

Karnofsky/Lansky Performance Status

The CIBMTR uses Karnofsky/Lansky performance status to determine the functional status of a recipient. Recipient performance status is a critical data field that has been determined to be essential for all outcome-based analyses. The Karnofsky Scale is designed for recipients aged 16 years and older, and the Lansky Scale is designed for recipients less than 16 years old. Use this scale (see table 1) to determine the score (10-100) that best represents the recipient's activity status at the requested time point.

Table 1. Karnofsky/Lansky Scale

Karnofsky Scale (recipient age \geq 16 years)		Lansky Scale (recipient age <16 years)	
Able to carry on normal activity; no special care is needed		Able to carry on normal activity; no special care is needed	
100	Normal, no complaints, no evidence of disease	100	Fully active
90	Able to carry on normal activity	90	Minor restriction in physically strenuous play
80	Normal activity with effort	80	Restricted in strenuous play, tires more easily, otherwise active
Unable to work, able to live at home cares for most personal needs, a varying amount of assistance is needed		Mild to moderate restriction	
70	Cares for self, unable to carry on normal activity or to do active work	70	Both greater restrictions of, and less time spent in active play
60	Requires occasional assistance but is able to care for most needs	60	Ambulatory up to 50% of time, limited active play with assistance/supervision
50	Requires considerable assistance and frequent medical care	50	Considerable assistance required for any active play, fully able to engage in quiet play
Unable to care for self, requires equivalent of institutional or hospital care, disease may be progressing rapidly		Moderate to severe restriction	
40	Disabled, requires special care and assistance	40	Able to initiate quite activities
30	Severely disabled, hospitalization indicated, although death not imminent	30	Needs considerable assistance for quiet activity
20	Very sick, hospitalization necessary	20	Limited to very passive activity initiated by others (e.g., TV)
10	Moribund, fatal process progressing rapidly	10	Completely disabled, not even passive play

Karnofsky/Lansky Performance Score vs. ECOG performance score:

Some transplant centers may prefer to collect and use the ECOG performance score as opposed to the Karnofsky/Lansky score. Although the ECOG and Karnofsky/Lansky performance score systems are based on similar principles, the scales are not the same. **For centers that collect only the ECOG performance score, see the memorandum and worksheet example on the following pages.**



MEMORANDUM

To: Transplant center primary contacts

From: Debra Christianson and Douglas Rizzo, MD MS

RE: Provision of Karnofsky performance score (KPS) versus ECOG performance score (ECOG PS) to CIBMTR.

Date: January 31, 2009

CIBMTR has collected the Karnofsky performance score for adult transplant recipients at the time of HCT and during the follow-up period for over two decades. This score, reported on an ordinal scale from 0 to 100, provides a rough measure of the patient's well-being, including their ability to conduct activities of daily living and functional capacity. In children, the Lansky score serves a similar purpose.

As a data item, the pre-HCT KPS is included in virtually all analyses performed by the CIBMTR as an adjustment factor for outcomes of HCT. It is a statistically significant pre-HCT patient risk factor in nearly every analysis of outcomes, including the unrelated Center Specific Outcomes reports created by the NMDP. Therefore, CIBMTR believes that accurate collection and reporting of the performance score is very important, and should be included in the routine auditing of data at transplant centers.

Methods to accurately collect and report performance scores vary across transplant programs. In general, it appears best if the performance score is reported in a systematic fashion at the time of assessment by a clinician in a way that is readily available to the data professionals that report the data to CIBMTR. Although the KPS is very commonly used, some institutions have a preference to collect and use the ECOG PS at their center. This may occur because of heavy involvement in ECOG clinical studies, or other institutional preference. **Centers using primarily ECOG PS have asked whether they can report ECOG PS to the CIBMTR, and how to account for differences between ECOG PS and KPS when reporting.**

Although ECOG PS and KPS rest on similar foundations to record performance status, their scales are not alike. KPS is more detailed and is described in 11 categories, whereas the ECOG PS is reported in six categories. Conversion

instruments between ECOG PS (Zubrod-WHO) and KPS exist and have been validated. However, unfortunately, because of differences in the number of categories, there exists an overlap between the categories of functionality included in the two systems. For example, ECOG PS 1 can be mapped to either KPS categories 80 or 90. This lack of 1:1 mapping in the direction of ECOG PS to KPS causes an inherent problem for centers collecting ECOG PS and wishing to report KPS to CIBMTR or other entities.

Because of the greater detail found in the KPS, as well as its reproducible effect in HCT outcomes analyses over the past two decades, CIBMTR plans to continue to collect performance scores using the KPS system, and will also audit source records at transplant centers based upon the KPS system. Since there exists a 1:1 directional mapping of KPS to ECOG PS, we believe some centers that must report ECOG PS to other entities may be accommodated by collecting the KPS primarily, and converting to ECOG PS for those entities that request an ECOG PS. However, for those centers wishing to collect only the ECOG PS, **CIBMTR will make the following accommodations when auditing the source data regarding KPS as reported to CIBMTR:**

- Centers collecting ECOG PS should do so using standard practices to assure its accuracy.
- Conversion of ECOG PS to KPS for the purposes of CIBMTR reporting should follow a standard and reproducible practice to account for the lack of direct 1:1 mapping from ECOG to KPS. This practice should be transparent and reproducible such that an auditor reviewing patient records and center conversion tools can readily reproduce the derived KPS across the full spectrum of patients included in an audit. Although CIBMTR cannot pre-determine whether any particular practice is sufficient, and example “process” might include:
 - A physician records the patient’s ECOG PS at the time of an office visit, along with their actual performance capabilities that would determine the score.
 - The data professional reporting to the CIBMTR takes the recorded ECOG PS, and reads the applicable recorded history about the patient’s functional capacity.
 - Using a standardized worksheet (see attached example), the data professional maps the recorded ECOG PS to a KPS for reporting to the CIBMTR. Such a worksheet may include space for text to record specific statements in the medical record that substantiate the chosen conversion, as well as check boxes to acknowledge the original document where the functional status statements originated. The worksheet might also include both scoring systems, to facilitate conversion.

- The worksheet is signed and dated, then placed in the patient's medical chart and available for future auditing purposes.

As audits reveal “best practices” for those centers where only the ECOG PS is collected, CIBMTR will provide additional suggestions to other centers that may follow this practice at the time of auditing.

Conversion Worksheet: ECOG to Karnofsky/Lansky

Patient Name/ID#: _____

Date/Follow-up period: _____

- Pre-transplant
 100 days

- 6 months
 Annual, specify year: _____

- Chronic GVHD
 Other, specify: _____

PERFORMANCE STATUS CRITERIA					
ECOG (Zubrod)		Karnofsky		Lansky	
Score	Description	Score	Description	Score	Description
0	Fully active, able to carry on all pre-disease performance without restriction.	100	Normal, no complaints, no evidence of disease.	100	Fully active, normal.
		90	Able to carry on normal activity, minor signs or symptoms of disease.	90	Minor restrictions in physically strenuous activity.
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light housework, office work.	80	Normal activity with effort, some signs or symptoms of disease.	80	Active, but tires more quickly.
		70	Cares for self, unable to carry on normal activity or do active work.	70	Both greater restriction of, and less time spent in, play activity.
2	Ambulatory and capable of all selfcare but unable to carry out any work activities. Up and about more than 50% of waking hours.	60	Requires occasional assistance, but is able to care for most of his/her needs.	60	Up and around, but minimal active play; keeps busy with quieter activities.
		50	Requires considerable assistance and frequent medical care.	50	Gets dressed, but lies around much of the day; no active play; able to participate in all quiet play and activities.
3	Capable of only limited selfcare, confined to bed or chair more than 50% of waking hours.	40	Disabled, requires special care and assistance.	40	Mostly in bed, participates in quiet activities.
		30	Severely disabled, hospitalization indicated. Death not imminent.	30	In bed, needs assistance even for quiet play.
4	Completely disabled. Cannot carry on any selfcare. Totally confined to a bed or chair.	20	Very sick, hospitalization indicated. Death not imminent.	20	Often sleeping, play entirely limited to very passive activities.
		10	Moribund, fatal processes progressing rapidly.	10	No play, does not get out of bed.
5	Dead	0	Dead	0	Dead

Supporting documentation from medical record:

Reported ECOG: _____ **Converted KPS:** _____

M.D. Signature: _____

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