies have been conducted and the degree of dysphagia has been assessed. Some techniques include bending the neck forward, turning the head to a certain side, tilting the head back, doing oral motor exercises, and taking multiple swallows to clear the food out of the pharynx (8).

Dietary modifications can be made to improve swallowing abilities and prevent aspiration. Different textures such as liquid, soft, or solid foods should be provided as indicated by the assessment of the swallowing study. Three levels of dysphagia diets are available. Level one is a pureed diet for people with moderate to severe dysphagia and includes foods of a "pudding-like" texture which are pureed, homogenous and cohesive. The second level contains foods which are moist, soft-textured and easily formed into a bolus. Level two requires chewing and is a transition from pureed to more solid textures for people with mild to moderate dysphagia. People with mild dysphagia would be placed on a level three diet with hope to transition to a regular diet. Level three contains most foods with the exclusion of hard, sticky, or crunchy foods (2). Thickeners are often added to liquids to permit consumption. Reducing the volume of food in the mouth at one time and alternating solid and liquid boluses can aid tolerance of the food.

### **Diseases and Dysphagia**

A study looking at the elderly showed that as age increased, problems precipitated with swallowing. Age caused slower swallowing reflex and decreased neuromuscular control (9). People with specific diseases and advanced age have an increased chance to develop dysphagia risks.

The prevalence of dysphagia among stroke patients is between 40 and 70% (3). The stroke patients are at an increased risk for pneumonia and are more likely to aspirate. A study done by Chaudhuri et al. (10) looked at strokes, dysphagia, and coronary artery disease. The



study showed that patients with strokes are at a greater risk of developing dysphagia (10). Most swallowing difficulties subside within a week after the stroke, but a portion of the patients have prolonged dysphagia. Dysphagia may be an indicator for poor outcome after a stroke and cause an increased mortality rate (11).

Alzheimer's disease and dementia can be complicated for both the patient and the caregiver. Along with cognitive function decline, motor skills and swallowing reflexes are decreased, leading to difficulties with swallowing and dysphagia. If the food needs to be administered to the patient through caregivers due to neurologic dysfunction, it needs to be offered at times when the patient is most alert (8). Often, patients with neurological diseases will not be able supply enough nutrition orally due to severe dysphagia and altered mental status. The inadequate oral nutrition is usually seen in the later states of the neurological disease.

Dysphagia, aspiration and neurological changes have a large impact on nutrition risks, especially in the elderly. Signs and symptoms related to these problems can alter intake and cause malnutrition even with texture modified diets. A study by Wright et al. (12) compared the intake of elderly patients with a normal diet to those with a dysphagia diet. The results found that the texture modified group had significantly lower intake than the patients on a regular diet. With the statistically significant increase in energy and protein deficit in patients with texture modified diets, other nutrients are also likely to be deficient in the diet (12). One confounding factor to the study was that patients who were on a texture modified diet could have had more severe medical problems when compared to the regular diet patients.

### **Alternative Nutrition**

Providing adequate nutrients may be difficult if the patient is unwilling or unable to eat. The goal from a nutritional standpoint would be to provide the patient with adequate nutrition. If



adequate nutrition cannot be provided orally due to decreased intake, symptoms of dysphagia, altered mental status, and risk of aspiration, the perhaps the best alternative is nutrition support.

Enteral nutrition would be appropriate for patients whose gut is still functional, but oral intake is not sufficient. Nutritional support can prevent complications such as aspiration, sepsis and pneumonia and decrease possible compounding factors related to their disease (2). When compared with parenteral nutrition, enteral nutrition has fewer complications, maintains the integrity of the gastrointestinal system, and has increased intestinal defense with decreased costs and better patient tolerance. Enteral nutrition is also safer and more tolerable than oral nutrition when the patient has the risk of aspiration, sepsis or pneumonia. Patients who receive alternative means of nutrition are often already nutritionally compromised (13).

Percutaneous endoscopic gastrostomy (PEG) tubes are most often the choice for tube insertion. PEG tubes are inserted into the gut and are meant for long term feeding. Possible complications could include infection at the insertion site, tube displacement due to pulling at the tubing, and possible kinks and clogs in the tubing. One month survival rate in most PEG tube studies is 80 to 90 percent (14).

Cowen et al. (15) found the following studies relating mortality rates to patients with PEG tubes.

Table 1. Published Studies on PEG Tubes with More Than 50 Patients\*

Study	Treatment	Number of Subjects	Mortality, %				Mortality Risk Factors
			30 Day	60 Day	6 Month	1 Year	
Rabeneck et al. <sup>25</sup>	PEG	7,369				59	Age
Miller et al. <sup>26</sup>	PEG	316	17				Not reported
Larson et al. <sup>27</sup>	PEG	314	16				Not reported
Horton et al. <sup>28</sup>	PEG	224	8				Not reported
Wolfsen et al. <sup>29</sup>	PEG	191	21	33	50		Not reported
Raha and Woodhouse <sup>30</sup>	PEG	179	20				Placed for supplemental nutrition
Stiegmann et al. <sup>31</sup>	PEG, OG	131	2				Not reported
Stuart et al. <sup>32</sup>	PEG, OG	125	27				Pulmonary cachexia, malignancy
Zabel et al. <sup>33</sup>	PEG, PEGJ, PEJ	118	18		46		Aspiration history, acute neurologic
Taylor et al. <sup>16</sup>	PEG	97	22			50	Age, male, diabetes
Fay et al. <sup>34</sup>	PEG	80	16	50			Not reported
	NG	29	28	50			Not reported
Llaneza et al. <sup>35</sup>	PEG	73	26				Not reported
Slezak and Kofol <sup>36</sup>	PEG	71	13				Not reported
Ciocon et al. <sup>37</sup>	PEG, NG	70	5			50	Aspiration history
Jarnagin et al. <sup>38</sup>	PEG	64	17				Aspiration history
Gay et al. <sup>39</sup>	PEG	58		50 <sup>†</sup>			Not reported
Samli and Suguitan <sup>40</sup>	PEG	51	10				Not reported

\*PEG indicates percutaneous endoscopic gastrostomy; PEJ, jejunostomy; PEGJ, peg-jejunal tubes; OG, operative gastrostomy; NG, nasogastric tube.

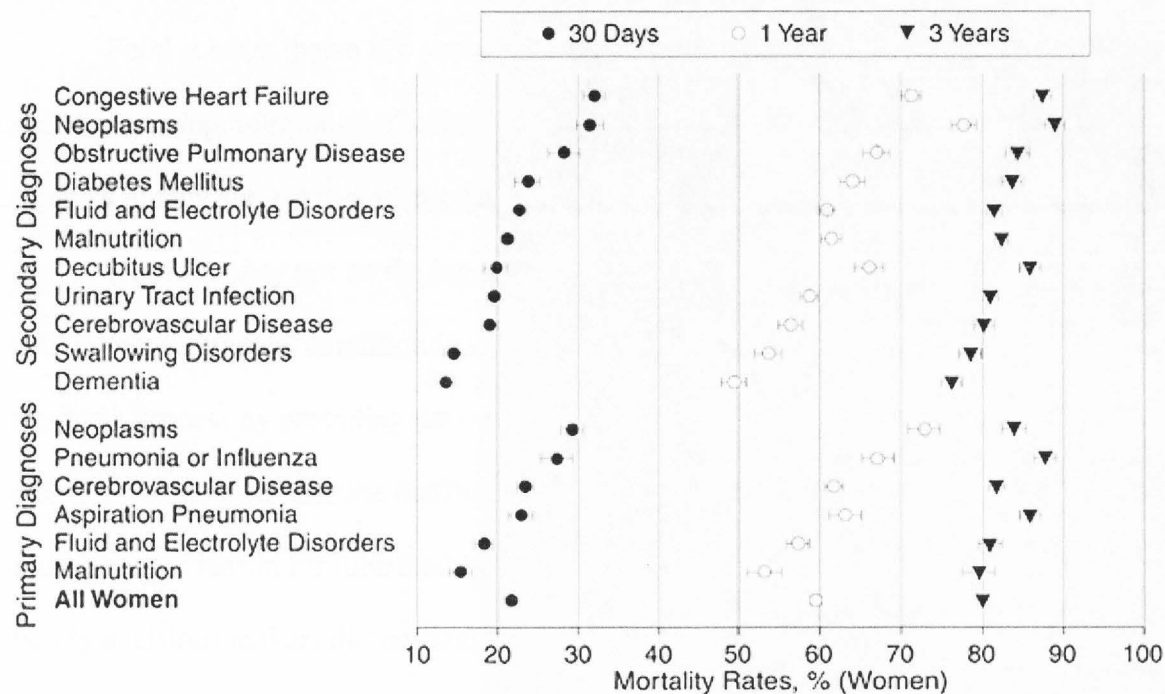
<sup>†</sup>90-day mortality.

Cowen M, Simpson S, Vettese T. Survival estimates for patients with abnormal swallowing studies. *J Gen Intern Med.* 1997;12(2):88-94.

The study concluded that patients who received PEG tube feedings survived about twice as long as those who did not. Cowen et al stated that survival rate could be due to other prognostic factors that determine whether or not to provide enteral feedings (15).

Although feeding tubes assist in providing nutrition, there are still dangers with providing enteral support. A common assumption is that enteral feeds prevent aspiration pneumonia, promote physical comfort, and prolong life. The evidence has not supported this belief (3). A study concluded that nasogastric tube fed patients did not show a better outcome against aspiration pneumonia and mortality compared to those on oral feeding. The study did, however, state that the outcome could have been contributed to the decreased cognitive and functional status of the tube fed patients (3).

A study done by Grant et al (16) showed the mortality rates of elderly women on enteral feeds with different primary and secondary diagnoses. The following chart shows the results from the study.



Grant M, Rudberg M, Brody J. Gastrostomy placement and mortality among hospitalized medicare beneficiaries. *JAMA*. 1998;279:1973-1976.

The study concluded that the decision to place a gastronomy tube is one the patient, family, and physician must make. If the patient is elderly, has swallowing impairments, altered mental status, or does not eat, the decision to placing a feeding tube may be the best decision. The enteral feeding may be a lifesaving procedure for the patient; however, it may elongate the suffering of those individuals who are nearing the end of life (16).

Nutritional support is most often needed in the end stages of diseases, such as Alzheimer's disease. The end stages of disease causes a dilemma in the decision of patients and family members on whether or not to provide alternative nutrition. The decision for enteral feeding can be complex for the patients who have many complications and limited chance of

survival. Recommendations have been made that PEG tube placement is appropriate for patients with an intact mental status and dysphagia (14).

### **Ethics of Nutrition and Dying**

Food is more than a life sustaining factor. It also plays an emotional, psychological, social, nurturing, religious and cultural role. The ethics of feeding an elderly patient near death can be a touchy subject among health professionals, family members and the patient.

Nutrition may not be the biggest concern in patients at the end stage of a disease. In a patient whose medical condition is too severe for recovery, supplying nutrition may just prolong the death process by providing the only thing that is keeping them alive – nutrients. The question faced is whether the nutrition support will extend life or prolong death. One study found that the reason for tube feeding in an elderly population was to prolong life (17). Most family decisions makers did not know if the patient wanted to receive a tube feeding. The study also established that more patients with severe dementia received tube feedings in the U.S. compared to Canada due to feelings of obligation (17).

An additional study questioned relatives and staff members of demented patients receiving enteral support. The majority of them felt it essential to provide food and fluid to maintain life support, but most relatives and staff members were concerned that nutritional support was prolonging the patient's life of suffering. Although those questioned felt this way, they were still opposed to withholding the feeds (18).

In 1984, the New York Supreme Court ruled that an alert 85-year old male had the right to refuse eating as well as being artificially fed via tube feeding (19). The frequency of PEG tube usage in 1995 was 123,000. The amount is an enormous increase when compared to the 15,000 using PEG tubes in 1989 (19). Many authors have looked at the issue of whether or not

the use of tube feedings is justified in elderly patients suffering from advanced dementia, have swallowing difficulties, and experienced weight loss (19). Among these patients, the evidence did not show benefits in the use of enteral nutrition. Enteral tube feeds did not prolong survival, improve function, prevent aspiration pneumonia, reduce infection risk or provide palliation (20).

Abnormal swallowing is often a marker for severe illnesses and usually coincides with a high mortality rate, regardless of enteral nutritional intervention (15). Once patients are in advanced stages of a disease, efforts should be made to provide the patient with dietary preferences.

Families and patients need to be given all the alternatives and information regarding tube feeding so they can make an educated decision according to the patient's goals. Other approaches that can be discussed include altering textures and amounts, assisted feeding, and head, neck and body positioning (21). To do without tube feeding is ethical when everyone concerned has a complete understanding of the patient's goals and possible alternatives. Rabeneck et al. (22) have developed recommendations regarding PEG tube placement in certain conditions. Patients with dysphagia and complications should discuss and decide what is best since benefits are uncertain. Dysphagia with no complications has the recommendation for PEG tube placement since the patient usually benefits (22).

### **Role of the Dietitian**

The role of the Registered Dietitian is to provide information about various methods and alternatives to feeding. The dietitian shares this information with the interdisciplinary team in order to assess the best care for the patient according to treatment goals. Patients should also be informed and receive an understanding of options, research, and possible outcomes when making

decisions about the feeding process. Once the patient and/or family have made a decision, the dietitian should be sensitive to and accommodate the patient's preferences (19).

### **Conclusion**

Dysphagia and nutrition have an impact in many of the elderly. Decline in body functions and various diseases can lead to swallowing problems. Diagnosing and treating dysphagia through various techniques can assist in maintaining an adequate nutrition status. Dysphagia can be so severe that alternative nutrition should be considered. Many issues influence the decision to place feeding tubes. An educated decision should be made by the patient, family and health care professionals according to the goals of the patient's medical treatment. Some of the factors to consider when deciding on the placement of a feeding tube are the diagnosis, desire to eat, mental status, and plan of care for the patient. The answers to alternative nutrition are not black and white. Health care professionals, especially dietitians, should provide the appropriate information regarding all possibilities, respect the decision made, and assist in fulfilling the desires of the patient.



## References

1. Beers M, Berkow R. *Merck Manual*. 17th ed. New Jersey: Merck & Co., Inc; 1999: 228.
2. Mahan L K, Escott-Stump S. *Krause's Food, Nutrition, & Diet Therapy*. 11<sup>th</sup> ed. Philadelphia, PA: Saunders; 2004:322, 1090, 1272-1277.
3. Mamun K, Lim J. Role of nasogastric tube in preventing aspiration pneumonia in patients with dysphagia. *Singapore Med J*. 2005; 46(11):627.
4. Escott-Stump S. *Nutrition and Diagnosis-Related Care*. 5th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2001: 276.
5. American Gastroenterological Association Clinical Practice and Practice Economics Committee. AGA technical review: Oropharyngeal dysphagia. *Gastroenterology*. 1999;116:455. Accessed 11/4/05.  
<http://www.utdol.com/application/topic.asp?file=gihepgui/14030&type=A&selectedTitle=5~9>.
6. Winter M. Barium. The University of Sheffield and Web Elements. 2005. Accessed 11/3/05.  
<http://www.webelements.com/webelements/elements/text/Ba/key.html>.
7. Author unknown. Modified barium swallow. Waldo County Healthcare, Inc. 2004. Accessed 11/3/05. <http://www.wchi.com/slp/mbs.html>.
8. Lembo A. Diagnosis and treatment of oropharyngeal dysphagia. IHC UpToDate. 2004. Accessed 11/4/05. <http://www.utdol.com/application/search.asp>.
9. Yoshikawa M, Yoshida M, Nagasaki T, Tanimoto K, Tsuga K, Akagawa Y, Komatsu T. Aspects of swallowing in healthy dentate elderly persons older than 80 years. *J Gerontol A Biol Sci Med Sci*. 2005; 60:506-509.
10. Chaudhuri G, Hildner C, Brady S, Hutchins B, Aliga N, Abadilla E. Cardiovascular effects of the supraglottic and super-supraglottic swallowing maneuvers in stroke patients with dysphagia. *Dysphagia*. 2002;17:19-23.
11. Smithard D, O'Neill P, Park C, Morris J, Wyatt R, England R, Martin D. Complications and outcome after acute stroke: does dysphagia matter? *Stroke*. 1996;27(7):1200-1204.
12. Wright L, Cotter D, Hickson M, Frost G. Comparison of energy and protein intakes of older people consuming a texture modified diet with a normal hospital diet. *J Hum Nutr Diet*. 2005;18(3):213.
13. Erdil A, Saka M, Ates Y, Tuzun A, Bagci S, Uygun A, Yesilova Z, Gulsen M, Karaeren N, Dagalp K. Enteral nutrition via percutaneous endoscopic gastrostomy and nutritional status



---

of patients: Five-year prospective study. *J Gastroenterol Hepatol*. 2005;20(7):1002.

14. DeLegge M. PEG placement: justifying the intervention. IHC UpToDate. 2004. Accessed 11/4/05. <http://www.utdol.com/application/search.asp>.
15. Cowen M, Simpson S, Vettese T. Survival estimates for patients with abnormal swallowing studies. *J Gen Intern Med*. 1997;12(2):88-94.
16. Grant M, Rudberg M, Brody J. Gastrostomy placement and mortality among hospitalized medicare beneficiaries. *JAMA*. 1998;279:1973-1976.
17. Mitchell S, Berkowitz R, Lawson F, Lipsitz L. A cross-national survey of tube-feeding decisions in cognitively impaired older persons. *J Am Geriatr Soc*. 2000;48:391-397. Abstract. Accessed 3/21/06.  
[http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list\\_uids=10798465&dopt=Citation](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10798465&dopt=Citation)
18. Lubart E, Leibovitz A, Habot B. Attitudes of relatives and nursing staff toward tuboenteral feeding in severely demented patients. *Am J Alzheimers Dis Other Dement*. 2004;19(1):31-4. Abstract. Accessed 11/03/05. [www.pubmed.org](http://www.pubmed.org).
19. Maillet J, Potter R, Heller L. Ethical and legal issues in nutrition, hydration, and feeding. *J Am Diet Assoc*. 2002;102:716-726.
20. Finucane T, Christmas C, Travis K. Tube feeding in patients with advanced dementia. *JAMA*. 1999;282:1365-1370.
21. McCann R. Lack of evidence about tube feeding - food for thought. *JAMA*. 1999;282:1380-1381.
22. Rabeneck L, McCullough L, Wray N. Ethically justified, clinically comprehensive guidelines for percutaneous endoscopic gastrostomy tube placement. *Lancet*. 1997;349:496-498.