

Unintended Weight Loss Guidelines

By the American Academy of Home Care Physicians

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1. Introduction

The prevalence of undernutrition in the general medical population is estimated at 3.25-11.0% among older patients, but fewer than half of these cases are recognized and appropriate intervention is instituted in only a small percentage, despite findings suggesting that the underlying conditions are clinically significant and likely treatable in nearly 90% of all subjects.^{1,2} In addition, the risk for weight loss among the most frail elders living in the community using commonly administered screening instruments is extremely high.³

Therefore, the relatively high prevalence and often remediable nature of undernutrition in frail older adults warrants heightened awareness to this problem.

For this guideline, we focus on the patient in whom the presence of undernutrition has resulted in an

unintended loss of weight. This is in contrast to the situation in which weight loss is the goal of treatment, or in which an established diagnostic evaluation determines that weight loss is unavoidable and expected as a consequence of the natural history of the underlying illness. Our intention is to focus also on the evaluation and management of the homebound patient, accounting for both the advantages and limitations of care in the home setting.

There are no established definitions for undernutrition or weight loss of clinical significance in the outpatient setting. However, experts in the field have suggested that a two-pound weight loss in one month or five to ten pounds over six months is clinically meaningful and associated with adverse outcomes.⁴

2. Recognition

Recognition of the problem of unintended/unexpected weight loss in the home setting requires that the physician not rely solely on objective data about weight loss. Many frail elders cannot be weighed at home. Thus, other parameters are often as useful, such as caregiver report of suspected weight loss, change in eating habits or anorexia.⁵ However, getting a baseline weight may be problematic, and family caregivers sometimes do not detect the problem. Therefore, the physician must be conscious of the risk factors for weight loss and use them as clues in determining when further investigation is warranted.

The risk factors for unintended weight loss are as follows:

A. Poverty: Individuals whose incomes are low often make conscious or unconscious choices to reduce expenditures on food in order to have funds for medications or for basic services like heat and light. When dealing with the poor elderly, it is essential to know whether they have appropriate income supports for purchase of food, or what arrangements have been made to assure that their nutritional needs are met. In addition,

patients should be asked about the cost and their ability to pay for medications. Patients may choose to pay for their medications rather than pay for an adequate amount of food.

B. Functional Disability: Inability to feed oneself without assistance because of upper-extremity impairments of mobility, inability to grasp eating utensils, inability to position oneself to eat comfortably, and difficulty in chewing and swallowing are all often present in the frail elderly. Observing the patient eating is ideal; if observation is not possible, questioning family caregivers about patient eating may reveal the nature of the problem.

C. A History of Recent Weight Loss or Change in Appetite: A mentally-competent patient or the patient's family caregivers may be able to reveal needed information about recent changes. A "yes" should trigger further assessment of the patient.

D. Medication Use: Since many medications may be directly or indirectly associated with anorexia or

alterations in taste, it is important to document and review all medications the patient is taking and ask the patient and family members about over-the-counter medications that may also be problematic.

Table 1. Medications That May Affect Oral Intake.

Medication side effects may cause a variety of symptoms that affect our ability to eat or our pleasure in eating. This is not intended to be an exhaustive list, but rather a guide. Specific common agents are included in parentheses. Please consult your local pharmacist to review the medical regimen for possible adverse affects and interactions.

| Symptoms | Causative Agents |
|----------------------|---|
| Anorexia | SSRIs; Antibiotics |
| Altered taste | Sulfa-containing medications (furosemide); Antibiotics |
| Nausea | NSAIDs; Antibiotics; (digoxin) |
| Dry mouth | Antihistamines; Anticholinergics |
| Confusion/Distracton | Anticholinergics; NSAIDs; Neuroleptics |
| Constipation | Anticholinergics; Smooth muscle relaxants/Antispasmodics |
| Diarrhea | Antibiotics; Medications in elixirs (sorbitol is used as the solute) |
| Movement Disorders | Antiemetics (metaclopramide); Parkinson's agents (levodopa, amantidine) |

E. Depression: Depression is one of the most common causes of unintended weight loss. Depression often occurs concurrently with other serious illnesses such as heart disease, stroke, and dementia. Because many older adults face these illnesses, health care professionals may mistakenly conclude that depression is a normal consequence of these

problems, an attitude often shared by patients themselves. Depressive symptoms are *not* a normal part of aging. Unlike experiences of sadness due to grief or loss, depression tends to be persistent and to interfere significantly with an individual's ability to function. A short depression screen such as the following can often elicit important information. Ask the patient: During the past four weeks, have you often been bothered by feeling down, depressed, or hopeless? And during the past four weeks, have you often been bothered by little interest or pleasure in doing things?

F. Presence of a terminal illness: Among patients with terminal illnesses, there often are many opportunities for improving appetite—decreasing polypharmacy, eliminating dietary restriction, treating depression, managing functional problems, and addressing changes in taste due to medications. Appetite enhancing medications, including mirtazapine, may be of benefit.

G. Presence of an active pressure ulcer: Since the presence of a pressure ulcer increases nutritional requirements, such patients should be evaluated to determine their nutritional status and ability to consume sufficient calories to meet their needs.

H. Presence of nausea, vomiting, or diarrhea: These symptoms may indicate medication side effects or gastrointestinal, hepatobiliary, or renal disorders. Medications commonly associated with these symptoms include digoxin, antibiotics, and nonsteroidal anti-inflammatory drugs. Antibiotics may also cause *C. difficile* colitis.

I. Presence of fluid retention and edema: Edema may indicate a failure to control underlying illness.

J. Presence of underlying infection: Unrecognized indolent infections such as urinary tract infections, sinusitis, pyelonephritis, osteomyelitis or prostatitis may cause symptoms such as anorexia, malaise, and weight loss; oral infections such as thrush and pyorrhea may cause mouth pain and difficulty in chewing and swallowing.

3. Assessment

A. Perform a Baseline Evaluation of the Patient's Nutritional Status

The Outcome and Assessment Information Set (OASIS) is a group of data elements used by home health agencies that represent core items of a comprehensive assessment for an adult home care patient and form the basis for measuring patient outcomes for purposes of outcome-based quality improvement (OBQI). The nutrition assessment focuses on feeding or eating ability (see Table 2).

Table 2. OASIS Nutrition Assessment.

(M0710) Feeding or Eating: Ability to feed self meals and snacks. **Note:** This refers only to the process of eating, chewing, and swallowing, not preparing the food to be eaten.

| <u>Prior</u> | <u>Current</u> | | |
|--------------------------|--------------------------|----|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 0 | Able to independently feed self. |
| <input type="checkbox"/> | <input type="checkbox"/> | 1 | Able to feed self independently but requires: (a) meal set-up; <u>OR</u> (b) intermittent assistance or supervision from another person; <u>OR</u> (c) a liquid, pureed, or ground meat diet. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2 | <u>Unable</u> to feed self and must be assisted or supervised throughout the meal/snack. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3 | Able to take in nutrients orally <u>and</u> receives supplemental nutrients through a nasogastric tube or gastrostomy. |
| <input type="checkbox"/> | <input type="checkbox"/> | 4 | <u>Unable</u> to take in nutrients orally and is fed nutrients through a nasogastric tube or gastonomy. |
| <input type="checkbox"/> | <input type="checkbox"/> | 5 | Unable to take in nutrients orally or by tube feeding. |
| <input type="checkbox"/> | | UK | Unknown |

<http://www.cms.hhs.gov/oasis/all.pdf>

In addition to the measures above, it is important to obtain height and weight measurements that are as accurate as possible.

Unintentional weight loss in excess of ten pounds should arouse strong suspicion of associated nutritional compromise. If weight and height can be obtained, use of the body mass index (BMI) in the evaluation of nutritional status is recommended. $BMI = kg/m^2$. Accepted normal values for BMI are between 22 and 27.

If the patient is too confused, immobile, or obese for an accurate assessment alternative measures can be used. The following methods provide acceptable alternatives to measurement of standing height:

Arm span measured from fingertip to fingertip with the arms fully extended, or double the distance from extended fingertip to mid-sternum (Men $118.24 + (0.28 \times \text{arm span}) - (0.07 \times \text{age})$ cm; Women $63.18 + (0.63 \times \text{arm span}) - (0.17 \times \text{age})$ cm);

Knee height: a derived estimate based on the measured distance from heel to knee, with the foot and knee at 90 degrees (equations are as follows: Men $96.50 + (1.38 \times \text{knee height}) - (0.08 \times \text{age})$ cm; Women $89.68 + (1.53 \times \text{knee height}) - (0.17 \times \text{age})$ cm.⁶

For estimating body fat, bioelectrical impedance or mean upper arm circumference (MUAC), or arm muscle area (AMA) can be measured. The World Health Organization rec-

ommends the use of sex specific MUAC. MUAC is the circumference of the left upper arm, measured at the mid-point between the tip of the shoulder and the tip of the elbow (olecranon process and the acromium). MUAC of less than 22cm for women and 23cm for men are suggestive of chronic energy deficiency. Although MUAC, in conjunction with clinical criteria, is often proposed as a tool for rapid assessment for adults and older people, the outcomes of the various MUAC cutoff points in relation to mortality and morbidity is not known.^{7,8} AMA calculated by triceps skin fold (TSF) and mean arm circumference (MAC) measures correlates well with CT-measured arm muscle area. The average error for a given patient was 7 to 8%, but requires a relatively complex equation for conversion ($[(MAC - \pi \times TSF)2/4 \pi] - 10$, and $[MAC - \pi \times TSF)2/4 \pi] - 6.5$). Unlike MUAC, the relationship between corrected AMA and total body muscle mass has been established [muscle mass (kg) = (ht, cm²) (0.0264 + 0.0029 x corrected AMA)]; and the minimal range of corrected AMA values compatible with survival (9 to 11 cm²) defined.⁹

Nutrition indices often used in frail, older adults include the Mini Nutritional Assessment (MNA) or the Subjective Global Assessment (SGA). The MNA is a validated tool with a positive predictive value for detecting undernutrition of 97%. The sensitivity and specificity of this tool have been shown to be 96% and 98% respectively. The MNA incorporates several domains, including functional status, lifestyle, diet, self-perception of health, and anthropometric indices.

The SGA includes history and physical examination, allowing a clinical grading of nutritional status.^{10,11} Features in the SGA are: weight loss in the previous six months and in the previous two weeks; dietary intake in relation to the patient's usual pattern; presence of significant gastrointestinal symptoms; functional capacity; metabolic demands of underlying disease; loss of subcutaneous fat (back part of

upper arm, thorax); muscle wasting (quadriceps femoris, deltoideus); presence of edema (ankle, sacral). Judgement of nutritional status using the SGA is largely based on subjective assessment rather than detailed measurements.

Eating preferences of the patient should also be determined as part of the baseline assessment, since the patient may not eat what he/she does not prefer. Try to determine from the patient or family caregivers what types of food, portion size, and number of meals the patient normally eats and at what times. Ask about snacks between meals. Also ask if the patient likes what he or she is eating. For example, lack of salt or fat in the food may be the reason a patient is not eating.

Baseline laboratory testing should be considered, since albumin and cholesterol levels and a complete blood count with a differential can provide a baseline for comparison if weight change occurs later. Many clinicians rely on serum albumin levels as an index of general and protein nutritional status. It should also be noted that inflammatory responses to infection alter albumin levels; TNF- α , IL-2, and IL-6 are known to inhibit albumin production. In these cases, reduced serum albumin may be serving as a marker of inflammation rather than malnutrition. Unlike albumin, which has a half-life of 18-21 days, prealbumin has a half-life of two days, which contributes to its popularity and its routine use in the intensive care setting. Like albumin, it is confounded by many medical conditions, including renal failure, chronic liver disease, acute inflammatory processes, stress, and anemia and may not be as helpful in the home care setting.

B. Perform Basic Assessment To Determine Easily Reversible Conditions

The next step is to identify those causes of nutritional problems that are easy to identify and reverse.

First, confirm the existence of a problem that

requires additional assessment. This involves validating weight measurements or the change in weight, and the willingness of the patient to undergo a diagnostic assessment.

Second, establish that the patient is eating the food he or she receives. This will require monitoring food intake for at least one day and demands caregiver and patient cooperation. A simple estimate of the fraction of each portion or food from each group is usually sufficient. This assessment will allow you to determine if the patient falls into one of the following categories:

Anorexic: These patients consume 75% or less of their meals but still lose weight. The most likely remediable causes are depression, adverse drug reactions, occult or overt infections, hematological conditions, and metabolic abnormalities.

Weight Loss Despite Normal Intake: These patients lose weight after eating 75% to 100% of nearly all meals. The most likely cause is a mismatch between caloric intake and energy expenditure. Occult energy loss can result from repetitive activities such as wandering and rocking or from bradykinesia due to Parkinson's or Alzheimer's Disease, or from moderate to severe chronic cardiopulmonary, renal, and hepatic illness.

Hyperphagia: When the patient consumes 100% of all meals and seeks added food, the cause may be a diet with inadequate calories for the size or activity level of the person, or a hypermetabolic state, such as hyperthyroidism, or malabsorption syndrome.

C. Take Appropriate Action

1. If the patient's food intake is inadequate,

a. Screen for functional impairments. In addition to evaluating whether the patient is able to self-feed, you may want to evaluate the patient's swallowing abilities. Indicators of possible dysphagia include coughing before, during, or after swallow-

ing; the need to swallow three to four times with each bolus; frequent throat-clearing; hoarse, breathy, or wet voice; gargling while breathing; the sensation of something caught or stuck in the throat; drooling; pocketing food in the cheeks; and oral-buccal anesthesia (protruding tongue movements). You may wish to have a skilled individual perform a bedside clinical evaluation to distinguish true dysphagia (difficult or impaired swallowing) from other related symptoms such as chewing or dental problems or a chronic cough.

b. Screen for social and environmental factors, dietary restrictions and food preferences. Reassess the patient's food preferences. Discontinue dietary restrictions such as salt or fat restrictions which are usually unnecessary. Ask the patient's family to bring in foods the patient likes. Enrich meals with calorie dense food and supplements. Assess the environment and patient preference. Is the patient alone when he/she wants company (or the reverse)?

c. Screen for medical conditions associated with anorexia or dehydration. The clinician should consider fluid and electrolyte imbalances. Dehydration is common and when clinically symptomatic can constitute a medical emergency. Have there been changes in mood or behavior? If so, consider using the Geriatric Depression Scale for patients who are verbal, or the Cornell Scale for Depression or Dementia, which is more behaviorally based. Comprehensively review all medications. Consider the presence of indolent infections. Consider gastrointestinal pathology and motility disorders such as achalasia, gastroparesis, and fecal impaction. Radiographic and laboratory assessment, including a chest x-ray and a panel of laboratory tests to screen for occult physical illness, should be considered.

2. If the patient loses weight despite normal intake, screen for malabsorption syndrome and for conditions that increase nutritional needs.

Those who lose weight despite normal intake generally fall into four categories: 1) Inadequate caloric intake. For example, those who weigh above 175 pounds may require more than 2,000 calories per day and this may outstrip available foods or appetite. 2) Unrecognized increases in metabolic demands due to repetitive activities, such as wandering, fidgeting, or suffering from chronic movement disorders, may create added caloric need; 3) Increased metabolic need because of indolent or sub-clinical infections, advanced illness, and the presence of large pressure ulcers; 4) Gastrointestinal etiologies may include pancreatic insufficiency, dumping syndrome related to bacterial overgrowth in the small intestine, acquired lactose intolerance, partial ileus, *C. difficile*-related colitis (with diarrhea) or a protein-losing enteropathy (with or without diarrhea).

3. If the patient loses weight despite an excellent appetite and high consumption, malabsorption and hypermetabolic states related to hyperthyroidism should be considered.

Hypermetabolic states such as that which occurs from hyperthyroidism are easily evaluated through laboratory assessment. However, malabsorption may be subtle and often requires a more systematic investigation. As in the patient with a normal intake and weight loss, gastrointestinal etiologies, such as pancreatic insufficiency, dumping syndrome, acquired lactose or gluten intolerance, partial ileus, and especially *C. difficile* colitis, should be considered. In addition, chronic diarrhea may be associated with multiple medications given in the form of an elixir, as sorbitol is often used as the solute.

of weight loss is appropriate.

If the basic assessment fails to disclose the cause of the weight loss, then a search for less obvious causes is appropriate, if it fits with the patient's and family's goals. It should be noted that patient and family goals may become more palliative than curative as a patient's illness progresses. Given the variability among patients in their goals of care, it is critical to engage in discussion with the patient or surrogate decision-maker regarding what kind of interventions match with the patient's personal values and goals. Patients and their decision-makers benefit from being informed that every diagnostic and therapeutic intervention is attended by some level of risk and benefit. When patients and families are informed, they will be able to take a more active role in identifying appropriate next steps in the expanded assessment.

An empiric nutritional intervention is often appropriate while the diagnostic evaluation continues because it may take several months to identify a cause. In an expanded assessment, it is more likely that an irreversible or terminal diagnosis may be discovered. Examples include metastatic cancer; progressive dementia or other degenerative neurological conditions; and end-stage cardiac, pulmonary, renal, or hepatic illnesses. If these conditions are discovered, and no other reversible conditions are identified, the weight loss should be considered unavoidable.

When no terminal conditions are discovered, the wishes of the patient and family to undergo continued evaluation should be determined. If continued evaluation is desired, repeat the patient's history and physical findings in light of the recent weight change; order added laboratory and radiological studies based on the new history and physical; and consider unusual causes.

D. Consider doing an expanded assessment, and decide whether a continued search for the cause

Table 3. Less Common Causes of Weight Loss in an Older Population.

Inflammatory/Rheumatologic Conditions

Late Onset Systemic Lupus Erythematosus
Polymyalgia Rheumatica
Giant Cell Arteritis
Polyarteritis Nodosa (PAN)
Amyloidosis

Gastrointestinal Disorders

Celiac Disease (gluten intolerance)
Lactose Intolerance
Achalasia
Ischemic Bowel Syndromes
Intermittent Intussusception/Sigmoid Volvulus
Pancreatic Insufficiency
Hemachromatosis
Chronic Active Hepatitis B or C
Chronic Cholecystitis
Inflammatory Bowel Disease
Occult Pancreatic Cancer
Occult Colon Cancer
Metastatic Cancer with Unknown Primary
Hepatic Metastases

Hematologic Abnormalities

Chronic Myelogenous or Lymphocytic Leukemia
Macro or cryoglobulinemia
Myelophthisic Anemia
Multiple Myeloma

Endocrine/Renal Conditions

Hyper/hypoadrenalism
Hyperparathyroidism
Pheochromocytoma
Occult Adrenal Tumor
Renal Cell Cancer

Occult Infections

AIDS
Primary Osteomyelitis
Tertiary Syphilis
Tuberculosis
Retroperitoneal, Perinephric or Perirectal Abscess
Pyometrium
Subacute Bacterial Endocarditis

4. Treatment

The assessment process outlined above is intended to identify common treatable conditions and diagnose remediable illnesses. For purposes of these guidelines, treatment is defined as any intervention that offers a reasonable expectation of benefit to the patient. It may include such actions as changing the eating environment, offering rehabilitation for functional disabilities, and controlling or mitigating the effects of medical conditions. Treatment may be considered successful when the patient's weight has stabilized, even if that stabilized level is below baseline.

Address Risk Factors Identified During the Recognition and Assessment Phases. A planned intervention should be defined for each of the risk factors.

In determining the course of treatment:

- 1. Reconsider all dietary restrictions.** Routine dietary restrictions are usually unnecessary and can be counterproductive for the frail elderly population we care for in the home. Dietary restrictions may need to be removed gradually to avoid medication side effects. To the extent possible, tailor changes in food consistency and seasoning to patient preferences and tolerance. Diets of altered consistency should only be ordered when a patient has a demonstrated problem or a very high risk of aspiration.
- 2. Review the food itself.** Suggest tailoring meals and foods to individual preferences. Suggest offering foods that fit the patient's ethnicity or regional and personal preferences. Consider suggesting a happy hour before a meal when the patient may have an alcoholic beverage or sweets. Suggest to the

meal preparers that they provide foods of a consistency and texture that allow comfortable chewing and swallowing.

3. Consider ways to supplement the patient's diet. In the following order, consider:

a. Increasing the nutrient density of food.

For example, increase protein content by adding milk powder, egg whites, or tofu. Increase fat content by adding butter, margarine, or oil during food preparation, such as in sauces and gravies, or as an addition to fresh or cooked vegetables/grains/pasta.

b. Offering snacks as part of a defined between-meal program during the day.

c. Giving a daily multivitamin and mineral supplement until the cause of inadequate intake is determined.

d. Providing a liquid dietary supplement.

Evidence suggests that a liquid supplement given approximately 60 minutes before a meal does not reduce food consumption as much as with meals, where the effect is more of a substitute than a supplement.¹² For example, 2-4 oz of a 2kcal/cc formula given four times daily between meals provides an additional 500-1000 kcal/day. If cost is an issue, suggest blending whole milk, ice cream, a raw egg, sugar syrup, and flavorings into a drink. This mixture will provide nearly the same calories and nutritional value as most commercially available liquid dietary formulas.

4. Reassess all medications for continued indications, potential side effects, and interactions that may affect nutritional status.

5. Treat depression aggressively. Some antidepressants appear to increase appetite independent of their impact on affect. However, relief of depression is the major

reason most patients experience improved food intake after initiation of antidepressants.

6. Suggest changes in eating environment to increase the comfort of the patient in the room in which food is served. Minimize distractions such as a television or other loud noises that may keep the patient from focusing on food intake.

7. Suggest adaptive devices. Encourage providing the social and financial support to facilitate use of devices to promote independent eating. Devices include swivel spoons, rocker knives, utensils with thick handles, plates with an inner lip, and bowls with a large distal lip. For patients who cannot use utensils, suggest offering finger foods such as nuggets instead of fillets, and carrot sticks instead of salad.

8. Address swallowing problems. Consider less restrictive diets, different food consistency or texture, or a different body position. A speech pathologist can effectively teach swallowing techniques, using modified utensils and setup available in the home.

9. Review exercise habits. Evaluate the patient's activity and exercise level and, since exercise stimulates appetite, suggest simple increases in activity using resistance training. The National Institute on Aging provides simple exercise interventions to teach patients and families (<http://www.niapublications.org/exercise-book/index.asp>).

10. Consider appetite stimulants. While the use of medications to enhance appetite is controversial and not generally FDA-approved in this population, pharmacologic interventions are commonly used. (See Table 4.)

Mirtazapine is the only antidepressant noted to increase weight as a common side effect, and may be considered, especially in the presence of a suspected affective disorder.

Dronabinol, a purified form of the active ingredient in cannabis, has not been studied in the frail elderly, but has similar effects to Megestrol among patients with AIDS and cancer. Patients naïve to the medication may suffer delirium with initiation, but habituate to the central nervous systems effects and there appear to be no other side effects. Other potential benefits include an enhanced sense of well-being, anti-emetic properties, and it works as an adjuvant medication for chronic pain.

Megestrol, which may be the most commonly used orexigenic agent, may precipi-

tate glucose intolerance, suppress adrenal activity, and increase the risk of thromboembolism. It is contraindicated following cerebrovascular accident [stroke] or pulmonary embolism. A number of studies of small numbers of patients have shown mixed results in institutionalized populations. In the largest study, half of the patients gained weight after two months of treatment and reported an improvement in appetite and well-being, but demonstrated no change in clinical course or outcome; treatment beyond three months yielded no additional benefit.¹³

Finally, anabolic steroids, such as testosterone and oxandrolone, increase muscle mass in active patients in short trials, but have not been studied in the long-term care population.

Table 4. Medications Used to Promote Weight Gain.

Weight loss is a distressing symptom and medications are commonly prescribed to induce appetite. Other approaches use medications to affect the way the body handles nutrient intake, specifically to direct calories toward building lean body mass as opposed to fat.

| Medication | Comments |
|----------------------------|--|
| Megestrol acetate (Megace) | Some patients gain, others lose; mainly increases fat mass. ▲ risk of phlebitis, pulmonary embolism. Worsening of glucose control and erectile dysfunction. 2-3 months to assess efficacy. No data on whether weight gain improves patient outcomes. \$330/month for 3-month trial. |
| Mirtazapine (Remeron) | Antihistamine side effects at low dose. Treats depression. \$75/month. |
| Dronabinol (Marinol) | Insufficiently studied in the frail elderly. \$360/month. |
| Oxandrolone (Oxandrin) | Anabolic steroid. Requires exercise to ▲ muscle mass. Studied only in patients with acute burns. \$1,000 for 1-month trial. |

11. Evaluate the risks and benefits of tube feeding. Tube feeding may be clinically appropriate in certain clinical circumstances. However, tube feeding should not be an automatic next step.

In terminal disease (when death is expected within six months), no evidence exists that tube feeding has any effect on the patient's course or outcome. Patients who are tube fed may continue to lose weight even when receiving adequate calories. Patients with cancer or AIDS lose weight due to inflammatory cytokines and tube feedings have not been shown to have any significant effects on survival.

In end-stage conditions (when death is expected, but the time frame cannot be determined), tube feeding may extend the lives of some patients. In advanced dementia patients, tube feedings have been shown to have little or no effect on the clinical course or outcome.^{14,15} For patients in a persistent vegetative state, tube feeding extends life, but does not affect functional status or outcome. To date, the only two conditions for which tube feeding has demonstrated a clear benefit has been in head and neck cancer and after an acute stroke.

The clinician should meet with the patient and family before writing an order for tube feeding to discuss whether there is a clear clinical indication for its use, whether the benefits are outweighed by risks, and whether it is consistent with the known values and preferences of the patient and family. It is important to determine the patient's desires through advance directives and attitudes about tube feeding, whenever possible. Because the patient may be incapable of expressing a choice when the need arises, appointment of an advocate for health care decision-making is the best means of assuring that the patient's wishes are honored.

Ask the following: a) will tube feeding likely

have a significant impact on the underlying conditions or overall status? b) has the patient expressed a preference regarding tube feeding or other life-prolonging measures in advance directives; or what do family members think the patient would want? c) what does the patient or family expect to achieve by tube feeding?

Many patients and families do not consider the potential negative effects associated with tube feeding. Studies have not demonstrated fewer major aspiration events when patients are fed by tube¹⁶ or decreased rates of skin breakdown. Bedfast patients with advanced dementia are more likely to be restrained and this immobility and incontinence may explain in part the lack of association between tube feeding and decreased skin breakdown.^{17,18}

Tube-fed patients are often deprived of taste, touch, and social interaction. Restraints were used seventy-one percent of the time in patients with dementia and feeding tubes, regardless of the type of tube.¹⁹ Restraints can then lead to distress and agitation with sedating medications added to control the behavior.

Remember that tube feeding may have great symbolic value to families as a demonstration of their love and devotion to the patient. However, to avoid unrealistic expectations, it is important to explain clearly to families that most patients die despite tube feeding, and long-term survival is the exception rather than the rule.

Clinicians must also be sure patients and family members do not misunderstand the dying process. Family members may think that they have to give tube feedings or the patient will starve to death. Explain that observational studies have shown that most dying patients do not experience hunger and are satisfied with small amounts of food or liquid. Thus, contrary to the beliefs of some, tube feedings will not necessarily increase

comfort or reduce suffering. In fact, insertion of the tube can cause diarrhea, abdominal pain, and local complications, and may increase the risk of aspiration.¹⁴

Table 5. Indications for Use of a Feeding Tube.

- Deglutition (inability to swallow due to neurologic dysfunction)
- Aphagia/Dysphagia (difficulty swallowing due to neuromuscular dysfunction) with symptomatic aspiration
- Esophageal motility disorders or obstruction
- Surgically-induced discontinuity of the gastrointestinal tract
- Family preference for end-of-life comfort care*

*It should be noted that patients do not request feeding tubes for themselves.

12. If tube feeding is decided, use care in prescribing. Note the following:

a. The patient's caloric and hydration needs must be reconsidered.

The dietary prescription is based on healthy body weight, with adjustments to prevent overly rapid weight loss in obese patients. Patients who are in stable health and sedentary should receive at least 25 kcal/kg/day. Most active patients and individuals with multiple comorbidities should receive 30-35 kcal/kg/day. Patients under great physiologic stress (such as those with acute onset pneumonia, urosepsis, or extensive pressure ulcers) may need up to 40-45 kcal/kg/day.²⁰

b. Although the recommended daily allowance for protein is 0.8 g/kg/day, patients in long-term care probably require 1.2-1.5 g/kg/day. Individuals under physiologic stress may need up to 1.5-2.0 g/kg/day of protein (adjusted according to renal tolerance). Fluids should be supplemented to provide 30-35 cc/kg/day. Tube-feeding formulas usually provide 80-85% free water (which should be included in the calculation) with the remainder given as flushes at regular intervals and after medications. Vitamin and mineral supplementation may be considered.

c. Intermittent feedings under gravity approximate the normal pattern of eating, but some patients are intolerant of the bolus load and require continuous feeding via a pump. Continuous feeding should be interrupted for 4-8 hours/day. Although a wide range of formulas are available, little research has been done to justify variations in macronutrient balance to target specific disease states or to demonstrate the benefits of added fiber or neutralizing osmolarity.

d. If a patient who has an end-stage condition or is in a persistent vegetative state continues to lose weight while being tube fed, the most likely reasons are a diet with insufficient calories, mechanical problems in administering the feedings, an occult malabsorption syndrome, or ineffective nutrient utilization in an end-of-life situation.

5. Monitoring

The patient chart notes should reflect the evaluation of the nutritional status, the medical care plan, and where things are at any given point in time. Strategies should be clearly outlined, and documentation should fit into the quality assurance plan for the practice, facility, and/or home care agency.

To monitor the effectiveness of treatment interventions, one should focus on the primary goal of weight stabilization. Periodic monitoring should also take place to assure that early signs of weight loss are detected and dealt with. Progress against that goal and revisions of the plan should be made as necessary.

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