

MULTICENTER STUDY OF HYDROXYUREA (MSH)

HEALTH STATUS SURVEY

Form 11

Instruction Sheet

MSH Form 11 is designed to be self-administered by the patient. It may also be administered to the patient by the Clinic Coordinator. In either case, the patient should be provided with a quiet, private area to complete the questionnaire.

The Clinic Coordinator is to complete the upper right-hand box and Part I of page 1 before giving or administering the form to the patient. Separate these instructions and page 5 from the rest of the form. Introduce pages 1 - 4 ONLY of the form to the patient, explaining that the information asked on the form is for the scientific purposes of the study. Then ask the patient whether he/she would like to mark the answers himself/herself, or whether he/she would like the Clinic Coordinator to read the questions to the patient and mark the patient's oral response.

If requested, assist the patient with reading and marking only. If the patient requests assistance with the meaning of the word items, respond that he/she should answer according to what the patient thinks the word means and how he/she has felt in the specified time period (e.g. the past 4 weeks for Items 6-11). If the patient questions the validity of the questionnaire or specific items, assure the patient that this form has been given to many patients, that all the MSH patients are requested to provide this information, and that the answers will in no way affect the patient's participation and care in the study.

After the patient has completed Part II, review the marked answers for completeness and accuracy of marking. If a mark is unclear, request the patient to clarify. If the mark is clear to you but needs to be modified to conform to data entry standards, you may change it according to the data entry guidelines without troubling the patient for clarification.

Complete Part III and attach page 5 to the first four pages. Keep a copy for your files. Mail the original to the MSH Data Coordinating Center. Use MSH mailing labels.

**MULTICENTER STUDY OF HYDROXYUREA
 IN SICKLE CELL ANEMIA (MSH)**

HEALTH STATUS SURVEY

CLINIC NO.				
PATIENT I.D.				
VISIT				1

PART I: IDENTIFYING INFORMATION

1. Patient Name Code: _____
2. Date: _____ - _____ - _____
 Day Month Year

USE U.I.I. USER'S MANUAL: SF-36 HEALTH STATUS SURVEY

THIS FORM IS ANNOTATED WITH

- 1) THE SF-36 ITEM NUMBERS, USED AS VARIABLE NAMES IN THE MSH SAS DATASET OF FORMS 11.
 2) THE RECODING, AS NECESSARY.
 3) COMPUTATION OF SCORES BY CONCEPT, VIZ: Physical Function, Social Function (SFC), Role-Phys, Role-Mental, Mental Health, ETC.

PART II: HEALTH STATUS

3. In general, would you say your health is:

- SF-1 Excellent (1) 5.0
 Very good (2) 4.4
 Good (3) 3.4
 Fair (4) 2.0
 Poor (5) 1.0
4. Compared to one year ago, how would you rate your health in general now: Recorded values

$GHP5 = SF-1 + SF-10A + SF-10B + SF-10C + SF-10D$

- SF-2 Much better now than 1 year ago (1) 5
 Somewhat better now than 1 year ago (2) 4
 About the same (3) 3
 Somewhat worse now than 1 year ago (4) 2
 Much worse now than 1 year ago (5) 1

5. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities, and if so, how much? (Mark one on each line.) Physical functioning items

		NO RECODING		
		Yes, Limited A Lot	Yes, Limited A Little	No, Not Limited At All
SF-3 A.	Vigorous activities, such as running, participating in strenuous sports	(1)	(2)	(3)
SF-3 B.	Moderate activities, such as moving a table, pushing a vacuum cleaner, or bowling	(1)	(2)	(3)
SF-3 C.	Lifting or carrying groceries	(1)	(2)	(3)
SF-3 D.	Climbing several flights of stairs	(1)	(2)	(3)
SF-3 E.	Climbing one flight of stairs	(1)	(2)	(3)
SF-3 F.	Bending, kneeling, or stooping	(1)	(2)	(3)
SF-3 G.	Walking more than a mile	(1)	(2)	(3)
SF-3 H.	Walking several blocks	(1)	(2)	(3)
SF-3 I.	Walking one block	(1)	(2)	(3)
SF-3 J.	Bathing or dressing yourself	(1)	(2)	(3)

Missing values: subst. avg of remaining items (1-2 MAX)

- SF-36 ITEM#
- SF-3 A.
- SF-3 B.
- SF-3 C.
- SF-3 D.
- SF-3 E.
- SF-3 F.
- SF-3 G.
- SF-3 H.
- SF-3 I.
- SF-3 J.

Score: $PFI10 = 2$ Mean = 10 Mark = 30

12. Please choose the answer that best describes how true or false each of the following statements is for you. (Mark one on each line.)

Recorded values

	Definitely True	Mostly True	Not Sure	Mostly False	Definitely False
SF.10A. I seem to get sick a little easier than other people -----	(1)	(2)	(3)	(4)	(5)
SF.10B. I am as healthy as anybody I know -----	(1) 5	(2) 4	(3) 3	(4) 2	(5) 1
SF.10C. I expect my health to get worse -----	(1)	(2)	(3)	(4)	(5)
SF.10D. My health is excellent -----	(1) 5	(2) 4	(3) 3	(4) 2	(5) 1

13. Have you ever filled out this form before? (Mark one.)

- Yes ----- (1)
- No ----- (2)
- Don't remember ----- (3)

Thank you for your answers. Please give the Questionnaire back to the Clinic Coordinator.

PATIENT I.D. -

PART III: COORDINATION ONLY

14. Part II of this form was: COMPLY

- Completed by the patient without assistance from the coordinator (1)
- Completed by the patient with at least some assistance
from the coordinator (2)
- Completed by the coordinator reading questions to the patient (3)

If (3), answer Item 14A.

A. Did the patient seem to have difficulty in hearing or understanding the questions?

UNDTD

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a bit (4)
- Extremely (5)

15. Form checked for completeness and accuracy:

A. Certification Number: _____

B. Signature: _____

Retain a copy of this form for your files.
Send the original to the MSH Data Coordinating
Center. Use MSH mailing labels:

MSH Data Coordinating Center
Maryland Medical Research Institute
600 Wyndhurst Avenue
Baltimore, Maryland

PATIENT I.D.						
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USER'S MANUAL
SF-36 Health Status Questionnaire

TYPE™ Specification
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Version 2—May 1991

USER'S MANUAL

SF-36 Health Status Questionnaire

Introduction

"Outcomes management" is a rapidly evolving area of health care technology. Critical to this ongoing process is the development of data collection instruments that are reliable and valid. The development and consistent use of these instruments will ensure that data collected for outcomes management is uniform and accurate, and is comparable within and across health care organizations.

InterStudy refers to the instruments used to collect data within its Outcomes Management System as TyPE (Technology of Patient Experience) specifications. These TyPEs include both generic health and disease-specific sets of items. This manual is a guide for use of the generic health status questionnaire, the SF-36. The instrument is a TyPE specification developed in response to evolving interest in short-form health surveys.* The instrument measures health in depth, while evaluating a range of generic health concepts (Ware, 1987).

While the SF-36 can be completed by most people in less than ten minutes, it has good reliability and validity. The SF-36 can be used in health organizations that need a standardized measure of health status that can be easily administered, scored and interpreted, and places minimal burden on the respondent.

The SF-36 is not intended for use as a stand-alone instrument. It should be used as part of an overall outcomes management system including additional generic scales (such the GHAA

* The SF-36 was developed for InterStudy by John E. Ware Jr., Institute for the Improvement of Medical Care and Health, New England Medical Center Hospitals. SF-36 was based on Medical Outcomes Study (MOS) surveys developed by Allyson Ross Davies, Ron D. Hays, Caren Kamberg, Eugene C. Nelson, William Rogers, Cathy Donald Sherbourne, Anita L. Stewart and Kenneth B. Wells in collaboration with Dr. Ware at the RAND Corporation. The MOS is sponsored by grants from the Robert Wood Johnson Foundation, The Pew Charitable Trusts, the National Center for Health Services Research and Health Care Technology Assessment, the National Institute on Aging, and the National Institute of Mental Health (Tarlov et al., 1989).

Patient Satisfaction Survey) and disease-specific scales. Disease-specific information should be collected regarding clinical outcomes, interventions, and disease-relevant variables drawn from patient questionnaires, medical records, or both.

The enclosed SF-36 Health Status Questionnaire is an evolving instrument, and will undergo revisions based on growing knowledge and experience. Properties of the instrument have been extensively studied and continue to be evaluated (references available from InterStudy). Organizations licensed to use the SF-36 will be kept apprised of changes that affect its use or content, assuring that information collected for outcomes management will be the most reliable and valid possible. Users will be able to combine data collected through this version and any subsequent version, protecting their current investment in system development.

An Overview of the SF-36

The SF-36 is composed of 36 items. In order to achieve the breadth necessary to measure generic health, the SF-36 measures three major health attributes and eight health concepts:

- I. **Functional Status**
 - **Physical Functioning**
 - **Social Functioning**
 - **Role Limitations attributed to:**
 - Physical Problems**
 - Emotional Problems**

- II. **Well-Being**
 - **Mental Health**
 - **Energy/Fatigue**
 - **Pain**

III. Overall Evaluation of Health
- General Health Perception

The SF-36, as usually administered, has two parts:

1. the generic health battery of 36 items; and
2. a core set of items that are needed by your organization for describing respondents and interpreting results.

The "core set" of items, not included, are useful and necessary for describing respondents, and facilitating your analysis and interpretation of results. These additional variables serve to describe the patients that complete the SF-36, permit comparisons between the patients that are sampled and other groups, and statistically adjust for factors that affect the health outcomes of interest.

Some of these additional variables are personal/demographic factors that are known to affect function and well-being. These include age, gender, race, and education. Other personal descriptors that may prove useful include marital status and income. Individual health care organizations will need to decide for themselves whether these or other variables need be collected, and how these variables can most reliably be measured.

Individual questions related to each core set variable can be added to the SF-36, or the information can be abstracted from the medical record. For example, age and sex can be abstracted directly from the medical record. However, not all such data elements can be obtained in this fashion. Depending upon the variables of interest, it may be best to go directly to the patient for the information.

The SF-36 can be self-administered to patients at the time of encounter with their health care provider. Using this method, the instrument will be distributed by office staff to the patient. The instructions printed on the cover page of the questionnaire provide general instructions for completion of the instrument by the patient. Previous experience with versions of the short-form health survey show minimal staff time will be necessary for additional patient instruction.

While self-administration is the usual method of administering the SF-36 questionnaire, other methods can be used. Telephone interview and personal interview have also been tested. The method chosen should be dictated by your organization's patient population, the instrument's use in the organization and study questions. As with any survey method, appropriate and scientifically sound sampling and analytical procedures should be followed.

SF-36 Scoring Rules

SF-36 items and scales are prepared for analysis in two steps. The first step involves the recoding of certain questionnaire items. The second step combines the correctly coded items, thereby giving a summary score for each of the eight health concepts.

First step. We recommend that questionnaire responses be keypunched or entered as precoded in the questionnaire. Item recoding and scale scoring are most efficiently performed using standard data analysis and database management software (e.g., SAS, SPSS, R:BASE, dBASE). Although both these steps can be performed "by hand," it is most efficient and reliable to enter the numbers that correspond to the responses and let the computer do the recoding. It is important to note that the codes printed along with response choices in the short-form questionnaire are not necessarily the numbers assigned to those responses for purposes of analysis. Directions for recoding questionnaire items are in Tables 1 to 9.

Second step. The second step in scoring involves simply summing scores (recoded where necessary) for all items in the same scale. It is not necessary to standardize items or weight them.

All scales are scored so that a high score is consistent with a positive health status. For example, a "functioning" scale is scored so that a higher score reflects increased physical function. The "pain" scale is scored so that a higher score indicates a decreased level of pain. Directions for scoring each scale are in Tables 1 to 9.

In order to facilitate comparisons across the SF-36 scales, the raw scale scores are transformed (Stewart et al., in press). The transformed score represents the relative position of the respondent on a continuum of lowest to highest possible scale scores. These end-points are expressed as 0 and 100 percent respectively. The scoring for all the SF-36 health scales and an illustration of the transformation of a raw scale score is in Table 10.

Missing Responses

Sometimes respondents leave one or more items blank, although this happens less than one percent of the time in most surveys. One advantage of multi-item scales is that a scale score can usually be estimated in such instances. We recommend substituting a person-specific estimate of the missing score for any missing items. Alternative estimation methods are discussed in the literature (Ware et al., 1980; Davies et al., 1988). The most valid estimate is the average score across completed items in the same scale for that respondent. For example, if a respondent leaves one item in the 5-item mental health scale blank, substitute the average score across the four completed items. This step is easy to program using standard statistical software packages (e.g., SPSS, SAS).

Scale Construction

Tables 1-9 present specific information about how to score each of the health scales in the 36-item short-form health survey. The verbatim content of all relevant items and the response choices used with each item are presented in each table so as to eliminate any doubt about which items and response choices are involved. The second part of each table presents information about how to compute a scale score after items have been recoded, if necessary. Finally, other comments about scale scoring are offered.

Table 10 provides an overview of the construction of the eight multi-item health scales and the one single-item scale, referring to the numbering in the enclosed SF-36. For each health scale, the possible high and low values of the scale range are in parentheses. For each health scale, the lowest and highest possible score and score range is also given.

Depression Screener

The depression screener consists of the three questions found on either the Outcomes Management Form 8.0 or items 11a to 11c on the SF-36D (see attached). Patient responses to these questions are not scored, but rather the patterns of "YES" and "NO" responses can be used to identify patients at risk for major depression or dysthymia. In using the depression screener, the OMS user is reminded that both major depression and dysthymia require professional evaluation for the actual diagnosis.

These questions are intended to be administered to all patients in a practice or a particular health care plan as part of a periodic health status assessment. Similar questions tested in large community studies have identified 89% of adults with a psychiatric diagnosis of major depression or dysthymia.

The three questions are interpreted using the table on the next page.

Risk Screener Interpretation

	Question 1	Question 2	Question 3
Risk for:			
Major Depression	YES	*	*
Dysthymia	NO	YES	YES

- * If the patient answers YES to question 1, (s)he is at risk for major depression regardless of the answers to questions 2 and 3. Conversely, if the answer to question 1 is NO, then they are considered at risk for dysthymia only if they answer YES to both question 2 and question 3.

References

1. Davies, A. R., Sherbourne, C. D., Peterson, J. R., and Ware, J. E. (1988). Scoring Manual: Adult health status and patient satisfaction measures used in RAND's Health Insurance Experiment (Publication Number N-2190-HHS). Santa Monica, CA: RAND Corporation.
2. Stewart, A. L., Greenfield, S., Hays, R. D., Wells, K., Rogers, W. H., Berry, S. D., McGlynn, E. A., and Ware, J. E. (1989). Functional status and well-being of patients with chronic conditions: Results from the Medical Outcomes Study. Journal of the American Medical Association, 262, 907-913.
3. Stewart, A. L., Hays, R. D., and Ware, J. E. (1988). The MOS Short-form general health survey - Reliability and validity in a patient population. Medical Care, 26, 724-735.
4. Tarlov, A. R., Ware, J. E., Greenfield, S., Nelson, E. C., Perrin, E., and Zubkoff, M. (1989). The Medical Outcomes Study: An application of methods for monitoring the results of medical care. Journal of the American Medical Association, 262, 925-930.
5. Ware, J. E. (1987). Standards for validating health measures: Definition and content. Journal of Chronic Diseases, 40, 473-480.
6. Ware, J. E., Brook, R. H., Davies-Avery, A., Williams, K. N., Stewart, A. L., Rogers, R. H., Donald, C. A., and Johnston, S. A. (1980). Conceptualization and measurement of health for adults in the Health Insurance Study: Vol. I. Model of health and methodology (Publication Number R-1987/1-HEW). Santa Monica, CA: RAND Corporation.

Table 1. Physical Functioning Items and Scoring Information

VERBATIM ITEMS

- 3a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports.
- 3b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf.
- 3c. Lifting or carrying groceries.
- 3d. Climbing several flights of stairs.
- 3e. Climbing one flight of stairs.
- 3f. Bending, kneeling, or stooping.
- 3g. Walking more than a mile.
- 3h. Walking several blocks.
- 3i. Walking one block.
- 3j. Bathing or dressing yourself.

ITEM SCORING

Response Choices	Precoded Values	Final Scoring
Yes, limited a lot	1	1
Yes, limited a little	2	2
No, not limited at all	3	3

SCALE SCORING

Compute the simple sum of item scores. See text for handling of missing item responses. This scale is scored positively.

NOTES

Precoded values are values printed in the short-form questionnaire. This scale does not require recoding of any items prior to computation of the scale score.

Table 2. Social Functioning Items and Scoring Information

VERBATIM ITEMS

- 9j. How much of the time, during the past month, has your health limited your social activities (like visiting with friends or close relatives)?
6. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?
-

ITEM SCORING - ITEM 9j

Response Choices	Precoded Values	Final Scoring
All Of The Time	1	1
Most Of The Time	2	2
A Good Bit Of The Time	3	3
Some Of The Time	4	4
A Little Of The Time	5	5
None Of The Time	6	6

ITEM SCORING - ITEM 6

Response Choices	Precoded Values	Final Scoring
Not at all	1	5
Slightly	2	4
Moderately	3	3
Quite a bit	4	2
Extremely	5	1

SCALE SCORING

Compute the simple sum of item scores. See text for handling of missing item responses. This scale is scored positively.

NOTES

Precoded values are values printed in the short-form questionnaire. This scale requires recoding of one item prior to completion of the scale score.

Table 3. Role-Physical Items and Scoring Information

VERBATIM ITEMS

- 4a. Cut down the amount of time you spent on work or other activities.
- 4b. Accomplished less than you would like.
- 4c. Were limited in the kind of work or other activities.
- 4d. Had difficulty performing the work or other activities (for example, it took extra effort).

ITEM SCORING

Response Choices	Precoded Values	Final Scoring
Yes	1	0
No	2	1

SCALE SCORING

Compute the simple sum of item scores. See text for handling of missing item responses. This scale is scored positively.

NOTES

Precoded values are values printed in the short-form questionnaire. This scale requires recoding of all items prior to computation of the scale score.

Table 4. Role-Mental Items and Scoring Information

VERBATIM ITEMS

- 5a. Cut down the amount of time you spent on work or other activities?
5b. Accomplished less than you would like?
5c. Didn't do work or other activities as carefully as usual?
-

ITEM SCORING

Response Choices	Precoded Values	Final Scoring
Yes	1	0
No	2	1

SCALE SCORING

Compute the simple sum of item scores. See text for handling of missing item responses. This scale is scored positively.

NOTES

Precoded values are values printed in the short-form questionnaire. This scale requires recoding of all items prior to computation of the scale score.

Table 5. Mental Health Items and Scoring Information

VERBATIM ITEMS

- 9b. Have you been a very nervous person?
 - 9d. Have you felt calm and peaceful?
 - 9f. Have you felt downhearted and blue?
 - 9h. Have you been a happy person?
 - 9c. Have you felt so down in the dumps that nothing could cheer you up?
-

ITEM SCORING - ITEMS 9d & 9h

Response Choices	Precoded Values	Final Scoring
All Of The Time	1	6
Most Of The Time	2	5
A Good Bit Of The Time	3	4
Some Of The Time	4	3
A Little Of The Time	5	2
None Of The Time	6	1

ITEM SCORING - ITEMS 9b, 9f, & 9c

Response Choices	Precoded Values	Final Scoring
All Of The Time	1	1
Most Of The Time	2	2
A Good Bit Of The Time	3	3
Some Of The Time	4	4
A Little Of The Time	5	5
None Of The Time	6	6

SCALE SCORING

Compute the simple sum of recoded item scores. See the text for handling of missing item responses. This scale is scored positively.

NOTES

Precoded values are values printed in the short-form questionnaire. This scale requires recoding of two of its five items prior to computation of the scale score.

Table 6. Energy/Fatigue Items and Scoring Information

VERBATIM ITEMS

- 9a. Did you feel full of pep?
 - 9g. Did you feel worn out?
 - 9e. Did you have a lot of energy?
 - 9i. Did you feel tired?
-

ITEM SCORING - ITEMS 9a & 9e

Response Choices	Precoded Values	Final Scoring
All Of The Time	1	6
Most Of The Time	2	5
A Good Bit Of The Time	3	4
Some Of The Time	4	3
A Little Of The Time	5	2
None Of The Time	6	1

ITEM SCORING - ITEMS 9g & 9i

Response Choices	Precoded Values	Final Scoring
All Of The Time	1	1
Most Of The Time	2	2
A Good Bit Of The Time	3	3
Some Of The Time	4	4
A Little Of The Time	5	5
None Of The Time	6	6

SCALE SCORING

Compute the simple sum of recoded item scores. See the text for handling of missing item responses. This scale is scored positively.

NOTES

Precoded values are values printed in the short-form questionnaire. This scale requires recoding of two of its four items prior to computation of the scale score.

Table 7. Pain Items and Scoring Information

VERBATIM ITEMS

7. How much bodily pain have you had during the past 4 weeks?
8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?
-

ITEM SCORING - ITEM 7

Response Choices	Precoded Values	Final Scoring
None	1	6
Very mild	2	5
Mild	3	4
Moderate	4	3
Severe	5	2
Very severe	6	1

ITEM SCORING - ITEM 8

Response Choices	Precoded Values	Final Scoring
Not at all	1	5
A little bit	2	4
Moderately	3	3
Quite a bit	4	2
Extremely	5	1

SCALE SCORING

Compute the simple sum of item scores. See text for handling of missing item responses. This scale is scored negatively.

NOTES

Precoded values are values printed in the short-form questionnaire. This scale requires recoding of both items prior to computation of the scale score.

Table 8. General Health Perceptions Items and Scoring Information

VERBATIM ITEMS

1. In general, would you say your health is:
 - 10a. I seem to get sick a little easier than other people.
 - 10b. I am as healthy as anybody I know.
 - 10c. I expect my health to get worse.
 - 10d. My health is excellent.

ITEM SCORING - ITEM 1

Response Choices	Precoded Values	Final Scoring
Excellent	1	5.0
Very good	2	4.4
Good	3	3.4
Fair	4	2.0
Poor	5	1.0

Response Choices	ITEM SCORING - ITEMS 10a & 10c		ITEM SCORING - ITEMS 10b & 10d	
	Precoded Values	Final Scoring	Precoded Values	Final Scoring
Definitely True	1	1	1	5
Mostly True	2	2	2	4
Don't Know	3	3	3	3
Mostly False	4	4	4	2
Definitely False	5	5	5	1

SCALE SCORING

Compute the simple sum of item scores. See text for handling of missing item responses.

NOTES

Precoded values are values printed in the short-form questionnaire. This scale requires recoding of three of its five items prior to computation of the scale score.

Table 9. Change in Health During Past Year and Scoring Information

VERBATIM ITEM

2. Compared to one year ago, how would you rate your health in general now?
-

ITEM SCORING - ITEM 2

Response Choices	Precoded Values	Final Scoring
Much better now than one year ago	1	5
Somewhat better than one year ago	2	4
About the same	3	3
Somewhat worse now than one year ago	4	2
Much worse now than one year ago	5	1

SCALE SCORING

This is a single-item scale and is not included as part of the eight multi-item scale scores.

NOTES

Precoded values are values printed in the short-form questionnaire. This scale requires recoding of the single item.

Table 10. Scoring and Scale Ranges for SF-36 Health Scales After Recoding Pre-coded Values.

Scale Name	Sum Scores for Items (after scoring as in Tables 2-9)	Lowest and Highest Possible Scores	Possible Score Range	Raw Score Percentage*
Physical Functioning ✓ PFI10	3a + 3b + 3c + 3d + 3e + 3f + 3g + 3h + 3i + 3j	10, 30	20	PPFI10
Social Functioning ✓ SFI2	6 + 9j	2, 11	9	PSFI2
Role Functioning (physical problem) ✓ RPI4	4a + 4b + 4c + 4d	0, 4	4	PRPI4
Role Functioning (emotional problem) ✓ RMI3	5a + 5b + 5c	0, 3	3	PRMI3
Mental Health ✓ MH15	9b + 9c + 9d + 9f + 9h	5, 30	25	PMH15
Energy/Fatigue ✓ EFI4	9a + 9e + 9g + 9i	4, 24	20	PEFI4
Pain ✓ PAIN2	7 + 8	2, 11	9	PPAIN2
General Health Perceptions (scale) ✓ GHPS	1 + 10a + 10b + 10c + 10d	5, 25	20	PGHPS
✓ SF-2 Change in Health During Past Year	2	1, 5	4	PSE2

* TRANSFORMATION OF RAW SCALE SCORES

$$\text{Transformed Score} = \left[\frac{(\text{Raw Scale Score} - \text{Lowest Possible Score})}{\text{Possible Score Range}} \right] \times 100 \text{ percent}$$

For example, a Physical Functioning Score of 21 would be transformed as follows:

$$\left[\frac{(21 - 10)}{20} \right] \times 100 = \underline{55 \text{ percent}}$$