

## DIAGNOSIS OF PROTEIN-ENERGY MALNUTRITION IN ADULTS

Nutritional deficiencies commonly retard or prevent recovery of hospitalized patients. The following descriptions are designed to help the identification and documentation of nutritional abnormalities at OHSU and are consistent with the coding descriptions of the International Classification of Diseases, 9<sup>th</sup> Revision, Clinical Modification (ICD 9 CM), as well as criteria used by other academic health care organizations. These descriptions include typical presenting clinical features consistent with each diagnosis. Objective findings – some or all of which may be present as well – are also listed. **In order to diagnose, at least two objective findings must be present.**

CODE	CLASSIFICATION	DESCRIPTION - ADULTS
260	<p><b>Kwashiorkor</b> Nutritional edema with dyspigmentation of skin and hair; hypoalbuminemia with presence of oedema; diarrhea, fatty liver, anasarca; observed in children in under-developed populations; low protein intake with increased grain intake</p>	<p><b>CLINICAL CHARACTERISTICS:</b> Condition once thought to be a <b>metabolic response to injury or infection</b>; common contributor is stress response associated with disease, inflammatory condition or injury. Edema, ascites, catabolism of muscle tissue, weakness, neurologic changes, loss of vigor, secondary infection and changes in skin and hair.</p> <p><b>OFTEN ASSOCIATED WITH</b> Albumin: &lt; 3.0 g/dl Pre-albumin: &lt; 170 mg/L Weight: May be close to IBW; &gt; 90%. Lean tissue loss offset by edema Weight Loss: May be negligible or small PO Intake: Inadequate protein intake ≥ 21 days</p>
261	<p><b>Adult Marasmus/ Muscle Wasting: Loss of subcutaneous fat;</b> Nutritional atrophy, severe calorie deficiency, pure starvation with reduced food intake or assimilation (without inflammation); severe malnutrition; adult protein-energy malnutrition</p>	<p><b>CLINICAL CHARACTERISTICS:</b> Systemic inflammatory response due to infection, inflammatory condition, or injury persisting several days. <b>Chronic condition of deficiency in protein - Calorie intake with no manifestations of acute-phase metabolic response or underlying inflammatory condition.</b> Resting energy expenditure is reduced and visceral proteins are preserved – therefore, increased extracellular fluid is not observed. Prominence of body skeleton, especially in chest cavity, extremities, and temples. Catabolism of fat and muscle tissue. Generalized weakness, weight loss/ change, anorexia nervosa, malabsorption, esophageal cancer. <b>Normal visceral proteins unless stressed by disease, inflammation, or injury.</b></p> <p><b>OFTEN ASSOCIATED WITH:</b> Albumin: ≥ 3.0 g/dl CRP &gt; 0.6 (inflammatory response) Pre-albumin: ≥ 170 mg/L Weight: &lt; 80% IBW. Weight Loss: ≥5%/1 month; ≥ 7.5%/3 months; ≥10% /6 months; ≥20%/1 year PO Intake: Very Poor, Inadequate ≥ 21 days.</p>
262	<p><b>Other Severe Protein-Calorie Malnutrition:</b> Nutritional edema without dyspigmentation of skin and hair</p>	<p><b>CLINICAL CHARACTERISTICS:</b> Patient with marasmus exposed to stress or acute illness such as trauma, major surgery, critical illness, sepsis). High risk of infection, poor wound healing, muscle wasting; characterized by combined symptoms of marasmus and kwashiorkor</p> <p><b>OFTEN ASSOCIATED WITH:</b> Albumin: &lt; 3.0 g/dl Prealbumin: &lt; 170 mg/L Weight: ≤ 75 % IBW Weight Loss: ≥5% /1 month; ≥ 7.5%/3 months; ≥10% /6 months; ≥20%/1 year</p>

CODE	CLASSIFICATION	DESCRIPTION - ADULTS
		PO Intake: Very Poor, Inadequate $\geq$ 21 days
263.8	<b>Other Protein-Calorie Malnutrition</b>	<p><b>CLINICAL CHARACTERISTICS:</b> Normal pre-morbid nutritional status, but at nutritional risk due to inflammation due to major acute stress (e.g. trauma, burns, major thoracic or abdominal surgery, head injury, sepsis) with reduced intakes of protein and energy. Muscle wasting, debility, septic complications, increased LOS.</p> <p><b>UNDERLYING INJURIES/DISEASES OFTEN ASSOCIATED WITH:</b></p> <p>Albumin: <math>\leq</math> 3.0 g/dl  Prealbumin: <math>\leq</math> 150 mg/L  Weight: <math>\geq</math> 90% IBW or can be <math>\geq</math> IBW due to fluid overload, edema.  Weight Loss: <math>\geq</math> 2%/1week; <math>\geq</math> 5%/1 month  PO Intake: Anticipated to be very poor; inadequate <math>\geq</math> 7 days</p>
263.9	<b>Unspecified Protein-Calorie Malnutrition</b>	<p>Patient clinically looks malnourished but cannot otherwise be classified into one of the above ICD-9 codes. This code should not be used if data and clinical characteristics are available to make another classification.</p>
	<b>Sarcopenia:</b> aging related muscle loss without other precipitating etiologies; part cachexia, part failure to thrive (elder);	<p><b>CLINICAL CHARACTERISTICS:</b> Loss of muscle with aging, loss <math>\alpha</math>-motor neurons input, change anabolic hormones, decreased protein intake, reduced physical activity. Underlying inflammatory components.</p>
	<b>Marasmic-Kwashiorkor:</b> Marasmus develops inflammatory conditions; potential development edema	<p><b>CLINICAL CHARACTERISTICS:</b> Underlying marasmus in upper arms &amp; face</p>
	<b>Cachexia:</b> Loss body cell mass with underlying inflammation	<p><b>CLINICAL CHARACTERISTICS:</b>  Decrease in visceral proteins  Increase extracellular fluid</p>

**REFERENCES:**

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