



## MEASURING ONCOLOGY NURSING-SENSITIVE PATIENT OUTCOMES: MEASUREMENT SUMMARY

### NUTRITIONAL STATUS

Last Updated: April 2005

Regina S. Cunningham PhD, RN, AOCN<sup>®</sup>,

#### Table(s) of Tools to Measure Oncology Nursing-Sensitive Outcome: Nutritional Status

*Note.* Multidimensional nutrition status assessment can be performed using one of the three scales presented in the following tables. These tools measure nutritional status as a multidimensional variable. Specific components of nutritional status also can be assessed. Some examples of individual components include weight, food intake, total energy expenditure, or specific measures of body composition such as total body potassium, isotope dilution, dual-energy x-ray absorptiometry, or bioelectrical impedance analysis. A summary of tools used to measure each of the individual components of nutritional status is beyond the scope of this review.

**Table A: Description of Tools**

Name of Tool	Author and Year	Domains of Factors	# of items	Scaling	Scoring	Language
Patient Generated Subjective Global Assessment	Ottery, 1996	Weight history Food history Symptoms Activity level Metabolic demand Physical assessment	17	Consistent scales among questions are not used in this instrument. Each item has a series of responses that are checked by the patient or practitioner.	Upon completion of the instrument, a score of A (well nourished), B (moderately, or suspected of being malnourished) or C (severely malnourished) is calculated. Algorithms of optimal nutrition intervention for each of these categories are described here.	English Spanish Swedish
Mini Nutritional Assessment	Nestle Clinical Nutrition, 1994	Weight history Food intake Activity	18	Screening questions (A–F) are scaled using 0–3 scores. Assessment questions (G–R)	Scores from the screening and assessment components of this instrument are summed. Scores of	English German Spanish Dutch

Name of Tool	Author and Year	Domains of Factors	# of items	Scaling	Scoring	Language
		Psychological stress Anthropometric measurement Practitioner completed		are scaled on a 0–2 scale. Each question has variability in scaling (i.e., some are 0–1, others 0–2, others 0–3).	17–23.5 mean patients are at risk for malnutrition. Scores less than 17 indicate malnutrition.	Finnish Hungarian
Malnutrition Screening Tool	Ferguson et al., 1999	Weight history Impact of appetite Patient completed	3	Questions have variability in scaling. Scores for all questions range from 0–4.	A score of 2 or more indicates risk of malnutrition.	English

**Table B: Psychometric Properties of Tools**

Name of Tool	Populations	Reliability	Validity	Sensitivity	Clinical
Patient Generated–Subjective Global Assessment (PG-SGA)*	186 consecutive patients with a diagnosis of cancer seen at Fox Chase Cancer Center; additional demographics were not described.	Not reported	Validity of this tool is not specifically reported. The PG-SGA is based on the SGA, a previously validated tool.*	When used to direct oral intervention and aggressive symptom management, patients had a 50%–80% success rate in maintaining weight during cancer therapy.	<p>In pilot studies conducted at the Fox Chase Cancer Center, the PG-SGA added less than one minute to the overall patient assessment process.</p> <p>The PG-SGA provides a standardized approach to nutritional assessment in the clinical setting.</p> <p>Systematic use of this instrument in the clinical setting facilitates a proactive approach to nutritional management of patients with cancer.</p> <p>This approach is practical for use in general oncology settings, for patients participating in operative group oncology protocols, and clinical trials of nutrition interventions.</p>
	71 patients with cancer receiving care on the oncology ward of a private, tertiary Australian hospital; additional demographics were not described.	Not reported	PG-SGA score was significantly correlated with percentage weight loss ( $r = 0.53, p \leq 0.001$ ). PG-SGA was significantly but weakly correlated to BMI ( $r =$	A significant decrease occurred in nutritional status according to PG-SGA score ( $t_{(56)} = -5.79, p < 0.001$ )	<p>PG-SGA score was significantly different among patients who improved, maintained, or deteriorated in their nutrition status.</p> <p>The PG-SGA is a nutrition assessment</p>

Name of Tool	Populations	Reliability	Validity	Sensitivity	Clinical
Patient Generated– Subjective Global Assessment (PG-SGA)* <i>(Continued)</i>	87 patients with gastrointestinal and urologic tumors receiving care in outpatient setting of hospital in Uppsala, Sweden; specific demographics were not reported.	Interobserver agreement was complete in 90% of cases.	<p>–0.34, <math>p = 0.008</math>).</p> <p>Change in PG-SGA score was significantly correlated to change in quality-of- life (QOL) score (<math>r = -0.55</math>, <math>p &lt; 0.001</math>) after four weeks of radiotherapy.</p> <p>Survival was significantly higher in patients categorized as PG-SGA compared with B or C (<math>p &lt; 0.001</math>).</p> <p>PG-SGA scores differed by cancer type (<math>p &lt; 0.001</math>).</p> <p>Significantly more patients with urologic tumors were classified as well-nourished compared to those with gastrointestinal cancers.</p>	Multivariate logistic regression analyses showed independent contributions by weight loss during the last six months, level of food intake, eating problems, physical activity, and muscle wasting.	<p>tool that can be used to identify ambulatory patients with cancer receiving radiotherapy.</p> <p>PG-SGA may be a proxy for QOL in patients with cancer.</p> <p>PG-SGA is useful for assessment of nutritional status in cancer.</p> <p>PG-SGA has prognostic value.</p>
Mini-Nutritional Assessment (MNA)	73 patients with locally advanced and/or metastatic cancer (predominantly lung, breast, or prostate) consecutively enrolled; additional demographics were not provided.	Not reported	<p>Baseline history of weight loss was strongly correlated to the MNA score (<math>p &lt; 0.0005</math>)</p> <p>Significant relationship between % weight change and MNS (<math>p = 0.0000002</math>, Spearman’s rho = 0.61)</p>	Sensitivity and specificity analyses using unintentional weight loss over three months as gold standard over 0.33 and 0.90, respectively.	<p>Baseline weight loss and MNA score were strongly correlated to C-reactive protein (a marker of acute-phase response).</p> <p>Testing for serum concentration of C-reactive protein at baseline may serve as an indicator of nutritional decline.</p>
Malnutrition Screening Tool (MST)	106 radiation patients with cancer receiving care at an ambulatory radiation oncology facility in Australia; additional	Not reported	<p>Positive predictive value of 0.4</p> <p>Negative predictive value of 1.0</p>	Sensitivity was 100% and specificity 81%.	<p>MST is easy to use and a strong predictor of nutritional status.</p> <p>MST can be completed by medical, nursing, dietetic, and administrative personnel.</p>



Name of Tool	Populations	Reliability	Validity	Sensitivity	Clinical
	demographics were not described.				

\*The Subjective Global Assessment (SGA) was developed by Detsky et al. (1987). This instrument assessed nutritional status based on features of weight loss during the previous six months, dietary intake (in relation to usual pattern), gastrointestinal symptoms, functional capacity, metabolic demands, and physical findings. The instrument was originally tested in 202 hospitalized patients. Clinicians completed the form and categorized data. A full description of statistical analysis and validity and reliability of the tool is described in Detsky et al.'s article, "What is Subjective Global Assessment of Nutritional Status?" Readers are referred to this article for additional details.

Other composite nutrition screening and assessment tools have been evaluated in the oncology population. The British Association for Parenteral and Enteral Nutrition for example developed and tested the Malnutrition Universal Screening Tool. Upon testing, this instrument was deemed to be unsuitable for use in the cancer population because of low sensitivity and specificity. The Nutrition Risk Assessment too, which uses data from the Minimum Data Set and is widely used in long term care facilities, is currently being evaluated in clinical trials (North Carolina Dietetic Association, 2004).

### Articles Related to Instruments to Measure Outcome

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