Nutritional Management in Long-Term Care: Development of a Clinical Guideline

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Background. Involuntary weight loss resulting from malnutrition is a major problem among residents in long-term care facilities. Although body weight is easily measured, the evaluation of unintended weight loss in long-term care facilities is difficult.

Methods. The Council for Nutritional Clinical Strategies in Long-Term Care, an expert panel of interdisciplinary thought leaders representing academia and the medical community, derived a structured approach aimed at improving management of malnutrition in long-term care settings, using literature review and consensus development. The Clinical Guide to Prevent and Manage Malnutrition in Long-Term Care is based on a best-evidence approach to the management of nutritional problems in long-term care.

Results. The Clinical Guide is divided into two parts, one designed for nursing staff, dietary staff, and dietitians, and a second directed to physicians, pharmacists, and dietitians.

Conclusions. A structured approach to the management of unintended weight loss or malnutrition in long-term care is intended to ensure a comprehensive resident evaluation. While the Clinical Guide is presented in a linear fashion, many of the considerations can be done simultaneously and the order varied dependent on the individual resident’s needs. Further research to validate the effectiveness of using the algorithm in long-term care settings will be required.

Involuntary weight loss resulting from malnutrition is a major problem among residents in long-term care facilities (Table 1). The prevalence of protein-energy malnutrition in nursing home residents ranges from 23–85% (1, 2). Among those patients newly admitted to a Baltimore long-term care setting, a point prevalence of 54% malnutrition was observed (3). In a Swedish study, 29% of new admissions to a long-term care geriatric hospital were malnourished, defined by anthropometry, serum protein analysis, and delayed hypersensitivity skin test (4).

Malnutrition in elderly populations is associated with poor clinical outcomes and is an indicator of risk for increased mortality. Patients with severe malnutrition are at higher risk for a variety of complications (5), and a number of chronic medical conditions are associated with increased risk of malnutrition (Tables 2 and 3). Identification of malnutrition should lead to early intervention, which may correct reversible nutritional deficits.

Two Congressional acts, the Omnibus Budget Reconciliation Act of 1987 (OBRA 1987) and the Balanced Budget Act of 1997 have had a major impact on nutrition standards in long-term care settings. The regulations state that, based on a resident’s comprehensive assessment, the facility must ensure (a) that a resident maintains acceptable parameters of nutritional status, such as body weight and protein levels, unless the resident’s clinical condition demonstrates that this is not possible; and (b) that a resident receives a therapeutic diet when there is a nutritional problem.

Body weight is easily measured and used as a critical first sign of malnutrition in the nursing home. Clearly, a large number of nursing home residents lose weight during their stay. Involuntary weight loss, reduced appetite, and cachexia are common in the geriatric population and are often unexplained (6). Appetite is regulated by a variety of psychological, gastrointestinal, metabolic, and nutritional factors. Appetite regulators in the central feeding and peripheral satiation systems have been extensively reviewed (7, 8).

Although body weight is easily measured, the evaluation of unintended weight loss in long-term care facilities is difficult (9). Whether anorexia and weight loss are reversible or unavoidable requires a careful clinical evaluation in the individual patient. A structured approach to the differential diagnosis of malnutrition in long-term care was developed by the Council for Nutritional Clinical Strategies in Long-Term Care.

Methods

An expert panel of interdisciplinary thought leaders representing academia and the medical community joined together to form the Council for Nutritional Clinical Strategies in Long-Term Care. The Council convened a summit meeting in May 1998 to review the current state of the science in nutrition management, to identify major issues surrounding prevention and treatment of malnutrition in the elderly population, and to identify evidence-based recommendations for the management of malnutrition in long-term care.
care. Subsequent to that summit meeting, a comprehensive literature search was conducted through the National Library of Medicine’s Medline Database using key MeSH terms, such as anorexia, weight loss, appetite, protein-energy malnutrition, nutritional status, aged and aging.

The Council reviewed existing literature to formulate protocol-driven recommendations to serve as a clinical guide for the management of malnutrition in the long-term care setting. Where evidence existed, it served as the basis for specific recommendations. In the absence of evidence, a modified Delphi approach was used to obtain consensus. The Council conducted a series of regional consensus meetings and a closed Internet discussion forum to gain input from academic thought leaders. This input refined recommendations that were published in March 1999 as a monograph from the Council for Nutritional Clinical Strategies in Long-Term Care, entitled *Anorexia in the Elderly* (10). The monograph presented the recommendations graphically in a parallel algorithmic approach. The algorithms were formally introduced at a satellite symposium during the annual meeting of the American Medical Directors Association on March 5, 1999.

Subsequent to their publication and introduction, in July 1999, representatives from the American Dietetic Association (ADA) met with the Council to discuss the algorithms in light of the introduction of the ADA’s Health Care Financing Administration-mandated risk assessment tool. Pursuant to that meeting, the algorithms were revised to include key quality indicators related to malnutrition and dehydration, minimum data set indicators, and additional food/environmental considerations. In addition, a subcommittee was formed to develop the Nursing Nutritional Checklist for use in care planning aligned with the revised algorithms. This checklist received consensus approval by the Council in October 1999 and was introduced at a satellite symposium during the annual meeting of the American Society of Consultant-

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### Table 1. Nutritional Status of Nursing Home Patients

<table>
<thead>
<tr>
<th>Author (Reference)</th>
<th>Year</th>
<th>n</th>
<th>Prevalence</th>
<th>Time</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaver et al. (54)</td>
<td>1980</td>
<td>115</td>
<td>PCM 85%</td>
<td>6 mo</td>
<td>48% death rate in anergic residents</td>
</tr>
<tr>
<td>Pinchocofsky-Devin et al. (55)</td>
<td>1987</td>
<td>227</td>
<td>PCM 52%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silver et al. (1)</td>
<td>1988</td>
<td>130</td>
<td>BMI 23%</td>
<td>1 year</td>
<td>Mortality not associated with BMI</td>
</tr>
<tr>
<td>Thomas et al. (3)</td>
<td>1991</td>
<td>61</td>
<td>Low albumin 8%</td>
<td>2 mo</td>
<td>Mortality associated with malnutrition. Improvement in only 63%</td>
</tr>
<tr>
<td>Larsson et al. (56)</td>
<td>1991</td>
<td>501</td>
<td>PCM 29%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nelson et al. (57)</td>
<td>1993</td>
<td>100</td>
<td>PCM 39%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wright (58)</td>
<td>1993</td>
<td>309</td>
<td>51% had 5% weight loss</td>
<td>6 mo</td>
<td>Slightly increased mortality (15% vs 12%)</td>
</tr>
<tr>
<td>Abbasi/Rudman (59)</td>
<td>1993</td>
<td>2811</td>
<td>Underweight 11%</td>
<td></td>
<td>Recognition by physicians from 7% to 100%</td>
</tr>
<tr>
<td>Morley/Kraenzle (44)</td>
<td>1994</td>
<td>185</td>
<td>15% had 5% weight loss Low BMI 27.5%</td>
<td>6 mo</td>
<td>Depression most common cause of weight loss</td>
</tr>
<tr>
<td>Blaum et al. (18)</td>
<td>1995</td>
<td>6832</td>
<td>9.9% had 5% weight loss Low BMI 25%</td>
<td></td>
<td>Poor intake, eating dependency, depression predicts malnutrition</td>
</tr>
</tbody>
</table>

*Notes: PCM = protein calorie malnutrition; BMI = body mass index.*

### Table 2. Risk Associated With Undernutrition

<table>
<thead>
<tr>
<th>Author (Reference)</th>
<th>Year</th>
<th>n</th>
<th>Time</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bistrian et al. (60)</td>
<td>1977</td>
<td>12</td>
<td>—</td>
<td>Impaired delayed hypersensitivity skin test</td>
</tr>
<tr>
<td>Weinsier et al. (61)</td>
<td>1979</td>
<td>134</td>
<td>2 weeks</td>
<td>Longer hospital stay (20 vs 12 days), increased mortality (13% vs 4%)</td>
</tr>
<tr>
<td>Warnold/Lundholm (62)</td>
<td>1984</td>
<td>215</td>
<td>29 days</td>
<td>Increased postoperative complications (31% vs 9%)</td>
</tr>
<tr>
<td>Pinchocofsky-Devin et al. (63)</td>
<td>1986</td>
<td>—</td>
<td>—</td>
<td>Undernutrition associated with pressure ulcers</td>
</tr>
<tr>
<td>Detsky et al. (64)</td>
<td>1987</td>
<td>202</td>
<td>—</td>
<td>Increased postoperative complications</td>
</tr>
<tr>
<td>Dwyer et al. (65)</td>
<td>1987</td>
<td>335</td>
<td>4 years</td>
<td>Loss of 4.5 kg associated with increased death</td>
</tr>
<tr>
<td>Windsor/Hill (66)</td>
<td>1988</td>
<td>102</td>
<td>—</td>
<td>Increased sepsis, pneumonia, longer stay</td>
</tr>
<tr>
<td>Berlowitz/Wilking (67)</td>
<td>1989</td>
<td>—</td>
<td>—</td>
<td>Impaired nutritional intake associated with pressure ulcers</td>
</tr>
<tr>
<td>Chang et al. (68)</td>
<td>1990</td>
<td>199</td>
<td>5 years</td>
<td>10% weight loss associated with death and functional impairment</td>
</tr>
<tr>
<td>Brandeis et al. (69)</td>
<td>1990</td>
<td>—</td>
<td>—</td>
<td>Difficulty feeding oneself associated with pressure ulcers</td>
</tr>
<tr>
<td>Thomas et al. (70)</td>
<td>1991</td>
<td>61</td>
<td>2 mons</td>
<td>Increased mortality</td>
</tr>
<tr>
<td>Windsor (71)</td>
<td>1993</td>
<td>—</td>
<td>—</td>
<td>Increased postoperative complications</td>
</tr>
<tr>
<td>Murden/Ainslie (72)</td>
<td>1994</td>
<td>146</td>
<td>2 years</td>
<td>10% weight loss predicts death</td>
</tr>
<tr>
<td>Kaiser et al. (73)</td>
<td>1994</td>
<td>5</td>
<td>—</td>
<td>Impaired immune dysfunction, decreased CD4 &amp; T lymphocytes</td>
</tr>
<tr>
<td>Franzoni et al. (74)</td>
<td>1996</td>
<td>72</td>
<td>28 mons</td>
<td>Low triceps skinfold thickness predicts death</td>
</tr>
<tr>
<td>Berkhout et al. (75)</td>
<td>1997</td>
<td>264</td>
<td>3 years</td>
<td>Increased death in low BMI or weight loss within 3 months of admission</td>
</tr>
<tr>
<td>Flacker/Kiely (76)</td>
<td>1998</td>
<td>780</td>
<td>2 years</td>
<td>Weight loss and low BMI associated with death</td>
</tr>
<tr>
<td>Gambassi et al. (77)</td>
<td>1999</td>
<td>9264</td>
<td>23 mons</td>
<td>Malnutrition independent predictor of death (RR 1.31)</td>
</tr>
<tr>
<td>Perry et al. (78)</td>
<td>1999</td>
<td>400</td>
<td>2 years</td>
<td>Weight loss of 5% predicts mortality at 6 months</td>
</tr>
<tr>
<td>Sullivan et al. (79)</td>
<td>1999</td>
<td>102</td>
<td>3 mons</td>
<td>Higher rate mortality (relative risk, 8.0) and 90-day mortality (relative risk, 2.9)</td>
</tr>
</tbody>
</table>
Table 3. Medical Conditions Associated With Protein Energy Malnutrition in Nursing Home Residents

<table>
<thead>
<tr>
<th>Medical Condition</th>
<th>Increased Metabolism</th>
<th>Anorexia</th>
<th>Swallowing Difficulties</th>
<th>Malabsorption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac disease</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulmonary disease</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infection(s)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIDS</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esophageal candidiasis</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcoholism</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rheumatoid arthritis</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gallbladder disease</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malabsorption syndromes</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Hyperparathyroidism</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parkinson’s disease</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essential tremors</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ant Pharmacists on November 10, 1999. A series of regional meetings were conducted to present the revised algorithms and nursing checklist and to address questions related to their use within long-term care.

In order to gain support of the algorithms from a respected peer association and establish a research initiative where lack of evidence exists, the Council met with an independent peer-review committee selected by The Gerontological Society of America in February 2000. Based on input from that meeting, the algorithms were retitled Clinical Guide to Prevent and Manage Malnutrition in Long-Term Care. Further revisions were made to provide clarification of specific recommendations and to ensure an understanding that although the recommendations are graphically presented as a linear guide for simplicity, many of the protocol-driven suggestions are intended to be implemented simultaneously with their order varying, dependent on individual resident needs.

THE CLINICAL GUIDELINES

The Clinical Guide is divided into two parts, one designed for nursing staff, dietary staff, and dietitians and a second designed for physicians, pharmacists, and dietitians. The Clinical Guide for nursing staff, dietary staff, and dietitians (Figure 1) and the Nursing Nutritional Checklist (Figure 2) are designed to clarify information necessary to develop a care plan and to inform the physician about the resident’s condition. The Clinical Guide for physicians, pharmacists, and dietitians focuses on differential diagnosis (see Figure 3). The phrase “quality indicator conditions” in the figures refers to the Minimum Data Set Resident Assessment Protocol (MDS RAP) triggers.

The Clinical Guide for Nursing, Dietary, and Dietitian Staff

Clinical triggers.—Both clinical guidelines were originally triggered by three factors. These parameters were derived from OBRA 1987 guidelines: (a) involuntary weight loss of greater than 5% in 30 days or 10% in 180 days; (b) leaving more than 25% of food in the past 7 days or two thirds of meals based on a 2000 kcal diet; or (c) a body mass index (BMI, calculated as weight divided by height squared) of equal to or less than 19.

Age- and gender-adjusted BMI below the 10th decile has been used to define undernutrition (<19 in men and <19.4 in women). In hospitalized adults with serious illness, excess mortality within 6 months (risk ratio 1.23, p < .001) has been demonstrated when the BMI is less than 20 (11). The increase in mortality is linear—the lower the BMI, the greater the risk. Increased risk of death has been shown to begin at a BMI <23.5 in men and <22.0 in women (12). The Clinical Guidelines revised the BMI at 21, however, because a body mass index of less than 21 has been shown to be associated with increased mortality and may result in earlier intervention (13).

Advanced directives.—Whenever a resident has a weight loss problem, it is essential that they or their proxy have a full discussion of their health care wishes with a health care professional. A discussion of the treatment goals and the resident’s ongoing quality of life should be initiated at this point. The decision that they make should be documented and guide how aggressively the algorithm is utilized.

Medical conditions.—Medical conditions that may be associated with anorexia, such as decreased food intake, or increased metabolic requirements should be assessed. Increased metabolic requirements may be precipitated by fever, infection, or the presence of chronic skin wounds. Anorexia may be associated with illness, drugs, dementia, or mood disorders (14–16). Decreased food intake may result from dysphagia (17), chewing problems (18), nausea, vomiting, diarrhea, pain, or fecal impaction. Treatment of these conditions may restore appetite and body weight.

Hydration.—Fluid intake and hydration status may affect body weight. An assessment of hydration status may account for weight loss due to low fluid intake. Dehydration may be difficult to detect by clinical signs alone and require the use of biochemical parameters (19). The recommended amount of fluid consumed by nursing home residents is confusing. Amounts range from 1 mL/kcal (20), 30 mL/kg body weight (21), or the sum of 100 mL fluid per kg for the first 10 kg actual body weight, 50 mL fluid per kg for the next 10 kg actual body weight, and 15 mL fluid per kg for the remaining kilograms actual body weight (22). Direct observations of institutionalized adults indicate a total fluid intake, including fluids derived from meals, of 1,783 ± 545 mL (19). When compared to the standard of 1 mL/kcal and 30 mL/kg, recommended intakes were low, primarily due to low body weight or low caloric intake. The calculated value provides at least 1500 mL daily, even for residents with low weight. A general recommendation suggests that residents should ingest 1500 to 2000 mL of fluid per day (23), though a recent study and accompanying editorial have suggested that community-dwelling adults consume about 1000 mL per day (24, 25).
Clinical Guide to Prevent and Manage Malnutrition in Long-Term Care

FOR NURSING STAFF AND DIETARY STAFF AND DIETITIANS (EVALUATE, DOCUMENT AND TREAT)

The American Dietetic Association supports the Clinical Guide to Prevent and Manage Malnutrition in Long-Term Care. Representatives from the American Dietetic Association were instrumental in its development.

These Guidelines were developed by the Council for Nutrition convened by Programs in Medicine under a grant from Bristol-Meyers Squibb.

A special committee of The Gerontological Society of America (GSA) served as critical reviewers and provided input and modification of the final Guidelines.

While GSA does not endorse specific clinical measures, we support the principles underlying these Guidelines and their potential to improve nutrition in the nursing home.

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**Figure 1.**

**Trigger Conditions**

| Involuntary 5% weight loss in 30 days or 10% in 180 days or less or BMI < 21 or Resident leaves 25% or more of food unclean at two thirds of meals (Assess over 7 days, based on 2100 cal/day) |
| --- | --- |

Put on weekly weight monitoring program/Proceed with documentation utilizing Nursing Nutritional Checklist

<table>
<thead>
<tr>
<th>Quality indicator conditions: (For tube feeding patients, approximately 75% of the total tube feeding volume should be considered free fluid)</th>
</tr>
</thead>
</table>

Check hydration status minimum 1500 fluid/day unless contraindicated

Inform physician/dietitian

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**Suggestions for family:**

- Visit at meal time
- Help feed
- Discuss alternate food sources
- Review food preferences
- Recommend favorite foods or comfort foods
- Discuss quality of life issues and treatment goals

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**Checklist for nurse to provide physician/dietitian:**

- Temperature
- Constipation
- Fecal impaction
- Drug list
- Mood/behavior
- Food/fluid intake
- Vomiting/nausea
- Indigestion
- Skin condition
- Swallowing problem

**Physician considerations:**

- Appetite assessment
- Infection – UTI, URI, GI
- Pain
- Albumin < 3.3 g/dL
- Cholesterol < 160 mg/dL
- Hgb < 12 g/dL
- Serum transferrin < 180 g/L

*Excluded in 90%*

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**Food/environmental considerations**

- Needs feeding assistance
- Dysphagia/aspiration
- Caloric-dense foods
- Exercise program for appetite stimulation
- Between meal liquid calorically dense supplements
- Consider other treatment options, e.g., hospice or palliative care

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**Meal time assistance, restorative dining program**

**Swallowing evaluation/food consistency change, thickened liquids, special feeding program, enteral/parenteral feeding**

While presented for simplicity as a linear guide in two parts, many of the suggestions can be done simultaneously, and the order in which this approach is taken can be varied dependent on individual resident needs.
Nursing Nutritional Checklist (for use in Care Planning)

The American Dietetic Association supports the Nursing Nutritional Checklist (for use in Care Planning).

Representatives from the American Dietetic Association were instrumental in its development.

The Nursing Nutritional Checklist for use in Care Planning was developed by the Council for Nutrition convened by Programs in Medicine under a grant from Bristol-Myers Squibb. A special committee of the Gerontological Society of America (GSA) served as critical reviewers and provided input and modification of the final Checklist. While GSA does not endorse specific clinical measures, we support the principles underlying the Checklist and its potential to improve nutrition in the nursing home.

Problem List (check all that apply)

- 1. Patient has >5% involuntary weight loss in 30 days?
- 2. Patient has >10% involuntary weight loss in 180 days or less.
- 3. BMI is <17. (703 x weight in lbs/height in inches^2 or weight in kilograms/height in meters^2)
- 4. Resident leaves >25% or more food on tray? (in last 7 days)
- 5. Quality Indicators — Does patient have:
  - A. Fecal impaction in last 7 days
  - B. Infection (UTI, URI, Pneumonia, GI) in last 7 days
  - C. Tube feeding
  - D. Functional ADL decline
  - E. Development of pressure ulcer in low risk patient
- 6. Patient takes in <1500cc fluid/day for the last 7 days? Is patient on fluid restriction?
- 7. Available labwork completed in the last 30 days:
  - High
  - Albumin
  - Cholesterol
  - Sodium
  - Potassium
  - Glucose
  - BUN
  - Creatinine
  - Low
- 8. Nursing assessment of physical/psychological problems
  - A. Presence of fever (°F above baseline)
  - B. Presence of diarrhea
  - C. Presence of constipation
  - D. Presence of constipation
  - E. Loss of usual appetite
  - F. Presence of nausea/vomiting
  - G. Presence of dysphagia/choking
  - H. Ill-fitting dentures, missing teeth, periodontal disease
- 9. Not satisfied with food currently offered
- 10. Patient needs meal time assistance
- 11. Patient has motor agitation, tremors, or wanders
- 12. Presence of environmental distractions or meal time environment concerns
- 13. Inadequate lighting in the dining room
- 14. Patient needs 30–90 minutes to eat
- 15. Patient is unable to tolerate current food consistency
- 16. Supplements are given at meal time
- 17. Medications are given at meal time
- 18. Impaired visual acuity
- 19. Impaired hearing
- 20. Patient has a decline in taste and smell

Suggested Action Plan (check when completed)

- 1-4. Monitor weight weekly. Continue to step #5 on problem list
- 5. A. Implement bowel program
- 6. B. Get physician order for UA
- 7. C. Implement facility protocol
- 8. D. Contact dietician for assessment
- 9. E. Implement skin program
- 10. F. Develop systematic plan to ensure adequate fluid intake (e.g., 300 mL with meals and 240 mL between meals)
- 11. G. Notify physician of values
- 12. H. Stop therapeutic diets and provide preferred foods/food substitutions
- 13. I. Provide timely, polite assistance during dining
- 14. J. Provide tray set up
- 15. K. Provide partial assistance/supervision (evaluate resident/staff rate and supervision by licensed professional staff)
- 16. L. Provide total assistance (consider resident/staff rate and supervision by licensed professional staff)
- 17. M. Consider training staff to provide meal time assistance
- 18. N. Consider OT evaluation
- 19. O. Provide meal time assistance
- 20. P. Provide self-help feeding devices
- 21. Q. Other finger foods
- 22. R. Minimize environmental distractions
- 23. S. Provide compatible companions
- 24. T. Evaluate location in dining room
- 25. U. Implement dining program, e.g., special area to eat for impaired residents or two meal time sessions
- 26. V. Contact dietician for texture screen
- 27. W. Give liquid supplements in a pattern that optimizes nutrient intake
- 28. X. Contact pharmacist for appropriate administration time
- 29. Y. Assess resident is wearing clean clothes at meal time
- 30. Z. Provide meal time assistance (see #10)
- 31. A. Ensure that hearing aid is in place and working at meal time
- 32. B. Serve food at proper temperature

When problem list is completed, contact physician, dietician and pharmacist as appropriate with suggested action plan.

Completed by: ____________________________ Date: ____________________________

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Figure 2.
Clinical Guide to Prevent and Manage Malnutrition in Long-Term Care

For Physicians, Pharmacists, and Dietitians (Evaluate, Document and Treat)

The American Dietetic Association supports the Clinical Guide to Prevent and Manage Malnutrition in Long-Term Care. Representatives from the American Dietetic Association were instrumental in its development.

These Guidelines were developed by the Council for Nutrition convened by Programs in Medicine under a grant from Bristol-Myers Squibb.

A special committee of The Gerontological Society of America (GSA) served as critical reviewers and provided input and modification of the final Guidelines.

While GSA does not endorse specific clinical measures, we support the principles underlying these Guidelines and their potential to improve nutrition in the nursing home.

**Figure 3.**

**Trigger Conditions**

| Involuntary 5% weight loss in 30 days or 10% in 180 days or less or BMI<21 or Resident leaves 25% or more of food unfinished at two thirds of meals (Assess over 7 days, based on 2000 cal/day) |
| Put on weekly weight monitoring program |
| Assess laboratory data |
| Consider quality indicator conditions for cause or related conditions |
| Consider hydration status minimum 1500cc fluid/day (Unless contraindicated) |
| If acute decrease in fluid intake, consider delirium, acute illness and/or pain |
| Geriatric Depression Scale (see Appendices A and B) |
| Review drugs |
| Consider treatable causes (MEALS ON WHEELS) |
| Consider oncogenic drugs (appetite stimulants) |
| Consider irreversible causes |
| Consider alternate feeding routes (such as NG, PEG, PPN) |
| Consider other treatment options, e.g., hospitilization or palliative care |

This is a tool to assist in compliance. This is not an endorsement of the BECA mandated criteria.

It should be noted that because malnutrition in long-term care is multifactorial, any treatment that is initiated should be monitored for efficacy, and nursing interventions should proceed simultaneously with medical interventions.

| Consider: |
| Serum albumin <3.5 g/dL |
| Cholesterol <160 mg/dL |
| Hgb<12 g/dL |
| Serum transferrin<180* |
| Includer in MPR |
| Consider: |
| Fecal impactions |
| Infection (UTI, URI, pneumonia, GI) |
| Tube Feeding |
| Decline in ADLs or pressure ulcer on low risk resident |
| Evaluate and treat as appropriate |
| Treat cause |
| Treat cause |
| Treat depression | |
| Stop drugs that cause anorexia or substitute where possible |

**Reversible Causes of Protein-Energy Malnutrition in Nursing Homes: The “MEALS ON WHEELS” Mnemonic**

| Medications (e.g., Amin, Phenyl, Antipsychotics) |
| Wernicke's (Depression) |
| Alcohol (Necrosis) |
| Alcoholism (Alcohol) |
| Cafeine (Delirium) |
| Wandering and other dementia-related behaviors |
| Hypothyroidism/Impaired cardiac function |
| Muscle weakness (Malnutrition) |
| Bilirubin (Malnutrition) |
| Low-salt, low-cholesterol diets |
| S. tones (Cholecystitis) |

**MEALS ON WHEELS**

| Consider treatable causes (MEALS ON WHEELS) |
| Consider oncogenic drugs (appetite stimulants) |
| Consider irreversible causes |
| Consider alternate feeding routes (such as NG, PEG, PPN) |
| Consider other treatment options, e.g., hospitilization or palliative care |

**Advance directives**

**Cancer or other terminal illness**

*Improving appetite or gaining acceptable nutrition can be helpful for resident and family*

While presented for simplicity as a linear guide in two parts, many of the suggestions can be done simultaneously, and the order in which this approach is taken can be varied dependent on individual resident needs.

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Laboratory parameters.—Evaluation of available biochemical parameters associated with malnutrition should be considered at this point. Suggested biochemical parameters include serum albumin (26), cholesterol (27), hemoglobin, and serum transferrin. While these parameters may be abnormal in several conditions unassociated with malnutrition, they are useful as guides to intervention (28). Abnormalities in laboratory parameters should be treated.

Environmental factors.—Food and environmental conditions that may affect intake should be considered in a continuing evaluation. Unpalatability due to overly restricted diets may cause decreased intake (29). Consideration of food preferences, food consistency (30, 31), food temperature, and snacks should be included. Provision of pleasant, well-lighted, unhurried mealtimes in a social environment may increase intake (32). Dependency in eating is associated with increased mortality (33). Residents needing feeding assistance require a restorative feeding program (32). Recognition of feeding problems and proper feeding techniques may improve weight loss in nursing homes. Dysphagia and swallowing disorders, with or without recurrent aspiration, require swallowing interventions, alteration of food consistency, or consideration of enteral or parenteral feeding (34).

Nursing Nutritional Checklist.—The Nursing Nutritional Checklist (see Figure 2) is designed as a supplement to the Clinical Guide to focus the comprehensive nutritional evaluation and introduce suggestions for implementing a plan of care. Notification of the results of the initial assessment to the attending physician, based on the Nursing Nutritional Checklist, should occur at this point. This checklist can be used as a communication tool to the attending physician and other members of the interdisciplinary team and may be faxed, mailed, or made available to the attending physician during nursing home visits.

Interventions.—Continued interventions by the facility staff should occur. Early interventions include family involvement, with visits or assistance with feeding at mealtimes (35), exploration of alternate food sources, evaluation of food preferences, and identification of favorite foods. Increased nutrient intake may be achieved by use of calorie-dense foods (36). Exercise may increase dietary intake (37–39). Nutritional supplementation can increase dietary intake and produce weight gain (40, 41). Nutritional supplementation must be given between meals in order not to substitute for calorie intake at meals.

Failure to improve.—Failure to improve nutritional status with these measures requires consideration of enteral or parenteral feeding and hospitalization for more complete evaluation (42). The resident’s wishes and advanced directives may lead to a decision for palliative care.

The Clinical Guide for Physicians, Pharmacists, and Dietitians

The Clinical Guide for physicians, pharmacists, and dietitians focuses on differential diagnosis. Intervention at this point should include weekly weight assessments and a differential diagnostic approach. A mnemonic, MEALS ON WHEELS, is useful in considering the potential treatable causes of malnutrition (43). Laboratory data should be reviewed and treated as appropriate. Medical conditions reported on the Nursing Nutrition Checklist should be reviewed, including fecal impaction, infection, decline in activities of daily living associated with feeding dependency, pressure ulcer, or tube feedings.

Depression and mood disorders.—Delirium due to acute illness and/or pain may be a reversible cause of decreased dietary intake. Reversal of delirium may result in resumption of appetite.

Depression is a major cause of weight loss in long-term care settings, accounting for up to 36% of residents who lose weight (44). An evaluation for depression, using the Geriatric Depression Scale (45, 46), for example, should be obtained for residents with anorexia (see Figure 4).

Drugs.—Drugs have been found to be a cause of weight loss in long-term care residents (44). In consultation with the pharmacist, all drugs potentially aggravating anorexia should be discontinued (47). Drugs that stimulate appetite (orexigenic drugs) should be considered to reverse resistant anorexia (48–51). Yeh and colleagues (52) found that megestrol acetate increased weight in nursing home residents.

Irreversible causes.—Certain causes of malnutrition may be irreversible. Palliative care, including orexigenic drugs, enteral or parenteral feeding, consistent with the resident’s wishes, should be considered (53).

Summary

A structured approach to the management of unintended weight loss or malnutrition in long-term care helps to facilitate a comprehensive resident evaluation. The Clinical Guide to Prevent and Manage Malnutrition in Long-Term Care is based on a best-evidence approach to the management of nutritional problems in long-term care. While the Clinical Guide is presented in a linear fashion, many of the considerations can be done simultaneously and the order varied dependent on the individual resident’s needs.

Further research to validate the effectiveness of using the algorithm in long-term care settings will be required. Prospective evaluation of outcomes using the Clinical Guide will be necessary to validate improvement in nutritional care and document its usefulness.

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Appendix A
Geriatric Depression Scale (Short Form)
Answers indicating depression are highlighted.
Each bold answer counts as 1 point; scores greater than 5 indicate probable depression.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are you basically satisfied with your life? ........... yes / no</td>
<td></td>
<td></td>
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<tr>
<td>2. Have you dropped many of your activities and interests? ................ yes / no</td>
<td></td>
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<tr>
<td>3. Do you feel that your life is empty? .............. yes / no</td>
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<td>4. Do you often get bored? ......................... yes / no</td>
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<td>5. Are you in good spirits most of the time? ........ yes / no</td>
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<td>6. Are you afraid that something bad is going to happen to you? .............. yes / no</td>
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<tr>
<td>7. Do you feel happy most of the time? ............. yes / no</td>
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<tr>
<td>8. Do you often feel helpless? ....................... yes / no</td>
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<tr>
<td>9. Do you prefer to stay at home, rather than going out and doing new things? ........ yes / no</td>
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<tr>
<td>10. Do you feel you have more problems with memory than most? ...................... yes / no</td>
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<td></td>
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<td>11. Do you think it is wonderful to be alive? ........ yes / no</td>
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<tr>
<td>12. Do you feel pretty worthless the way you are now? ...................... yes / no</td>
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<tr>
<td>13. Do you feel full of energy? ..................... yes / no</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>14. Do you feel that your situation is hopeless? ........ yes / no</td>
<td></td>
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<td></td>
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<tr>
<td>15. Do you think that most people are better off than you are? .............. yes / no</td>
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Appendix B
Cornell Scale for Depression in Dementia
Rating should be based on symptoms and signs occurring during the week before interview.
No score should be given if symptoms result from physical disability or illness.
Scoring system: a=Unable to evaluate 0=Absent 1=Mild to intermittent 2=Severe

A. Mood-Related Signs
   a 0 1 2 1. Anxiety: anxious expression, rumination, worrying
   a 0 1 2 2. Sadness: sad expression, sad voice, tearfulness
   a 0 1 2 3. Lack of reaction to present events
   a 0 1 2 4. Irritability: annoyed, short tempered

B. Behavioral Disturbance
   a 0 1 2 5. Agitation: restlessness, hand wringing, hair pulling
   a 0 1 2 6. Retardation: slow movements, slow speech, slow reactions
   a 0 1 2 7. Multiple physical complaints (score 0 if gastrointestinal symptoms only)
   a 0 1 2 8. Loss of interest: less involved in usual activities (score only if change occurred acutely, i.e., in less than one month)

C. Physical Signs
   a 0 1 2 9. Appetite loss: eating less than usual
   a 0 1 2 10. Weight loss (score 2 if greater than 5 pounds in one month)
   a 0 1 2 11. Lack of energy: fatigues easily, unable to sustain activities

D. Cyclic Functions
   a 0 1 2 12. Diurnal variation of mood: symptoms worse in the morning
   a 0 1 2 13. Difficulty falling asleep: later than usual for this individual
   a 0 1 2 14. Multiple awakenings during sleep
   a 0 1 2 15. Early morning awakening: earlier than usual for this individual

E. Ideational Disturbance
   a 0 1 2 16. Suicidal: feels life is not worth living
   a 0 1 2 17. Poor self-esteem: self-blame, self-depreciation, feeling of failure
   a 0 1 2 18. Pessimism: anticipation of the worst
   a 0 1 2 19. Mood congruent delusions: delusions of poverty, illness or loss

SCORE _____ Score greater than 12 is Probable Depression

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