

# Patient and Physician Assessment of Functional Status



**T**he Scored Patient-Generated Subjective Global Assessment (PG-SGA) is a nutrition screening and assessment instrument to diagnose malnutrition in patients with cancer (Figure 1). The PG-SGA is a validated screening tool for nutritional risk among patients with cancer, stroke, diabetes, Parkinson disease, chronic kidney disease, or HIV.<sup>1</sup> The component designed for independent completion by the patient has 4 areas—weight history, food intake, symptoms, and activities and function). This component allows for more efficient use of the clinician’s time and allows the patient and/or caregiver to recognize any problems and have more involvement in a plan of care to improve nutritional status during treatment. The professional component includes areas describing the disease, metabolic stress, and findings from a physical examination that is completed by the clinician. The scoring and triage system helps to identify patients who are malnourished or at risk for malnutrition along with specific interventions to address the problem and monitor improvement.

Some patients are at a greater nutritional risk due to the type of cancer diagnosed and/or treatment-related adverse events experienced. Sometimes patients may not be specific about their caloric intake or even recognize that they have been eating less than usual, which can affect energy level, hydration status, and ability to perform daily tasks. Other patients may appear to have a normal nutritional status based on their weight but may be at risk for malnutrition. These are the types of patients who need to be addressed. The assessment causes the patient to think about what has been going on over the past month and work with a registered dietitian to address issues before they lead to further nutritional decline.

### Prior Nutritional Screen Process and Barriers

Before adoption of the PG-SGA at Baton Rouge General Pennington Cancer Center in Louisiana, patients with cancer were given a nutritional screening form (an adapted Malnutrition Screening Tool [MST]) along with the other admission paperwork during the initial physician consultation. The MST is an approved and validated malnutrition screening tool for the outpatient oncology population that asks patients, among other questions:

- Have you lost weight recently without trying?
- Have you been eating less due to poor appetite?

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**When patients check in for CT simulation, front desk staff explain the purpose of the nutritional screening form to their caregivers and them.**

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Based on their responses, patients with a MST score of 2 or higher were considered at nutrition risk.

Staff at Baton Rouge General Pennington Cancer Center identified several barriers to completing the nutritional screening form. Often, the form would be left blank, which may have been due to the amount of initial paperwork patients had to complete (*paper fatigue*) combined with the number of individual clinic appointments they had. Some patients had difficulty reading or answering the questions and had no caregiver present to help them complete the form; other patients misunderstood the questions. A significant barrier was the amount of time that passed between when the nutrition screen was completed and when the patient started treatment; this time lag could vary from a few weeks, months, or up to a year depending on a patient’s order of cancer treatment. In many cases, the nutrition screen information was not applicable if the patient started chemotherapy and/or surgery prior to radiation treatment.

### PG-SGA Implementation Process

Staff at Baton Rouge General Pennington Cancer Center understood that for the PG-SGA to be more accurate, the assessment needed to be given closer to the time that patients would start radiation therapy to prevent completion of the form multiple times. Accordingly, the cancer center’s registered dietitian met with the chief radiation therapist to analyze the treatment plan and brainstorm the most feasible method for administering the form. They decided that patients should be given the form on the day of their CT simulation, because that moment in time marked the beginning of the treatment planning process that followed the initial consultation. Also, not all patients who have an initial physician consultation at the facility needed radiation therapy.

Figure 1. Scored Patient-Generated Subjective Global Assessment (PG-SGA)

<b>Patient Identification Information:</b>	<b>History:</b> Boxes 1–4 are designed to be completed by the patient. (Boxes 1–4 are referred to as the PG-SGA Short Form [SF])
<p><b>1. Weight:</b> (See Worksheet 1) In summary of my current and recent weight:</p> <p>I currently weigh about _____ pounds I am about _____ feet _____ inches tall One month ago I weighed about _____ pounds Six months ago I weighed about _____ pounds During the past two weeks my weight has:</p> <p><input type="checkbox"/> Decreased (1)      <input type="checkbox"/> Not changed (0)      <input type="checkbox"/> Increased (0)</p> <div><input type="checkbox"/> Box 1</div>	<p><b>2. Food intake:</b> As compared to my normal intake, I would rate my food intake during the past month as:</p> <p><input type="checkbox"/> Unchanged (0) <input type="checkbox"/> More than usual (0) <input type="checkbox"/> Less than usual (1)</p> <p>I am now taking:</p> <p><input type="checkbox"/> Normal food but less than normal amount (1) <input type="checkbox"/> Little solid food (2) <input type="checkbox"/> Only liquids (3) <input type="checkbox"/> Only nutritional supplements (3) <input type="checkbox"/> Very little of anything (4) <input type="checkbox"/> Only tube feedings or only nutrition by vein (0)</p> <div><input type="checkbox"/> Box 2</div>
<p><b>3. Symptoms:</b> I have had the following problems that have kept me from eating enough during the past 2 weeks (check all that apply):</p> <div><div><input type="checkbox"/> No problems eating (0) <input type="checkbox"/> No appetite, just did not feel like eating (3) <input type="checkbox"/> Nausea (1) <input type="checkbox"/> Constipation (1) <input type="checkbox"/> Mouth sores (2) <input type="checkbox"/> Things taste funny or have no taste (1) <input type="checkbox"/> Problems swallowing (2) <input type="checkbox"/> Pain; where? (3) _____ <input type="checkbox"/> Other (1) ** _____</div><div><input type="checkbox"/> Vomiting (3) <input type="checkbox"/> Diarrhea (3) <input type="checkbox"/> Dry mouth (1) <input type="checkbox"/> Smells bother me (1) <input type="checkbox"/> Feel full quickly (1) <input type="checkbox"/> Fatigue (1)</div></div> <p>** Examples: depression, money, or dental problems</p> <div><input type="checkbox"/> Box 3</div>	<p><b>4. Activities and Function:</b> Over the past month, I would generally rate my activity as:</p> <p><input type="checkbox"/> Normal with no limitations (0) <input type="checkbox"/> Not my normal self, but able to be up and about with fairly normal activities (1) <input type="checkbox"/> Not feeling up to most things, but in bed or a chair less than half the day (2) <input type="checkbox"/> Able to do little activity and spend most of the day in bed or a chair (3) <input type="checkbox"/> Pretty much bedridden, rarely out of bed (3)</p> <div><input type="checkbox"/> Box 4</div>
<p>The remainder of this form is to be completed by your doctor, nurse, dietitian, or therapist. Thank you.</p>	<p>Additive score of boxes 1–4 <input type="text"/> A</p>

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The registered dietitian then met with front desk staff and radiation therapists to discuss the process and explain the purpose of the form and the way that it should be completed by the patient. Next, the registered dietitian met with the medical director, who reviewed the completed form and agreed to its implementation. For ease of use and easy accessibility to print, a blank copy of part A of the PG-SGA form was placed in the front desk folder by the registered dietitian.

**Computed Tomography Simulation**  
When patients check in for CT simulation, front desk staff explain the purpose of the nutritional screening form to their caregivers and them. Patients give the completed PG-SGA form to the radiation therapist before their CT simulation; the radiation therapist reviews the form to ensure that it was completed properly and clarifies any information as necessary. The radiation therapist then scans completed



forms into ARIA (Varian Medical Systems), an oncology-specific electronic health record.

### Dietitian's Role

The registered dietitian reviews the patient portion of the PG-SGA form before meeting with patients by either a phone call or an in-person assessment before treatment starts or at the beginning of treatment. For patients at nutritional risk, the registered dietitian would ask probing questions to discern any nutritional issues that may affect caloric intake. It is common for some patients to be unsure of how much weight they lost before their diagnosis or during a course of treatment. The PG-SGA asks patients for their current weight and about weight fluctuations in the past month compared to 6 months ago; patients may remember 1 or the other, which can still be used to determine whether weight loss was significant. Patients indicate any nutritional impact symptoms that kept them from eating during the past 2 weeks, changes in the types and amount of food consumed, and fluctuations in their activity level over the past month.

All of these factors can affect caloric and/or fluid intake, weight loss, access to food, and ability to prepare food at home. Often, the registered dietitian has limited time with patients. Having this information beforehand allows them to tailor educational materials and discussions to identify other nutritional problems. In addition, it allows collaboration with patients on nutrition intervention(s) that, in some cases, can be implemented before patients begin treatment.

After assessing the patient, the dietitian completes the second portion of the PG-SGA form. The total PG-SGA score helps to guide the level of nutrition intervention needed and the need for referrals to other clinicians to help prevent further nutritional decline and ensure continuity of care.

Since implementing the PG-SGA, there have been numerous instances in which the registered dietitian at Baton Rouge General

Pennington Cancer Center was able to contact patients and/or family members to further assess caloric intake, make outside referrals, and discuss strategies to increase caloric intake before patients began treatment. Patients were more willing to complete the form; further, the length; further, the length of time between completion of the form and the initial nutrition assessment is shorter, making the information more relevant to the patient's current situation.

The next objective was to investigate whether patient's assessed activity and function on the PG-SGA were consistent with physician's assessed activity and functional status. It was hypothesized that these scores would be the same.

### Method

In March 2021, members of the outpatient radiation oncology clinic implemented nutrition screening for patients with cancer using the PG-SGA. As discussed above, patients were given the form to complete on the day of their CT simulation. In the box with questions about activities and function, indicate their activity over the past month by choosing 1 of the following:

- Normal with no limitations (0)
- Not my normal self, but able to be up and about with fairly normal activities (1)
- Not feeling up to most things, but in bed or chair less than half the day (2)
- Able to do little activity and spend most of the day in bed or chair (3)
- Pretty much bed ridden, rarely out of bed (3).

Completed forms were scanned into patients' medical records. Between March 2021 and February 2022, a total of 423 PG-SGA forms were distributed to patients. Of these, 46 forms were not included, because the patient was established for some time and had no recent physician

**Table 1. Comparison of the Scored PG-SGA, Karnofsky, and ECOG Performance Scales**

PG-SGA Activity/Function Score	Karnofsky Score	ECOG Grade	ECOG Status
Normal with no limitations	100	0	Fully active; able to carry on all pre-disease performance without restriction
Not my normal self, but able to be up and about with fairly normal activities	90	1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature (eg, light housework, office work)
	80		
Not feeling up to most things, but in bed or a chair less than half the day	70	2	Ambulatory and capable of all self-care but unable to carry out any work activities; up and about >50% of waking hours
	60		
Able to do little activity; spending most of the day in bed or a chair	50	3	Capable of only limited self-care; confined to bed or a chair >50% of waking hours
	40		
Pretty much bed ridden; rarely out of bed	30	4	Completely disabled; cannot carry on any self-care; totally confined to bed or a chair.
	20		
	10		

Karnofsky performance status or ECOG scores in the patient's medical record. Six forms were not included, because the patients did not complete the activity and function section on the form. One physician consultation note did not have a functional score. Thirty-six forms were excluded either because the patient or physician selected more than 1 performance status score in the activity and function section of the PG-SGA or the physician consultation note, respectively.

A total of 334 PG-SGAs remained after these exclusions. Since the activity and function assessment of the PG-SGA form was based on the ECOG performance status, this functional scale was used to compare functional status according to both the patient and the physician. To make the PG-SGA activity and function scores align with the ECOG performance status and to better differentiate the functional levels when reviewing the results, the *pretty much bed ridden, rarely out of bed* score was changed from a 3 to a 4, as illustrated in Table 1. Physicians who assessed patients' functional status using the Karnofsky performance status scale had their scores converted to an equivalent ECOG score for comparison.

Chi-square statistical analysis was conducted to determine whether patients and physicians produced statistically different functional status. Chi-square analysis was used to also determine whether there was a significant difference in patient functional status by gender.

## Results

A review of the 334 patient PG-SGA forms included in this investigation revealed that most patients (75.7%) and physicians (91%) chose a functional score between 0 and 1; however, approximately 24.3% of patients rated their functional status as a 2 or greater compared with approximately 9% of physicians (Table 2).

A chi-square test of independence was performed to assess the relationship between patient and physician activity and function scores. There was no significant relationship between the 2 variables, and there was no significant difference in activity and functions scores according to patients vs physicians. A chi-square test of independence performed to assess the relationship between functional status and gender also showed no significant relationship between the 2 variables, and there was no significant difference in activity/function scores by gender as illustrated in Table 3.

## Discussion

Patients' functional status can affect available treatment options and determine whether patients are physically able to undergo treatment. Patients who identified with having a higher functional status score may present difficulties in tolerating treatment and/or treatment-related adverse events. Liu et al found that when

**Table 2. Patient and Physician Activity and Function Scores**

PG-SGA Activity and Function Score	Patient Assessed Activity and Functional Status	Physician Assessed Patient Activity and Functional Status
<b>0</b> - Normal, no complaints	139	103
<b>1</b> - Not my normal self, but able to be up and about with fairly normal activities	114	201
<b>2</b> - Not feeling up to most things, but in bed or a chair less than half the day	40	26
<b>3</b> - Able to do little activity and spend most of the day in bed or a chair	40	4
<b>4</b> - Pretty much bedridden, rarely out of bed	1	0

**Table 3. Patient Activity and Function Scores by Gender**

Activity and Function	Male	Female	Row Total
<b>0</b>	77	62	139
<b>1</b>	58	56	114
<b>2</b>	18	22	40
<b>3</b>	20	20	40
<b>4</b>	1	0	1
<b>Column Total</b>	174	160	334

physicians assigned better performance status than did patients, patients tended to have poorer survival.<sup>2</sup>

### Clarity of Functional Scale

A patient's ability to remember their functional ability over the previous month must be taken into consideration. Some patients may have a cognitive impairment due to age or a medical condition that affects their understanding or ability to recall functional status. In other instances, caregivers may have assisted the patient in completing the form, and it is assumed that caregivers could differentiate between the functional levels on the form. In this study,

a number of patients chose more than 1 function score, which may indicate that their functional level changed within the past month or that they identified with being between functional levels.

A functional scale that provides examples of daily activities or limitations for each scaled score may be helpful for patient interpretation. The ECOG scale provides a quick assessment that can be implemented in the clinical setting easily, but the categories may be too broad for an accurate description of functional ability by some patients and physicians. More in-depth questioning on a patient's perceived functional status may help clinicians to better assess functional level.

## Quality of Life

Decreased ability to perform activities of daily living (ADLs) can affect patients' quality of life; these individuals may not be able to participate in usual activities and self-care that they could previously. Less mobility affects patient strength, nutritional status, and mental health, which also can affect their perceived outlook on treatment outcomes. Depression may also affect patients' functional status and survival. It may be helpful for clinicians to ask patients about mental health changes and their effect on activity level so that they can make suggestions or referrals as needed.


Determination of a patient's functional status is a helpful tool for assessing nutritional status and barriers to consuming nutritious food. Clinicians should further investigate decreased ADLs to determine patients' ability to prepare meals, feed themselves, and have access to food. Less ability to perform ADLs can further lead to nutritional decline during and after cancer treatment. Referrals to public and private programs such as Meals on Wheels, eligible Medicare Advantage plans, the Supplemental Nutrition Assistance Program, and local food banks for meal assistance may be appropriate.

## Communication

As shown in Table 2, 40 patients chose an ECOG performance status score of 3, which may suggest a possible communication gap with physicians about their perceived ability to care for themselves. Some patients may have difficulty accepting or expressing the need for help during treatment, which can affect the conversation with clinicians. Other individuals may still be processing a recent cancer diagnosis and treatment and may not consider functional changes during the consultation or treatment planning process. A further examination of age, gender, and type of cancer may provide more helpful information on functional status and optimize treatment outcome and survival.

## Next Steps

Patient and physician assessments of activity/functional status were consistent, yet we found that scores of 2 or greater were identified by patients more often than they were physicians. This can present an opportunity for clinicians to further investigate the patient's perspective on ADLs and obtain better clarity and understanding. Also,

using the same functional scales for both patients and physicians may allow for more consistent interpretation and scoring. Further scrutiny of changes in patient functional status at different junctures during treatment—with consideration of diagnosis—may provide helpful information about its effect on treatment outcome. 

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## References

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