Management of Swallowing Disorders: A Program for Professionals Working in Rural Areas

Kathleen D. Sims MCSD/CCC-SLP
University of Montana Rural Institute - Community Rehabilitation Center

Sue Reinsel-Garcia OTR/L
University of Montana Rural Institute - Community Rehabilitation Center

Kathy M. Love MA/CCC-SLP
University of Montana Rural Institute - Community Rehabilitation Center

Elizabeth Kohler Ed.D., O.T.R.
Colorado State University

University of Montana Rural Institute
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MANAGEMENT OF
SWALLOWING
DISORDERS:
A PROGRAM
FOR PROFESSIONALS
WORKING IN RURAL AREAS

manual
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A Program for Professionals Working In Rural Areas

Kathleen D. Sims, MCSD/CCC-SLP - Community Rehabilitation Center
Sue Reinsel-Garcia, OTR/L
Kathy M. Love, MA/CCC-SLP

with

Elizabeth Kohler, Ed.D., O.T.R. - Colorado State University

Missoula, Montana
1990

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Community Rehabilitation Center
Community Medical Center
2827 Fort Missoula Road
Missoula, MT 59801
(406) 726-4100

RTC Rural
52 Corbin Hall
University of Montana
Missoula, MT 59812-1588
(406) 243-5481
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PART I: INTRODUCTION, WORKSHOP RATIONALE, AND DIAGNOSTICIAN'S ROLE

Introduction

Research indicates that 74% of all nursing home patients experience eating difficulties sometime during their stay (Trupe, Siebens, & Siebens, 1984). Additionally, 59% of patients suffering from stroke experience some degree of dysphagia and aspiration difficulties (Echelard, Thoppil, & Melvin 1984).

A significant number of the high risk dysphagia patients described above suffer from life threatening aspiration pneumonia. Consequently the management of swallowing disorders (Dysphagia) is of critical concern to hospital and nursing home personnel.

Patients specifically at risk for dysphagia, according to recent studies, include those with head injury, stroke (CVA), and cerebral palsy. Also, patients experiencing cancer of the swallowing structures, diseases or disorders of the cranial nerves, and other neurological dysfunctions have been identified to be at increased risk.

In rural areas, however, sophisticated diagnostic equipment that would facilitate dysphagia diagnosis is often unavailable. In addition, rural hospital and nursing home personnel (occupational therapists, physical therapists, speech pathologists and registered nurses) are often in a position to identify early signs of dysphagia but may not be trained in dysphagia identification or treatment.

Consequently, it is imperative for these care providers to learn the screening skills necessary to identify dysphagia. When patients are identified as having, or being at an increased risk for, swallowing disorders and are treated accordingly, additional problems resulting from undiagnosed dysphagia may be prevented.
Workshop Rationale

Participants in today's conference will learn the skills necessary to complete the following objectives:

1) Implement a thorough swallowing evaluation.
2) Understand and implement basic compensatory techniques used with swallowing disorders.
3) Provide a follow-up treatment plan for caretaker use.
4) Effectively use the Montana Professional Resource Network system for appropriate evaluation, treatment and follow-up care for dysphagia patients.

Diagnostician's Roles in Evaluation

Six basic steps involved in the evaluation and treatment of dysphagia are:

1. Observing and screening patients' swallowing.
2. Referring patients with potential swallowing problems to their physician.
3. Formal dysphagia evaluation by a trained professional (diagnostician).
4. Development of an individualized treatment program by trained professional and dietitian.
5. Implementation of treatment recommendations by primary care staff.
6. Follow-up by diagnostician.
A typical flow chart of screening and treatment is depicted below.

A. CARE PROVIDER/S
1. Observe patient with meal.
2. Record.
3. Report swallowing problems to supervisor & inform supervisor of professional network.

B. YOUR CLINICAL SUPERVISOR
Name: 

1. Seek physician referral if appropriate.
2. Inform physician of Professional Resource Network. (Appendix -)

C. PHYSICIAN


D. TRAINED SWALLOWING THERAPIST (see Appendix -)
1. Evaluate and design treatment program.
2. Remain in regular contact with care provider/s.

(Trained therapists include occupational therapists, speech/language pathologists, physical therapists, R.N.'s, dietitians, etc., who have undergone specific training in diagnostics/treatment of dysphagia.)

FIGURE 1 - Dysphagia Referral Model

It is important to note that screening is not a substitute for comprehensive evaluation. Depending on the nature of the swallowing problem, treatment varies and must be determined by a trained swallowing specialist.

Screening for dysphagia is the first critical phase in identifying swallowing problems. Without the initial screening, most patients at risk for aspiration are not identified or treated.
PART II: NORMAL SWALLOWING

Characteristics of Normal Swallowing

In normal oral feeding, swallowing involves a series of distinct actions. Although this swallowing sequence is described in stages, the different phases are actually interdependent and highly coordinated (see page 8 for illustration).

**Oral phase.** During the oral phase, food is manipulated (chewed) and then moved back toward the throat by the tongue. More specifically, the following actions occur:

1. The lips, using the orbicularis oris and mentalis muscles, are sealed to prevent food or liquid from spilling out of the mouth.
2. Specific movements of the tongue and jaw occur for chewing. The masseter and tongue muscles are used.
3. Strength of the cheek musculature is adequate to prevent food from pocketing between the gums and cheek. The buccinator muscles are used.
4. The tongue moves the food into a cohesive mass (bolus) and pushes it back along the roof of the mouth toward the throat. The hard palate is used.
5. The oral phase ends as the bolus passes the tonsillar arches and the swallow reflex is triggered. The uvula, soft palate, and tonsillar arches are involved.

**Pharyngeal phase.** The pharyngeal phase begins with the triggering of the swallow reflex which causes a number of changes in the swallowing mechanism to occur simultaneously. The movement of food back and down the pharynx is controlled and the airway is protected.

1. The tongue is raised to prevent re-entry of food into the mouth. The soft palate is elevated to prevent material from going toward the nose. These actions involve the tongue, soft palate and tonsillar pillars.
2. Muscular contractions, involving the pharynx, valleculae, epiglottis and larynx, within the throat (pharynx) occur and carry the bolus of food down through the esophagus; this occurs in conjunction with gravity and changes in pressure.
3. Laryngeal elevation, combined with closure of the epiglottis over the airway, prevents the bolus from entering the airway and allows it to flow safely through the pharynx into the esophagus. The larynx, epiglottis (covers trachea), and esophagus are involved.

The pharyngeal phase of swallowing is involuntary and totally reflexive. No pharyngeal activity will occur until the swallow reflex is triggered.

**Esophageal phase.** The esophageal phase begins with the lowering of the larynx. The combination of gravity and muscular contractors carries the bolus through the esophagus and into the stomach.
Identification of Structures and Function

In order to thoroughly evaluate swallowing, knowledge of the structures and functions involved in each phase of the swallow is necessary. The following section outlines normal swallowing as related to each phase of the swallow.

**Oral phase:**
Involves the muscles of chewing (masseter), the muscles of the face (orbicularis oris, buccinator and mentalis), the tongue and the hard palate.

**Figure 3 - Structures of the Oral Phase of Swallowing**

**Figure 4 - Muscles of the Oral Phase of Swallowing**
Pharyngeal phase:
- involves the hard palate, soft palate, uvula, tonsillar pillars, pharynx, epiglottis, valleculae and larynx.

Esophageal Phase:
- involves the larynx and esophagus. This phase can only be effectively evaluated radiographically.

**PART III: ABNORMAL SWALLOWING**

**Characteristics of Abnormal Swallowing**

A variety of physical problems, identified below, can occur in the different phases of swallowing:

**Oral Phase:**
1. Inadequate lip closure due to paralysis, muscular weakness, or impaired sensation may occur.
2. Food may pocket between the gums and cheek due to reduced sensation within the mouth or muscular weakness.
3. The patient may be unable to effectively move the bolus toward the throat due to reduced tongue strength, reduced muscular coordination or reduced sensation within the mouth.

**Pharyngeal Phase:**
1. Pooling (accumulation of food or liquid) may occur in the valleculae or pyriform sinuses due to a late or absent swallow reflex or reduced strength of the pharyngeal muscles.
   
   Note: Pooling in the valleculae and pyriform sinuses during and after eating may often cause patients to aspirate as they breathe, long after mealtime is finished.
2. Aspiration may result from: a) a late or absent swallow reflex; b) reduced pharyngeal muscular strength; or c) reduced laryngeal elevation. Aspiration after a swallow often occurs due to pooling as noted above.
Esophageal Phase:

1. Reflux of food materials upward toward pharynx occurs during or after a meal.

Guidelines for Identification of Aspiration

Aspiration is the "residual, unswallowed pharyngeal content that is drawn into the larynx and trachea by inspiration following an attempt at a normal swallow" (Groher, 1984, p. 61).

Aspiration Pneumonia. "Evidence of recurrent aspiration pneumonia may be associated with neuromuscular incoordination or weakness of the swallowing mechanism. It can result from a patient's inability to protect the airway due to selective muscle paralysis. The occurrence of aspiration pneumonia is grossly related to the severity of dysphagia" (Groher, 1984, p. 89).

Signs and Symptoms of Aspiration:

1. Patient complains of coughing or choking frequently while eating or drinking fluids.

2. Hospital staff or family reports patient coughs or chokes frequently while eating or drinking fluids.
   Note: "Coughing itself is not an indication that the patient is experiencing aspiration. The cough reflex is the final protective mechanism to prevent aspiration" (Groher, 1984, p. 95).

3. Often patients do not cough or choke during eating or drinking. If your patient demonstrated abnormal responses during oral-motor evaluation, "silent aspiration" should be suspected and the patient's physician should be notified.

4. Patient begins to demonstrate fluctuating high fevers. Abnormal lung sounds may be noted via stethoscope. Consult a nurse if unfamiliar with this procedure.

5. X-ray investigation show lung fields indicating pneumonia. (If a patient has questionable dysphagia, and had no history of pneumonia prior to hospitalization, it is appropriate to be suspicious that oral feeding trials may have resulted in the pneumonia).
PART IV: EVALUATION OF STRUCTURES AND FUNCTIONS

The dysphagia evaluation kit should include:

- cotton-tipped applicators
- tongue depressors
- flashlight or penlight
- safety pin
- paper cups
- blue food dye
- paper cups
- gauze
- straws
- blindfold
- rubber gloves

* for use with tracheostomy patients to detect aspiration

Items to induce tastes of sweet, salt, bitter, and sour should also be included; suggested taste items are sugar and salt or substitutes, instant coffee/cocoa, lemon juice/lemon glycerine swabs.

Guidelines for Oral-Motor Evaluation

1. Facial Musculature at Rest

Observation: Examiner observes face for weakness (drooping), asymmetry or deviation of jaw, notes facial color.

Normal response: Facial structure should appear symmetrical and unremarkable in tone.

Lips closed, no evidence of drooling.

2. Facial Musculature During Voluntary Movement

Observation: Examiner asks patient to demonstrate facial expressions (e.g., smile, pucker, frown). Examiner may demonstrate/describe these expressions.

Orbicularis oris: pucker lips
Buccinator: press cheeks against side of teeth and pull back angle of mouth. (Examiner may resist this by placing a tongue blade between cheek and teeth.)

Normal response: Patient should be able to produce expressions bilaterally and symmetrically.

3. Mandibular musculature at rest:

Observation: Examiner observes face for jaw asymmetry or deviation.

Normal response: Facial structure should appear symmetrical and unremarkable in tone.

Patient should respond by indicating where the cotton touched.

4. Mandibular musculature during voluntary movement:

Range of motion: Examiner asks patient to open mouth as wide as possible and laterally deviate.

Normal response: Normal range of motion in an adult jaw is 3-finger widths.

Strength of masseter: Examiner should attempt to open the patient's mouth while the patient resists. Process is then reversed for closure.

Palpation exam: Patient bites down firmly with jaws together. Examiner observes and palpates masseter.

5. Tongue musculature at rest:

Observation: Patient opens mouth. Examiner views tongue at rest.

Normal response: Tongue, of appropriate size and symmetrical, remains at rest without tremor or fasciculation.

Patient should identify or describe the taste.

6. Tongue musculature during voluntary movement:

Range of motion: Patient demonstrates the following tongue movements:

- moving side to side
- elevation and depression
- protrusion and retraction

Normal response: Adequate strength, regularity and range. Patient should be able to touch upper lip, inside and outside of gums and lower lip with tongue. Movements should be symmetrical and coordinated.

Strength: Examiner uses gauze and/or tongue blade to resist the following motions of the tongue:

- protrude against resistance
- lateralize against resistance

No tolerable force should affect patient's ability to resist.
7. Palatopharyngeal musculature at rest:

Observation: Examiner requests patient to open mouth.

- hard palate
- soft palate
- uvula
- tonsillar pillars
- posterior pharyngeal wall

Normal response: Should reveal unremarkable, symmetrical structures.

8. Palatopharyngeal musculature during movement:

Observation of pharyngeal sensation

Vernet's phenomenon: Examiner asks patient to produce "ah" and "ee" sounds while pressing down tongue with tongue blade. Observe uvula and pharynx.

Normal response: Should reveal unremarkable, symmetrical structures.

Gag reflex: Examiner strokes pharyngeal wall.

Normal response: Should elicit gag (symmetrical elevation of soft palate and anterior movement of pharyngeal wall).

Palatal reflex: Examiner strokes soft palate on either side of uvula with cotton-tipped applicator.

Normal response: Should elicit reflexive adduction and elevation of the upper pharyngeal wall.

Voluntary dry swallow: Examiner asks patient to swallow on command; place finger at larynx.

Normal response: Patient should demonstrate strong cough which eliminates "gurgly" vocal quality.

Patient should occasionally swallow spontaneously. Laryngeal elevation should be complete (movement of approximately two finger widths or 1 to 1 1/2 inches). Patient's larynx should elevate with reflexive, automatic swallow. Absence of coughing or choking should be absent.

Reflexive dry swallow: Observe frequency of swallowing during "non-eating" interaction.

Normal response: Uvula and surrounding soft palate tissue should reflexively and symmetrically elevate.

9. Laryngeal musculature:

Protective, reflexive cough: Observe spontaneous coughing during or separate from eating.

Normal response: Patient should demonstrate strong cough which eliminates "gurgly" vocal quality.

Voluntary cough: Ask patient to cough strongly.

Normal response: As above.

Laryngeal elevation upon swallow: Observe patient's reflexive swallowing and swallowing upon command.

Normal response: Patient's larynx should elevate two fingers width or 1 to 1 1/2 inches with reflexive, automatic swallow. Choking or coughing should be absent.

Additional Evaluation Procedures

Radiographic studies:

Still X-ray: Standard x-ray procedure of still mouth, neck, and throat area with exposure of barium track swallowed by patient.

Description of study: Most primitive of techniques using radiography. Will help clinician determine if aspiration has occurred. Not good study to investigate phases or system disorders.

Studies using high-speed film/motion pictures: (ie., videofluoroscopy, cinesophagram)

Essential to evaluate disorders of swallowing coordination, pharyngeal and esophageal phase disorders. Also useful in evaluating reflux problems.

Minimal Standards for Oral Feeding

1. Pharyngeal sensation: voluntary cough/involuntary cough.

2. Presence of involuntary swallowing reflex.

3. No aspiration.

4. Appropriate level of awareness - Level IV or above on the Rancho Los Amigos Cognitive Functioning Scale. (see appendix)
Record of Swallowing Problems Observed

Patient name: __________________________________________ __
Room No.: ________ Date: ________

Meal Observation:

BEFORE the patient begins eating, check oral hygiene and ask patient to exhibit a voluntary swallow and cough. If the following signs or symptoms are noted, please make a check mark ( ) under Observed.

Consistency of meal: ________________

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Poor oral hygiene</td>
<td></td>
</tr>
<tr>
<td>dentures</td>
<td>Yes</td>
</tr>
<tr>
<td>teeth</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Absent/delayed voluntary swallow</td>
<td></td>
</tr>
<tr>
<td>3. Absent/delayed voluntary cough</td>
<td></td>
</tr>
</tbody>
</table>

* DURING THE MEAL, watch the patient eat and check any symptoms observed.

4. Poor posture/positioning                  |          |
5. Difficulty chewing                        |          |
6. Drooling                                  |          |
7. Oral pocketing                             |          |
8. Needs cues to decrease rate or bite size  |          |
9. Needs cues to proceed with meal           |          |
10. Coughing or throat clearing              |          |
11. Gurgly vocal sounds                      |          |
12. Assistance with feeding necessary        |          |

Related Symptoms:

Check all applicable items.

Medical History:  
- Aspiration pneumonia
- Spiking temperature
- Weight loss
- Refusing meals
- Frequent coughing/choking

Awareness/Communication:  
- Reduced alertness
- Impaired language
- Reduced attention/memory

Should this person receive more thorough evaluation?  __ YES  __ NO

Form Completed by:  ________________________________
<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>WHAT TO LOOK FOR</th>
<th>MILD</th>
<th>SEVERE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase I - Before the Meal Observation:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Poor oral hygiene</td>
<td>Dry patches of spit/mucus occur on lips, tongue, inner cheek, or teeth/dentures.</td>
<td>Few scattered patches of dried spit or mucus occur on lips and tongue.</td>
<td>Multiple patches of crusted spit/mucus occur on lips, tongue, cheek and gums.</td>
</tr>
<tr>
<td>2. Impaired dry (voluntary) swallow</td>
<td>Patient has difficulty when asked to dry swallow - swallows without food or liquid in mouth (delay of &gt; 2 sec.)</td>
<td>Swallow is delayed 3-4 seconds.</td>
<td>Swallow is delayed 5 seconds or more.</td>
</tr>
<tr>
<td>3. Impaired dry (voluntary) cough</td>
<td>Voluntary cough is effortful, weak, or absent.</td>
<td>Voluntary cough is effortful.</td>
<td>Voluntary cough is weak or absent.</td>
</tr>
<tr>
<td><strong>Phase II - Mealtime Observations:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Difficulty chewing</td>
<td>Chewing motions are slow and weak.</td>
<td>More than 5 seconds is spent chewing before each swallow.</td>
<td>Patient is unable to chew food to point where it can be easily swallowed.</td>
</tr>
<tr>
<td>6. Food or liquid remaining on lips (drooling)</td>
<td>Solid food falls out of the mouth or solid foods are left on the lips or cheek. Liquids cling to lips and/or drain from mouth.</td>
<td>Drooling occurs &lt; 3 times per meal.</td>
<td>Drooling frequently occurs during meal.</td>
</tr>
<tr>
<td>7. Oral pocketing</td>
<td>Food remains trapped between cheek and gum after swallowing. This may be observed when patient sweeps inside of mouth with tongue or finger, or by directly observing the trapped food.</td>
<td>Trapped food is cleared by patient from between cheek and gums during meal.</td>
<td>Patient tries but is unsuccessful or does not try to clear trapped food.</td>
</tr>
<tr>
<td>8. Cues for rate/bite size</td>
<td>Patient stuffs mouth with food or liquid or takes bites that are too big, and needs cues to reduce bite size or reduce rate.</td>
<td>Occasional cues to reduce rate or bite size are needed.</td>
<td>Cues needed to reduce rate or bite size for most bites or drinks.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>WHAT TO LOOK FOR</th>
<th>MILD</th>
<th>SEVERE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Coughing or throat clearing</td>
<td>Coughing or throat clearing occurs throughout the meal.</td>
<td>Coughing or throat clearing occurs occasionally throughout the meal.</td>
<td>Coughing or throat clearing occurs frequently throughout the meal.</td>
</tr>
<tr>
<td>11. &quot;Gurgly&quot; vocal sounds</td>
<td>During breathing a bubbling or gurgling sound from the throat is audible.</td>
<td>Sounds occur infrequently.</td>
<td>Sounds occur frequently both in and out of context of meal.</td>
</tr>
<tr>
<td>12. Assistance needed for hand-to-mouth movement</td>
<td>Patient is unable to self-feed - too severe physical or cognitive problems.</td>
<td>Able to feed self at times.</td>
<td>Always needs to be fed.</td>
</tr>
</tbody>
</table>
**Dysphagia Oral-Motor Evaluation**  
(Structure and Function)

Patient: ________________________________
Diagnosis: ______________________________
Therapist/s: ______________________________

Physician: ________________________________
Date of evaluation: ________________________________

**Oral Phase**

1. **Facial musculature at rest:**
   - Symmetry: yes/no
   - Lips closed: yes/no
   - Dermatome sensation:
     - Tactile:
       - Pain (pin prick): yes/no
       - Light touch: yes/no
       - Temperature: yes/no
   - Description: ________________________________

2. **Facial musculature during voluntary movement:**
   - Elevation of lips during smile (Symmetry): yes/no
   - Able to pucker:
     - Symmetry: yes/no
     - Adequate strength: yes/no
   - Lip strength:
     - Able to resist release of puffed cheeks: yes/no
   - Description: ________________________________

3. **Mandibular musculature at rest:**
   - Jaw symmetry
   - Description: ________________________________

4. **Mandibular musculature during voluntary movement:**
   - Range of motion:
     - Symmetry - mouth open wide: yes/no
     - Symmetry - lateral deviation: yes/no
   - Strength of masseter:
     - Able to clench & resist opening: yes/no
     - Open and resist closure: yes/no
   - Palpation examination:
     - Adequate strength of masseter while biting: yes/no
   - Description: ________________________________

5. **Tongue musculature at rest:**
   - Observation:
     - Appropriate size: yes/no
     - Symmetry: yes/no
     - Remains at rest: yes/no
   - Taste:
     - Tip (sweet): yes/no
     - Side (salt): yes/no
     - Back (bitter): yes/no
     - Center/back (sour): yes/no
   - Description: ________________________________
6. **Tongue musculature during voluntary movement:**

<table>
<thead>
<tr>
<th>Range of motion:</th>
<th>Symmetry / protrusion</th>
<th>Symmetry / retraction</th>
<th>Symmetry / elevation</th>
<th>Symmetry / depression</th>
<th>Symmetry / lateralization (inside mouth)</th>
<th>Symmetry / lateralization (outside mouth)</th>
<th>Strength:</th>
<th>Protrusion against resistance</th>
<th>Lateral tongue strength, against resistance (inside mouth)</th>
<th>Lateral tongue strength, against resistance (outside mouth)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

**Description:**

7. **Palatopharyngeal musculature at rest:**

<table>
<thead>
<tr>
<th>Observation/description:</th>
<th>Hard palate - normal</th>
<th>Soft Palate - elevate symmetrically</th>
<th>Uvula (Symmetry)</th>
<th>Tonsillar pillars (Symmetry)</th>
<th>Pharyngeal wall (Symmetry)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

**Description:**

8. **Palatopharyngeal musculature during movement:**

<table>
<thead>
<tr>
<th>Vernet's phenomenon ('ah')</th>
<th>Symmetry</th>
<th>Gag reflex (present)</th>
<th>Symmetry</th>
<th>Palatal reflex (present)</th>
<th>Symmetry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

**Description:**

9. **Laryngeal musculature:**

<table>
<thead>
<tr>
<th>Symmetry</th>
<th>Protective, reflexive cough</th>
<th>Voluntary cough</th>
<th>Laryngeal elevation upon swallow</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

**Description:**

**Overall Evaluation Comments and Recommendations**

This summary should include areas of impairment, further evaluation recommendations, and feeding route and diet type recommendations.
PART V: MANAGEMENT OF PATIENTS WITH DYSPHAGIA

Principles For All Phases:

1. Position patient in an upright position during all oral intake and for 30-45 minutes after completion of meal.
2. Complete oral care after all meals.
3. Keep supervisory staff alerted to changes in patient's behavior.
4. Post signs above patient's bed and on door to alert all staff to patient's eating/dysphagia status.
5. See PART VII regarding suggested diet control measures.

Cognitive Considerations:

If cognitive limitations are noted, the following are recommended:

1. 1 to 1 supervision of all oral intake.
2. General stimulation techniques:
   - Well-lit room
   - Upright sitting
   - Orient patient to purpose of procedure
   - Multisensory stimulation throughout treatment program
3. Patients with poor cognitive awareness are high risk for "cumulative aspiration" problems. They are unable to regulate the amount of food they place in their mouths (stuffing/pocketing). Patients with stroke, head injuries, and developmental delays are at high risk for this problem.

RANCHO LOS AMIGOS COGNITIVE FUNCTIONING LEVELS III AND IV ARE DEFINED AS FOLLOWS:

Level III: LOCALIZED RESPONSE (see Appendix)

PATIENTS AT THIS LEVEL OF RESPONSE ARE NOT CANDIDATES FOR AN ORAL FEEDING PROGRAM, BUT ARE APPROPRIATE FOR AN ORAL "STIMULATION" PROGRAM.

Clinical Picture:

1) Reacts specifically to stimuli: responses are directly related to the type of stimuli presented.
2) May follow simple commands in inconsistent and delayed manner.
3) May show vague awareness of self and body, responding to discomfort.

Level IV: CONFUSED, AGITATED (see Appendix)

PATIENTS AT LEVEL IV RESPONSE ARE CANDIDATES FOR AN ORAL FEEDING PROGRAM. HOWEVER, EACH PATIENT SHOULD BE EVALUATED ON A CASE BY CASE BASIS. SOME LEVEL IV PATIENTS MAY STILL NOT BE GOOD CANDIDATES FOR ORAL FEEDING BASED UPON CERTAIN BEHAVIORAL FACTORS DETERMINED BY PHYSICIAN OR CLINICAL STAFF TO BE HIGH RISK FOR ORAL FEEDING.

4. Patients that demonstrate a cognitive level BELOW the Rancho Los Amigos Cognitive Functioning Level, are generally not appropriate candidates for oral feeding. The physician should be consulted regarding the most appropriate treatment.
Clinical Picture:

1) Behavior may be bizarre and non-purposeful (patient responding to own internal confusion).
2) May be aggressive.
3) Frequently confabulates.
4) Very short attention span.
5) Prefers to be active -- restraints tend to increase agitation.

NOTE: These patients are high risk for poor eating judgement. They may be "silent aspirators," or demonstrate the "cumulative" pocketing/stuffing problems associated with judgement problems.

Sensory Impairments:

Reduced sensation - Guidelines: Increase patient awareness of problem via verbal explanation and/or sensory controls:

1. Stress safety precautions to patient and staff (e.g., biting, hot foods, etc.).
2. Place food/stimulator in most sensitive area of mouth for protection and to maximize stimulation.
3. Verbal cuing to pocketing/drooling.
4. Sensory stimulation with lemon/glycerine swabs.

Hypersensitivity - Guidelines for extinguishing:

1. Apply maintained pressure to perioral area (finger horizontally placed between nose and upper lip).
2. Pressure to cheeks and temples.
3. Once patient is calmed, apply pressure to dorsum of tongue with rubberized seizure stick in midline about 1/3 of way back on tongue.

Hygiene - Teeth and gums of the dysphagic patient should be well cared for and cleansed. Dried secretions often accumulate on tongue, palate, and oropharynx, reducing oral sensitivity and promoting bacterial growth in the mouth.

The following procedure may facilitate improved oral hygiene:

1. Cleansing oral cavity with lemon glycerine swabs.
2. If secretions are quite thick and hardened in the oral cavity, they should be gently but regularly removed with a damp washcloth.
3. Use of peroxide diluted with H2O or papain (meat tenderizer) on a swab may loosen very thick secretions.
4. Suction secretions/excess fluid from oral cavity.
5. For patients who are mouth-breathers, increased humidity applied via facial mask will decrease build-up of thick, dry secretions.
6. Continue to provide frequent (4-5 times daily) oral care.
**Muscle Tone** - If tone is found to be excessive, causing muscle tension, resistance to free movement and stiffness of posture, the following techniques of muscle inhibition can be used to relax the patient:

1. Slow and repetitive stroking of body parts, rocking and maintaining firm pressures on specific muscle and skin areas may be used by specifically trained staff.

2. Facilitation techniques (joint compression, quick muscle stretch, light touch over skin or muscle areas, high-frequency vibration, manual tapping over muscle fibers, resistance to movement) may be used by trained staff.

**Instruction in these techniques is not provided by this workshop.**

**Pre-Feeding Stimulation**

1. **Oral Reflexes:** Goal - avoid eliciting and inhibit primitive oral reflexes by following methods:

   a. **Abnormal Reflexes:** Goal - avoid eliciting and inhibit primitive oral reflexes by following methods:

   **PRIMITIVE REFLEXES**

<table>
<thead>
<tr>
<th>Reflex</th>
<th>Method for Avoiding Eliciting</th>
<th>Inhibition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bite Reflex</td>
<td>Avoid stimulation of molar or gum surfaces or masseter muscles</td>
<td>Proper positioning - Maintained pressure on tongue with rubber seizure stick.</td>
</tr>
<tr>
<td></td>
<td>If patient bites down on an object, do not pull or pry mouth open. Wait for spontaneous opening.</td>
<td>Applying pressure to temporomandibular joint thrusting jaw forward can induce mouth opening.</td>
</tr>
<tr>
<td>Rooting Reflex</td>
<td>Do not touch cheeks or corners of mouth. Mouth opening is triggered by visual appearance of approaching spoon/object.</td>
<td>Try to direct mouth opening verbally in advance of presenting stimulus and thus encourage response at cortical level.</td>
</tr>
</tbody>
</table>

   **PRIMITIVE REFLEXES (cont.)**

<table>
<thead>
<tr>
<th>Reflex</th>
<th>Method for Avoiding Eliciting</th>
<th>Inhibition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gag Reflex</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(Hyperactive)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(Hypoactive)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tongue Thrust</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

   **Sucking** - Primitive if patient is unable to begin or stop sucking at will, but is dependent upon presentation/removal of stimulus to do so; or if it cannot be isolated from suck-swallow sequence.

   - **Desirable to bring sucking to cortical level of control, but sucking reflex can be used in early stages of treatment to elicit reflexive swallow when voluntary swallow is absent.**
**b. Normal Reflexes:**

1. Gag reflex (refer to Hyperactive/Hypoactive Gag for pathological indications).
2. Swallowing Stimulation - used when a patient is not consistently swallowing during testing or able voluntarily to swallow on command. Stimulation may be carried out using the following techniques:

### SWALLOWING STIMULATION TECHNIQUES

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>PURPOSE</th>
<th>METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Stimulation</td>
<td>Increase laryngeal elevation, elicit swallow.</td>
<td>1. Apply ice cube for 2-3 seconds to sternal notch during attempted swallow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Gentle upward stroking under the chin with (T)'s fingers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Manual vibration of laryngopharyngeal musculature, starting under the chin with vibration down either side of larynx to the sternal notch.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Chin tuck as patient prepares to swallow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Apply stretch pressure to pharyngeal constrictor muscles by manual traction applied (from behind) with heels of the hands to be the base of the skull in a forward and upward direction.</td>
</tr>
<tr>
<td>Thermal Stimulation</td>
<td>To heighten sensitivity of reflex so that when food or liquid is presented and the patient attempts a voluntary swallow, the reflex will be triggered.</td>
<td>1. Use long-handled laryngeal mirror which has been cooled in ice chips prior to presentation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To stimulate the reflex, mirror is held in ice for approximately 10 seconds and then lightly touched to the base of anterior-facial arch.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Repeat light contact 5-10 times.</td>
</tr>
</tbody>
</table>

(Compensation Strategies for Oral Feeding)

### Oral Phase

**CAUTION:**

I. ALL PATIENTS MUST HAVE A DOCTOR'S ORDERS BEFORE THEY CAN PROCEED ON AN ORAL FEEDING PROGRAM.

II. PATIENTS SHOULD BE SITTING ERECT BEFORE EATING.

### General problem

- Lip Closure
  - Present food/liquid to strong side of mouth
  - Food texture alterations (see Part VII)
  - Reduce bite size pieces

- Pocketing
  - Verbal cuing by supervising staff
  - Finger/tongue sweep to clear pocketing
  - Alternate solid and liquid textures
  - Chewing on strong side

- Movement of food toward pharynx
  - Food texture alterations
  - Adaptive feeding utensils
  - Alternate solid and liquid textures
Pharyngeal Phase

General problem

Late swallow reflex
- Posture alteration (chin tuck)
- Reduce bite size
- Food texture alterations
- Facilitory temperatures

Pooling in valleculae and pyriform sinuses
- Posture alterations (chin tuck)
- Reduce bite size
- Dry swallow
- Alternate food/liquid textures

Reduced muscular contraction
- Posture alterations (chin tuck)
- Dry swallow
- Alternate food/liquid textures
- Voluntary cough/throat clearing
- Texture/diet alterations

Reduced laryngeal elevation
- Posture alterations (chin tuck)

Aspiration
- Discontinue textures/consistencies which are high risk for aspiration
- Alternative feeding route
  (a) NG-Tube
  (b) G-Tube
  (c) Patient is placed on a no-eating oral stimulation program

Esophageal Phase

General problem

Reflux
- Upright positioning for 30-45 minutes after meal.

PART VI: FOLLOW-UP

Follow-up Procedures

After the evaluation is completed, a treatment program will be developed. It is the responsibility of the diagnostician to provide specific guidelines regarding a non-oral vs. oral feeding route as well as specific diet types.

In those cases where oral feeding is recommended, document specific feeding guidelines in the follow-up form provided in this manual. The therapist and caretaker who will be implementing this plan should review it jointly. The diagnostician will provide follow-up consultation as necessary.

When oral feeding is not recommended, this information should be clearly documented on the patient chart. Physician and nursing staff should be notified of any results and recommendations within 24 hours. Physician orders should be obtained before proceeding with oral feeding.
Follow-up Form

Patient: ________________________________
Diagnosis: ______________________________
Therapist/s: ______________________________
Physician: ______________________________
Date of evaluation: _______________________

DIET RECOMMENDATIONS

Textures:
- __ Dysphagia NPO
- __ Pureed
- __ Non-Chew
- __ Mechanical Soft
- __ Soft
- __ Regular

Liquids:
- __ Thick
- __ Medium
- __ Thin

Level of Supervision:
- 1:1
- Occasional "checks"

TREATMENT RECOMMENDATIONS

Thinking Problems:
- __ Impaired alertness

(continuation)

Thinking Problems:
- __ Impaired language
- __ Impaired attention/memory

Swallowing Problems:
- __ Difficulty chewing

Procedures:
- __ Provide demonstration of procedures you will be requesting of patient.
- __ Use simple gestures with speech to convey messages.
- __ Use communication devices available to the patient (i.e., spelling board).
- __ Encourage patient to communicate and participate in decision-making.
- __ Reduce distractions in the environment by closing the door, turning off the TV, etc.
- __ Be repetitive with clear, simple directions. Give patient plenty of time to respond.
- __ Provide 1:1 supervision and cuing as needed.

Procedures:
- __ Recommended diet:

Procedures:
- __ Recommended position:

Procedures:
- __ Food should be placed at back of mouth.
- __ Small bite sizes; have patient chew and swallow before next bite.

Procedures:
- __ Patient should chew on stronger side of mouth.
- __ Provide feedback to patient (e.g., have patient eat in front of mirror or give verbal cues).
Swallowing Problems: (con't)

__Oral Pocketing__

- **Procedures:**
  - Recommended diet:
    - Patient should use finger/tongue sweep to clear food from mouth.
    - Caretaker should use gloved finger or swab to clear food from patient's mouth.
  - Have patient chew on stronger side of mouth.
  - Small bite sizes; have patient chew and swallow before next bite.
  - Alternate solid/liquid textures.

__Delayed swallow reflex__

- **Procedures:**
  - Recommended diet:
    - Small bite sizes; have patient chew and swallow before next bite.
    - Have patient tuck chin toward chest while swallowing.
    - Cue patient to dry swallow between bites.

__Gurgly vocal quality__

- **Procedures:**
  - Recommended diet:
    - Cue patient to dry swallow.
    - Cue patient to clear throat or cough to improve vocal quality.

PART VII: DIETARY CONSIDERATIONS

The dysphagia diet provides both a progression in textures of solids and in consistencies of liquids based on ease of oral manipulation. Within the framework of the dysphagia diet, foods served to patients will be individualized to accommodate the patient's tolerance, medical condition and food preferences. The diet must as prescribed by physician.

When a dysphagia diet is ordered, liquids will not be included on the meal tray or as snacks. If the patient is to receive liquids, the diet often must specify thick, medium, or thin liquids in addition to the designation of the desired dysphagia diet.

**Dysphagia Diet Progression (Solids)**

1. Dysphagia NPO
2. Dysphagia Pureed
3. Dysphagia Non Chew
4. Dysphagia Mechanical Soft
5. Soft
6. Regular

**Dysphagia NPO.** The swallowing therapist, with physician approval, will daily request from Nutrition Services a few individual foods to be used in feeding trials. The foods will be determined by the therapist, with input from the dietician, and based on the patient's type of dysphagia.
**Dysphagia Pureed.** This diet includes blended foods that are smooth and creamy. No liquids are included unless ordered by the physician.

<table>
<thead>
<tr>
<th>Recommended Foods</th>
<th>Foods to Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MILK PRODUCTS</strong></td>
<td>All others</td>
</tr>
<tr>
<td>Pudding or custard</td>
<td>All others</td>
</tr>
<tr>
<td>Plain or flavored yogurt without fruit or seeds</td>
<td>All others</td>
</tr>
<tr>
<td><strong>EGGS</strong></td>
<td>All others</td>
</tr>
<tr>
<td>Soft cooked</td>
<td>All others</td>
</tr>
<tr>
<td><strong>MEAT/POULTRY/FISH</strong></td>
<td>All others</td>
</tr>
<tr>
<td>Pureed meat</td>
<td>All others</td>
</tr>
<tr>
<td>Pureed chicken</td>
<td>All others</td>
</tr>
<tr>
<td><strong>VEGETABLES</strong></td>
<td>All others</td>
</tr>
<tr>
<td>Pureed vegetables</td>
<td>All others</td>
</tr>
<tr>
<td><strong>FRUIT</strong></td>
<td>All others</td>
</tr>
<tr>
<td>Pureed fruits</td>
<td>All others</td>
</tr>
<tr>
<td><strong>CEREALS</strong></td>
<td>All others</td>
</tr>
<tr>
<td>Cooked cereals</td>
<td>All others</td>
</tr>
<tr>
<td><strong>POTATOES/PASTA</strong></td>
<td>All others</td>
</tr>
<tr>
<td>Mashed potatoes</td>
<td>All others</td>
</tr>
<tr>
<td>Blended casseroles</td>
<td>All others</td>
</tr>
<tr>
<td><strong>FATS</strong></td>
<td>All others</td>
</tr>
<tr>
<td>Gravy, margarine</td>
<td>All others</td>
</tr>
<tr>
<td><strong>MISCELLANEOUS</strong></td>
<td>All others</td>
</tr>
<tr>
<td>Catsup, mustard, jelly</td>
<td>All others</td>
</tr>
</tbody>
</table>

**Foods to Avoid**

| All others |

---

**Dysphagia - Non Chew.** This diet includes more advanced food textures than the pureed diet but requires minimal chewing. Grain products such as bread, cakes, and cookies are omitted.

<table>
<thead>
<tr>
<th>Recommended foods</th>
<th>Foods to avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MILK PRODUCTS</strong></td>
<td>Cheese</td>
</tr>
<tr>
<td>Pudding</td>
<td>Fatty dairy, cheese, cream, ice cream</td>
</tr>
<tr>
<td>Custard</td>
<td>All others</td>
</tr>
<tr>
<td>Plain, flavored or fruited yogurt</td>
<td>All others</td>
</tr>
<tr>
<td>Cottage cheese</td>
<td>All others</td>
</tr>
<tr>
<td><strong>EGGS</strong></td>
<td>Fried and hard boiled eggs</td>
</tr>
<tr>
<td>Poached</td>
<td>All others</td>
</tr>
<tr>
<td>Soft cooked</td>
<td>All others</td>
</tr>
<tr>
<td>Scrambled</td>
<td>All others</td>
</tr>
<tr>
<td>Egg salad</td>
<td>All others</td>
</tr>
<tr>
<td><strong>MEAT/POULTRY/FISH</strong></td>
<td>All others</td>
</tr>
<tr>
<td>Ground meat and poultry</td>
<td>Sliced meats</td>
</tr>
<tr>
<td>Ham salad</td>
<td>All others</td>
</tr>
<tr>
<td>Salmon loaf</td>
<td>All others</td>
</tr>
<tr>
<td><strong>VEGETABLES</strong></td>
<td>Whole cooked vegetables</td>
</tr>
<tr>
<td>Any cooked vegetable blended lightly</td>
<td>Raw vegetables</td>
</tr>
<tr>
<td><strong>FRUITS</strong></td>
<td>Whole canned fruits</td>
</tr>
<tr>
<td>Mashed canned fruit</td>
<td>Raw fruits</td>
</tr>
<tr>
<td>Mashed banana</td>
<td>All others</td>
</tr>
<tr>
<td><strong>BREADS/CEREALS</strong></td>
<td>Bread, rolls, granola, crackers</td>
</tr>
<tr>
<td>Cooked cereal</td>
<td>All others</td>
</tr>
<tr>
<td>Cold cereals soaked in milk</td>
<td>All others</td>
</tr>
</tbody>
</table>
POTATOES/PASTA
- Mashed potato, dressings, noodles blended lightly, casserole blended lightly

FATS
- Margarine, gravy, mayonnaise

MISCELLANEOUS
- Catsup, mustard, jello

Dysphagia - Mechanical Soft. No liquids included unless specifically ordered by physician.

Recommended foods

MILK PRODUCTS
- Pudding, custard
- Plain, flavored or fruitied yogurt
- Small curd cottage cheese
- American cheese, grated cheese

EGGS
- Soft scrambled
- Poached
- Soft cooked
- Egg salad
- Hard boiled

MEAT/POULTRY/FISH
- Ground meat or poultry w/gravy
- Meat loaf w/gravy
- Flaked, baked or broiled fish
- Tuna salad
- Ham salad
- Salmon loaf

FATS
- Margarine, gravy, mayonnaise

DESSERTS
- Cream Pies
- Soft cookies
- Pudding, custard
- Cake

MISCELLANEOUS
- Spices, catsup, mustard, jelly

VEGETABLES
- Soft cooked vegetables

FRUITS
- Canned fruit, bananas

BREADS & CRACKERS
- Bread, soft rolls, toast, muffins
- French toast, pancakes, crackers

CEREAL
- Cooked cereals
- Cold cereal

POTATOES/RICE/PASTA
- Mashed potatoes, baked
- Stuffing
- Macaroni w/cheese, egg noodles or spaghetti with sauce or gravy
- Rice, casserole

FATS
- Margarine, gravy, mayonnaise

DESSERTS
- Cream Pies
- Soft cookies
- Pudding, custard
- Cake

MISCELLANEOUS
- Spices, catsup, mustard, jelly

VEGETABLES
- Raw vegetables
- Corn

FRUITS
- Raw fruits
- Fruits with pits (i.e., cherries, prunes, raisins)

BREADS & CRACKERS
- Bread w/ seeds or nuts
- English muffins

CEREAL
- Granola

POTATOES/RICE/PASTA
- Baked potato skin

FATS
- No nuts, raisins, coconut, seeds

DESSERTS
- No nuts, raisins, coconut, seeds

MISCELLANEOUS
- Spices, catsup, mustard, jelly
**Dysphagia Diet Progression (Liquids)**

1. Thick liquids
2. Medium liquids
3. Thin liquids

**Thick liquids.** Thick liquids are easier to control in the mouth than thin liquids. Any beverage may be included in Thick liquids if it has been thickened sufficiently. See Alterations of Textures and Consistencies below.

<table>
<thead>
<tr>
<th>Recommended liquids</th>
<th>Liquids to avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILK PRODUCTS</td>
<td></td>
</tr>
<tr>
<td>Ice cream, sherbet</td>
<td>All others</td>
</tr>
<tr>
<td>Thick milk shakes</td>
<td>All others</td>
</tr>
<tr>
<td>SOUPS</td>
<td></td>
</tr>
<tr>
<td>Thickened cream soups</td>
<td>All others</td>
</tr>
<tr>
<td>FRUITS</td>
<td></td>
</tr>
<tr>
<td>Thinned pureed fruit</td>
<td>All others</td>
</tr>
</tbody>
</table>

**Medium liquids.** These liquids are to be used as a transition from thick to thin liquids.

<table>
<thead>
<tr>
<th>Recommended liquids</th>
<th>Liquids to avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILK PRODUCTS</td>
<td></td>
</tr>
<tr>
<td>Egg nog, milk shake</td>
<td>Milk</td>
</tr>
<tr>
<td>SOUPS</td>
<td></td>
</tr>
<tr>
<td>Regular cream soups</td>
<td>Broth soups</td>
</tr>
</tbody>
</table>

**Thin liquids.** This consistency of liquids should not be used until thicker liquids are tolerated.

<table>
<thead>
<tr>
<th>Recommended liquids</th>
<th>Liquids to avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILK PRODUCTS</td>
<td></td>
</tr>
<tr>
<td>All others</td>
<td></td>
</tr>
<tr>
<td>SOUPS</td>
<td></td>
</tr>
<tr>
<td>Broth</td>
<td></td>
</tr>
<tr>
<td>BEVERAGES</td>
<td></td>
</tr>
<tr>
<td>Coffee, tea, soda</td>
<td>None</td>
</tr>
<tr>
<td>Fruit juices, water</td>
<td>None</td>
</tr>
<tr>
<td>MISCELLANEOUS</td>
<td></td>
</tr>
<tr>
<td>Jello</td>
<td>None</td>
</tr>
<tr>
<td>All items recommended on Thick Liquid and Medium Liquid Diet</td>
<td></td>
</tr>
</tbody>
</table>
Alteration of Textures and Consistencies

Alteration of Textures:

1. Pureed - foods are of creamy texture after being blended in blender.
2. Mashed - fruits, vegetables can be mashed by the cooks using a table fork or blended lightly in a blender.
3. Ground - meats are run through a meat grinder.

Alteration of Consistencies:

1. Liquids (juices, water, coffee, soups, milk), can be thickened to the desired consistency using a commercial product such as "Thick It" that does not alter taste or texture.
2. Flakes of powdered baby foods can be used in corresponding fruits, vegetables, meats.
3. Instant potato flakes can thicken soups.

APPENDIX

I. NO RESPONSE

Patient appears to be in a deep sleep and is completely unresponsive to any stimuli presented to him.

II. GENERALIZED RESPONSE

Patient reacts inconsistently and nonpurposefully to stimuli in a nonspecific manner. Responses are limited in nature and are often the same regardless of stimulus presented. Responses may be physiological changes, gross body movements and vocalization. Responses are likely to be delayed. The earliest response is to deep pain.

III. LOCALIZED RESPONSE

Patient reacts specifically but inconsistently to stimuli. Responses are directly related to the type of stimulus presented as in turning head toward a sound or focusing on an object presented. The patient may withdraw an extremity and vocalize when presented with a painful stimulus. He may follow simple commands in an inconsistent, delayed manner, such as closing his eyes, squeezing or extending an extremity. Once external stimuli are removed, he may lie quietly. He may also show a vague awareness of self and body by responding to discomfort by pulling at nasogastric tube or catheter or resisting restraints. He may show a bias toward responding to some persons, especially family and friends, but not to others.

IV. CONFUSED-AGITATED

Patient is in a heightened state of activity with severely decreased ability to process information. He is detached from the present and responds primarily to his own internal confusion. Behavior is frequently bizarre and nonpurposeful relative to his immediate environment. He may cry out or scream out of proportion to stimuli even after removal, may show
aggressive behavior, attempt to remove restraints or tube or crawl out of bed in a purposeful manner. He does not discriminate among persons or objects and is unable to cooperate directly with treatment efforts. Verbalization is frequently incoherent or inappropriate to the environment. Confabulation may be present; he may be hostile. Gross attention to environment is very brief and selective attention often nonexistent. Being unaware of present events, patient lacks short term recall and may be reacting to past events. He is unable to perform self-care activities without maximum assistance. If not disabled physically, he may perform automatic motor activities such as sitting, reaching and ambulating, as part of his agitated state but not as a purposeful act or on request necessarily.

V. CONFUSED-INAPPROPRIATE

Patient appears alert and is able to respond to simple command fairly consistently. However, with increased complexity of commands or lack of any external structure, responses are nonpurposeful, random, or at best, fragmented toward any desired goal. He may show agitated behavior, but not on an internal basis, as in Level IV, but rather as a result of external stimuli and usually out of proportion to the stimulus. He has gross attention to the environment, is easily distracted and lacks ability to focus attention to a specific task without frequent redirection. With structure, he may be able to converse on a social-automatic level for short periods of time. Verbalization is often inappropriate; confabulation may be triggered by present events. Memory is severely impaired, with confusion of past and present in reaction to ongoing activity. Patient lacks initiation of functional tasks and often shows inappropriate use of objectives without external direction. He may be able to perform previously learned tasks when structured for him, but is unable to learn new information. He responds best to self, body, comfort and, often, family members. The patient can usually perform self-care activities with assistance and may accomplish feeding with supervision. Management on the unit is often a problem if the patient is physically mobile, as he may wander off either randomly or with vague intention of "going home."

VI. CONFUSED-APPROPRIATE

Patient shows goal-directed behavior, but is dependent on external input for direction. Response to discomfort is appropriate and he is able to tolerate unpleasant stimuli; e.g., as NG tube when needs is explained. He follows simple directions consistently and shows carry-over for tasks he has relearned; e.g., self-care. He is at least supervised with old learning; unable to maximally assisted for new learning with little or no carryover. Responses may be incorrect due to memory problems but are appropriate to the situation. They may be delayed to immediate and he shows decreased ability to process information with little or no anticipation or prediction of events. Past memories show more depth and detail than recent memory. The patient may show beginning awareness of his situation by realizing he doesn't know an answer. He no longer wander and is inconsistently oriented to time and place. Selective attention to tasks may be impaired, especially with difficult tasks and in unstructured settings, but is now functional for common daily activities. He may show vague recognition of some staff and has increased awareness of self, family and basic needs.

VII. AUTOMATIC-APPROPRIATE

Patient appears appropriate and oriented within hospital and home settings, goes through daily routine automatically but robot-like, with minimal to absent confusion and has shallow recall of what he has been doing. He shows increased awareness of self, body, family, food, people and interaction in the environment. He has superficial awareness of but lacks insight into his condition, decreased judgement and problem solving and lacks realistic planning for his future. He shows carryover for new learning at a decreased rate. He requires at least minimal supervision for learning and safety purposes. He is independent in self-care activities and supervised in home and community skills for safety. With structure, he is able to initiate tasks or social and recreational activities in which he now has interest. His judgement remains impaired. Prevocational evaluation and counseling may be indicated.
VIII. PURPOSEFUL-APPROPRIATE

Patient is alert and oriented, is able to recall and integrate past and recent events and is aware of and responsive to his culture. He shows carryover for new learning if acceptable to him and his life role and needs no supervision once activities are learned. Within his physical capabilities, he is independent in home and community skills. Vocational rehabilitation, to determine ability to return as a contributor to society, perhaps in a new capacity, is indicated. He may continue to show decreases relative to premorbid abilities in quality and rate of processing, abstract reasoning, tolerance for stress and judgment in emergencies or unusual circumstances. His social, emotional and intellectual capacities may continue to be at a decreased level for him, but functional within society.

REFERENCES


