Two factors in the table below must be present for a malnutrition diagnosis.

<table>
<thead>
<tr>
<th></th>
<th>Acute Illness or Injury</th>
<th>Chronic Illness</th>
<th>Social or Environmental Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Moderate Protein Calorie Malnutrition</td>
<td>Severe Protein Calorie Malnutrition</td>
<td>Moderate Protein Calorie Malnutrition</td>
</tr>
<tr>
<td>Energy Intake</td>
<td>&lt;75% of EEE &gt;7 days</td>
<td>≤50 % of EEE &gt;5 days</td>
<td>&lt;75% of EEE ≥1 month</td>
</tr>
<tr>
<td>Weight Loss</td>
<td>1-2% 1 week</td>
<td>&gt; 2% 1 week</td>
<td>5% 1 month</td>
</tr>
<tr>
<td></td>
<td>5% 1 months</td>
<td>&gt; 5% 1 months</td>
<td>7.5% 3 months</td>
</tr>
<tr>
<td></td>
<td>7.5% 3 months</td>
<td>&gt; 7.5% 3 months</td>
<td>10% 6 months</td>
</tr>
<tr>
<td>Body Fat Loss</td>
<td>Mild</td>
<td>Measurably Reduced</td>
<td>N/A</td>
</tr>
<tr>
<td>Muscle Mass Wasting</td>
<td>Mild</td>
<td>Measurably Reduced</td>
<td>N/A</td>
</tr>
<tr>
<td>Fluid (Edema)</td>
<td>Mild</td>
<td>Measurably Reduced</td>
<td>N/A</td>
</tr>
<tr>
<td>HandGrip Strength</td>
<td>N/A</td>
<td>Measurably Reduced</td>
<td>N/A</td>
</tr>
</tbody>
</table>

EEE: Estimated energy expenditure  N/A: Not applicable
## Bilateral Muscle Wasting

<table>
<thead>
<tr>
<th>Upper Body</th>
<th>Lower Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temples</td>
<td>Thigh</td>
</tr>
<tr>
<td>Deltoids (shoulders)</td>
<td>Knee</td>
</tr>
<tr>
<td>Clavicles</td>
<td>Calf</td>
</tr>
<tr>
<td>Scapula</td>
<td></td>
</tr>
<tr>
<td>Interosseous</td>
<td></td>
</tr>
</tbody>
</table>

- More significant than subcutaneous fat loss
- Upper body more susceptible, independent of functional status
- Muscle wasting from inactivity or bedrest most prominent in pelvis and upper legs
- Neurological deficits may produce false-positive findings
Bilateral Muscle Wasting

- Clavicle
- Temple
- Scapula
- Interosseous
- Deltoid
- Thigh
- Knee
- Calf
Bilateral Muscle Wasting: Temples

- Look at patient straight on and have them turn their head from side to side
- Inspect for “scooping” or hollowing of the temporal region
- Such signs indicate wasting of the temporalis muscle

Inspect straight on with patient’s arms at side and look for:

- “Squaring” of the shoulders
- Loss of roundness at junction of shoulder and neck
- Loss of deltoid muscle at junction of shoulder and arm
- Acromion process may protrude
Bilateral Muscle Wasting: Clavicles

- Inspect for prominence of bone
- Clavicle less prominent for women
- Indicates wasting of pectoral and deltoid muscles

Normal  Moderate  Severe
Bilateral Muscle Wasting: Scapula

Have patient lift arms and push against hard object:

- Inspect for prominent bones or depression between bones
- Such signs indicate loss of trapezius and deltoid muscles
Bilateral Muscle Wasting: Interosseous

Have patient place their hand on a flat surface with palm facing down:

- Inspect the interosseous muscle between patient’s thumb and forefinger by having patient move thumb and forefinger together and apart (like an “ok” sign)
- Palpate (pinch skin) the muscle using your thumb and index finger
- Look for bulged or slightly bulged muscles in well-nourished males and slightly bulged or flat for females
Subcutaneous Fat Loss

Inspect and palpate areas where adipose tissue is normally present.

Look for:

• *Subjective* impressions of loss of fat stores
• Loss of fullness, loose or hanging skin, or hollow appearance

Note: Age-related loss of subcutaneous tissue may confound findings
Subcutaneous Fat Loss (continued)

• **Orbital Fat Pads**
  – Loss of bulge under eyes (fat pads), characterized by hollow eye

• **Triceps**
  – Palpate (pinch skin) between thumb and forefinger to determine the amount of fat present

• **Anterior Low Ribs**
  – Ribs visible in patients with fat loss
Subcutaneous Fat Loss: Orbital Fat Pads

**Normal**
- Slightly bulged fat pads

**Mild-Moderate**
- Slightly dark circles, somewhat tired look

**Severe**
- Hollow and sunken look, dark circles, loose skin

Subcutaneous Fat Loss: Triceps

**Normal**
- Ample fat tissue between folds of skin

**Mild-Moderate**
- Slightly loose skin; fingers almost touch when pinching skin between fingers

**Severe**
- Loose skin, very little space between skin folds
Fluid Status

- **Edema**
  - Dependent areas
  - Ankles, sacrum

- **Ascites**
  - Abdomen

- **Dehydration**
  - Orbital area
  - Skin
Fluid Status: Edema

- Inspect for swelling in contour of leg, ankle, or foot
- Palpate by gently squeezing top of foot, ankle, or front of lower leg, or by gently pressing skin in sacral area
- Note if an impression is left
Fluid Status: Ascites

- Stand at foot of bed, look up toward patient’s head, and observe contours of abdomen
- Global abdominal enlargement is usually caused by air, fluid, or fat
Fluid Status: Dehydration

- Dry or sticky mouth and/or oral mucosa
- Low output of concentrated urine or no urine output
- Dry sclera (decreased tear production)
- Sunken eyes
- Confusion or lethargy
- Poor skin turgor (consider age-related skin changes)

Protein Energy Malnutrition (PEM)

Look for signs of physical PEM, which include:

- Pitting edema
- Dry, flaky, scaly, cracked, bruised, or bleeding skin
- Dull, brittle, and loose hair
- Ridged, cracked, spoon-shaped, or pale nails
MQii Sample Flowchart for Recommended Malnutrition Care

1. A list of standardized and validated screening tools is provided in body of the toolkit. If the tool is not on this list, specify which tool is used.
2. A list of standardized and validated assessment tools is provided in body of the toolkit. If the tool is not on this list, specify which tool is used.