

Scoring Instructions for the Expanded Prostate cancer Index Composite Short Form (EPIC-26)*

To request a copy of **EPIC-26** or related information, please contact any of the following investigators:

Martin G. Sanda, M.D.
University of Michigan
2916 Taubman Center,
1500 E. Medical Center Dr.,
Ann Arbor, MI 48109-0330
Phone: (734) 615-2056
Fax: (734) 647-9271
Email: msanda@umich.edu

John T. Wei, M.D., M.S.
University of Michigan
2916 Taubman Center,
1500 E. Medical Center Dr.,
Ann Arbor, MI 48109-0330
Phone: (734) 615-3040
Fax: (734) 936-9127
Email: jtwei@umich.edu

Mark S. Litwin, M.D., M.P.H.
UCLA Department of Urology
Box 951738
Los Angeles, CA 90095-1738
Phone: (310) 794-7960
Fax: (310) 206-5343
Email: mlitwin@mednet.ucla.edu

* A SAS macro for computing the EPIC scores is available at the EPIC web site:
<http://roadrunner.cancer.med.umich.edu/epic/>

Questions regarding the SAS macro should be addressed to:

Rodney L. Dunn
University of Michigan Department of Urology
300 N. Ingalls
Ann Arbor, MI 48109-0473
Phone: (734) 615-1396
Email: rldunn@umich.edu

The **Expanded Prostate cancer Index Composite (EPIC)** was developed by researchers at University of Michigan and UCLA to measure health related quality of life among men with prostate cancer.¹ It represents an adaptation of the UCLA Prostate Cancer Index,² modified to enhance sensitivity to therapy effects by increasing the number of prostate-targeted items to 50 (compared to 20 in the original UCLA-PCI). EPIC has been validated in men with localized prostate cancer who underwent surgery, external beam radiation, or brachytherapy with or without the use of hormonal adjuvants. EPIC is sensitive to specific HRQOL effects of these therapies and to HRQOL effects of cancer progression.³

EPIC-26 was developed as a short-form version of the full EPIC. This version contains 26 item and the same 5 domains as the full version of EPIC: Urinary *Incontinence*, *Urinary Irritative/Obstructive*, *Bowel*, *Sexual*, and *Hormonal*. Response options for each EPIC item form a Likert scale, and multi-item scale scores are transformed linearly to a 0-100 scale (see following page: EPIC-26 scoring), with higher scores representing better HRQOL.

EPIC-26 can be used alone or combined with other instruments, including the AUA-SI, FACT-P, and Medical Outcomes Study SF-12 or SF-36. Inter-scale correlation between EPIC-26 and these instruments has indicated that efficient (yet comprehensive) HRQOL assessment can be achieved by co-administering EPIC-26 with SF-12. The following scoring instructions therefore assume that EPIC-26 will be co-administered with SF-12. The scoring instructions that follow assumes that the items for the EPIC-26 maintain the same item numbers that they had in the original version of EPIC. Thus, these items range from Item 23 to 79 but not every item is contained in the EPIC-26.

Scoring the EPIC-26

There are 2 steps involved in scoring EPIC-26:

Step 1. The response for each item is standardized to a 0 to 100 scale according to the table below.

Item Number	Item Response Value	Standardized Value
23,57,58,60,64	1	0
	2	25
	3	50
	4	75
	5	100
26,59	1	0
	2	33
	3	67
	4	100
27	0	100
	1	67
	2	33
28,29,30,31,33,49,50,52,53, 54,74,75,77,78,79	0	100
	1	75
	2	50
	3	25
	4	0
34,55,68	1	100
	2	75
	3	50
	4	25
	5	0

Step 2. Using the item groupings listed below for each HRQOL Domain Score, average the standardized values (see Step 1, above) for all items within a group to create the summary or subscale score. (If $\geq 20\%$ of the items that comprise a domain summary score or subscale score are missing a response, the corresponding domain summary or subscale score can not be calculated).

To calculate the following HRQOL domain Summary Score or Subscale Score:	Determine the average of the Standardized Values (see Step 1, above) for the following items:	Number of non-missing items needed to compute score (otherwise, set score to missing)
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HRQOL Domain Summary Scores

Urinary Incontinence	23, 26-28	4
Urinary Irritative/Obstructive	29-31, 33	4
Bowel	49, 50, 52-55	5
Sexual	57-60, 64, 68	5
Hormonal	74, 75, 77-79	4

Please note:

- Item numbers are indicated along the right border of the questionnaire (question numbers on left of questionnaire pages are not used for scoring because some questions contain multiple items).
- The **Medical Outcomes Study SF-12** is a validated measure of General Health Function developed by RAND.⁴ It is intended to be used here to derive 2 summary scores (physical and mental component summaries) relevant to general HRQOL status, which provide a context for EPIC score results. The SF-12 items themselves are not included in the calculation of any EPIC domain scores. For ease of reference, scoring instructions for the SF-12 are provided in the Appendix below.

APPENDIX: Scoring the SF-12

Scoring the Medical Outcomes Study SF-12:

There are 3 steps involved in calculating the SF-12 Physical Component Summary (PCS) and Mental Component Summary (MCS) scores.

- Step 1.** Check for missing or out-of-range values for items 11-22 (SF-12 portion of combined survey). If any missing or out-of-range values are found for those items, the PCS and MCS scores can not be calculated.
- Step 2.** Convert each item response into both physical and mental standardized values according to the table on the following page.
- Step 3.** Sum the physical standardized values from step 2 across all 12 items and add 56.57706 to create the SF-12 PCS score. Sum the mental standardized values in similar fashion and add 60.75781 to create the SF-12 MCS score.

Converting SF-12 Item Responses to Physical and Mental Standardized Values:

Item Number	Item Response Value	Physical Standardized Value	Mental Standardized Value
11 (General Health)	1	0	0
	2	-1.31872	-0.06064
	3	-3.02396	0.03482
	4	-5.56461	-0.16891
	5	-8.37399	-1.71175
12 (Moderate Activities)	1	-7.23216	3.93115
	2	-3.45555	1.86840
	3	0	0
13 (Climbing Several Flights of Stairs)	1	-6.24397	2.68282
	2	-2.73557	1.43103
	3	0	0
14 (Accomplish less than you would like)	1	-4.61617	1.44060
	2	0	0
15 (Limited in the kind of activities)	1	-5.51747	1.66968
	2	0	0
16 (Accomplish less than you would like)	1	3.04365	-6.82672
	2	0	0
17 (Didn't do activities as carefully as usual)	1	2.32091	-5.69921
	2	0	0
18 (Pain interferes with normal work)	1	0	0
	2	-3.80130	0.90384
	3	-6.50522	1.49384
	4	-8.38063	1.76691
	5	-11.25544	1.48619
19 (Felt calm and peaceful)	1	0	0
	2	0.66514	-1.94949
	3	1.36689	-4.09842
	4	2.37241	-6.31121
	5	2.90426	-7.92717
	6	3.46638	-10.19085
20 (Have a lot of energy)	1	0	0
	2	-0.42251	-0.92057
	3	-1.14387	-1.65178
	4	-1.61850	-3.29805
	5	-2.02168	-4.88962
	6	-2.44706	-6.02409
21 (Felt downhearted and blue)	1	4.61446	-16.15395
	2	3.41593	-10.77911
	3	2.34247	-8.09914
	4	1.28044	-4.59055
	5	0.41188	-1.95934
	6	0	0
22 (Health interferes w/social activities)	1	-0.33682	-6.29724
	2	-0.94342	-8.26066
	3	-0.18043	-5.63286
	4	0.11038	-3.13896
	5	0	0