

Craig
Handicap
Assessment &
Reporting
Technique

GUIDE FOR USE OF THE **CHART**:

CRAIG HANDICAP ASSESSMENT AND REPORTING TECHNIQUE

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THEORETICAL BACKGROUND

The model of disablement suggested by the World Health Organization (WHO) has provided useful conceptual distinctions for impairment, disability, and handicap. In practical terms, **impairment** occurs at the organ level, representing any loss or abnormality of psychological, physiological, or anatomical structure or function. **Disability** occurs at the time the persons level, demonstrated as any restriction or lack of ability (resulting from an impairment) to perform any activity in the manner or within the range considered normal for a human being. **Handicap** occurs at the societal level. It is a disadvantage for a given individual, resulting from an impairment or a disability, that limits or prevents the fulfillment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual.

According to the WHO, **handicap** describes the total effects and interplay of all the consequences of disability: social, economic, cultural, and environmental.

The WHO has identified six dimensions by which the extent of a person's handicap can be described: 1) orientation, 2) physical independence, 3) mobility, 4) occupation, 5) social integration, and 6) economic self-sufficiency.

A great deal of work has been done in developing tools to measure and document impairment and

disability; however, limited attempts have focused on the measurement and assessment of long-term handicap, despite the fact that psychosocial adjustment is clearly regarded as the ultimate outcome of rehabilitation.

The Craig Handicap Assessment and Reporting Technique (CHART) was developed to assess the WHO dimensions of handicap. The instrument was designed to provide a simple, objective measure of the degree to which impairments and disabilities result in handicaps in the years after initial rehabilitation. A copy of the instrument is attached as Appendix A.

STRATEGY FOR DEVELOPMENT

In planning the design of a handicap measurement tool for people with disabilities, several questions were raised. First, was there any existing index of handicap as a whole or of any WHO defined dimension of handicap? Second, what items would need to be included on a questionnaire, and how would they be quantified such that indices of the various dimensions of handicap could be developed? Third, could the measurement tool be designed so that minor modifications would make it of more global value in measuring handicap for different types of disabilities? Fourth, can the instrument be shortened in length while still maintaining a certain degree of comparability with the original score?

Regarding the first question, while issues relating to the concept of handicap are included in a number of research studies, no single instrument addressed all handicap dimensions or produced an index of handicap using a scoring technique.

To address the second question, a team of rehabilitation and research professionals met regularly to discuss items for inclusion on the questionnaire and, finally, to select those items which would best measure the dimensions of handicap. Decisions also had to be made regarding quantification of the various items. As a result, the CHART includes items which focus on objectively observable criteria which are less likely to be open to subjective interpretation. Thus, CHART items identify behaviors rather than perceptions or attitudes. Based on the WHO model of handicap the original CHART included five of the six WHO domains. A pilot test was carried out with a sample of people with spinal cord injuries (SCI) in order to calibrate the scoring procedures for each of the dimension sub-scales, validate that significant differences in handicap existed between non-disabled persons and those with SCI, and determine the extent of handicap for the persons with SCI. Reliability and validity testing of CHART as well as analysis of the individual item weighting has been conducted, establishing the psychometric soundness of this instrument.

The efforts described above have resulted in a 100-point subscale for each dimension of handicap, which can be interpreted individually or, when

totaled, give an overall index of handicap. While initially developed for persons with SCI, the CHART was later tested with the additional WHO domain of orientation among persons with various impairments. Reliability and validity testing for the new domain "Orientation" has been completed, while ongoing analysis of validity for differing impairment groups continue.

In 1999, analysis of CHART resulted in the creation of the CHART Short Form (CHART SF). Analysis of CHART-SF has been conducted on various disability populations including spinal cord injury, traumatic brain injury, stroke, MS, burn and amputee populations. Results indicate that there exists a high correlation between all the CHART-SF subscales and the CHART counterparts. Additionally, CHART-SF yielded reasonable estimates of Physical Independence, Cognitive Independence, Mobility, Social Integration and Occupation sub-scores in all impairment categories. A copy of the instrument is attached as Appendix C.

CHARACTERISTICS: DIMENSIONS OF HANDICAP

Each CHART dimension of handicap is characterized by directly observable qualities which lend themselves to easy quantification. While an infinite number of factors might have been included to keep the instrument to a practical length. The following dimensions have been operationalized based on the WHO definitions.

Physical Independence is the individual's ability to sustain a customarily effective independent existence. The major component of this sub-scale is the number of hours per day someone is needed to provide routine or occasional assistance (whether paid or unpaid). Individuals are viewed as somewhat less handicapped if they take primary responsibility for instructing and directing people who are providing assistance to them.

Cognitive Independence is the individual's ability to sustain a customary level of independence without the need for supervision. The factors included in this subscale reflect the amount of hours that a person needs supervision both inside and outside the home, as well as the amount of difficulty an individual has in remembering, communicating and managing money.

Mobility is the individual's ability to move about effectively in his/her surroundings and is demonstrated by the hours per day out of bed, days per week out of the house, nights per year spent

away from home, accessibility of the home, and transportation utilization.

Occupation is the individual's ability to occupy time in the manner customary to that person's sex, age, and culture. The time spent in various activities is used to measure this dimension. The relative value society places on different activities is used to weight the time in each category. Although there was a potential for subjective bias based on value judgments in developing the scale in this dimension, priority has been given to gainfully employment, schooling, and active homemaking and maintenance, and this prioritization has been supported by validity and reliability testing. Other elements documented include volunteer work, recreational pursuits, and self-improvement activities.

Social Integration is the individual's ability to participate in and maintain customary social relationships. The factors included in this sub-scale include household composition; romantic involvement; the number of relatives, business associates, and friends with whom regular written or oral contact is maintained; and the frequency of initiating conversations with strangers.

Economic Self-Sufficiency is the individual's ability to sustain customary socio-economic activity and independence. This dimension is defined as the remaining disposable household family income after non-reimbursed medical expenses have been excluded.

USE OF THE INSTRUMENT

The CHART is designed as an interview tool, which can be administered face-to-face or by telephone. Each item on the instrument has been carefully and concisely worded to minimize ambiguity of interpretation. It is possible to use the instrument as a mailed questionnaire, although some valuable data potentially would be lost in the absence of interaction with an interviewer providing consistent prompts.

There is no set time period for administering the CHART; however, it is recommended that multiple measurements be taken over the course of a person's lifetime to assess changes with adaptation to the disability and to gain insight into changes in handicap which may occur over time.

SCORING OVERVIEW

A major asset of the CHART is that it produces an index of handicap. There are a number of ways for a person with a disability to demonstrate the absence of handicap, and the scoring procedures of the CHART give credit to these various behaviors. However, the instrument is designed to measure handicap, not to identify the characteristics shared by 'super-achievers.' Therefore, although it is possible to score more than 100 on most of the subscales, a maximum of 100 points has been allowed, as a score of 100 would indicate no handicap in that dimension.

It is recognized that value judgments are critical to the actual scoring of many items. These value judgments reflect the expectations of society for non-disabled persons, and a pilot test of the CHART on non-disabled persons was used to calibrate the scoring. The vast majority of non-disabled persons received a score of 100 on each dimension while scores below 100 were common among individuals with spinal cord injury. The scoring guidelines and step-by-step instructions will be described later.

The data in the following tables are based on an analysis of nearly 500 individuals with SCI for whom CHART information is available. These individuals completed CHART while the cognitive domain was still being tested. Nevertheless, the tables are provided to illustrate the types of scores you may expect for people with various levels of disabilities. For example, in the 'Percentile Distribution of Physical Independence Scores' table, 10% of the 'Cervical-MIS =0' group achieved a score of 4 or less, while 25% achieved a score of 28 or less.

The motor index score, developed by the American Spinal Injuries Association, provides a numerical system to evaluate strength in ten key upper and lower extremity muscles. The scores for each muscle are added together to create a motor index score for an individual. In the following tables, the group labeled 'Cervical-MIS =0' represents persons with cervical level injuries and motor index scores of 0. These are individuals with high level neurologically complete quadriplegia. The 'Cervical-MIS = 1-49' group represents persons with cervical level injuries

and motor index scores between 1 and 49. The 'Cervical-MIS .49' group scores greater than 49, including those with quadriplegia. The group labeled 'Thoracolumbar-MIS =50' represents individuals with neurologically complete paraplegia. The group labeled 'Thoracolumbar-MIS .50' represents persons with neurologically incomplete or low level paraplegia.

The groups represented in the following tables are of varying sizes. The percentile distributions of the larger groups are presumed to be more accurate.

Table 1: Percentile Distribution of Physical Independence Scores by ASIA Score

	Interdecile Range Interquartile Range Median				
	10 th	25 th	50 th	75 th	90 th
Cervical-MIS=0 (N=29)	4	28	57	85	94
Cervical-MIS 1-49 (N=131)	28	76	88	94	100
Cervical-MIS >49 (N=44)	89	96	100	100	100
Thoracolumbar-MIS=50 (N=105)	95	99	100	100	100
Thoracolumbar-MIS >50 (N=33)	88	100	100	100	100
Nondisabled (N=88)	100	100	100	100	100

Table 2: Percentile Distribution of Mobility Scores by ASIA Score

	Interdecile Range Interquartile Range Median				
	10 th	25 th	50 th	75 th	90 th
Cervical-MIS=0 (N=29)	28	51	71	85	96
Cervical-MIS 1-49 (N=131)	41	72	89	100	100
Cervical-MIS >49 (N=44)	68	88	100	100	100
Thoracolumbar-MIS=50 (N=105)	79	92	100	100	100
Thoracolumbar-MIS >50 (N=33)	94	100	100	100	100
Nondisabled (N=88)	100	100	100	100	100

Table 3: Percentile Distribution of Occupation Scores by ASIA Score

	Interdecile Range Interquartile Range Median				
	10 th	25 th	50 th	75 th	90 th
Cervical-MIS=0 (N=29)	3	10	22	53	63
Cervical-MIS 1-49 (N=131)	10	25	48	95	100
Cervical-MIS >49 (N=44)	19	32	62	100	100
Thoracolumbar-MIS=50 (N=105)	23	42	78	100	100
Thoracolumbar-MIS >50 (N=33)	29	57	85	100	100
Nondisabled (N=88)	70	98	100	100	100

Table 4: Percentile Distribution of Social Integration Scores by ASIA Score

	Interdecile Range Interquartile Range Median				
	10 th	25 th	50 th	75 th	90 th
Cervical-MIS=0 (N=29)	30	65	85	100	100
Cervical-MIS 1-49 (N=131)	55	82	96	100	100
Cervical-MIS >49 (N=44)	65	85	100	100	100
Thoracolumbar-MIS=50 (N=105)	62	88	100	100	100
Thoracolumbar-MIS >50 (N=33)	75	94	100	100	100
Nondisabled (N=88)	93	100	100	100	100

Table 5: Percentile Distribution of Economic Self-Sufficiency Scores by ASIA Score

	Interdecile Range Interquartile Range Median				
	10 th	25 th	50 th	75 th	90 th
Cervical-MIS=0 (N=29)	25	50	75	100	100
Cervical-MIS 1-49 (N=131)	25	50	100	100	100
Cervical-MIS >49 (N=44)	25	75	100	100	100
Thoracolumbar-MIS=50 (N=105)	25	75	100	100	100
Thoracolumbar-MIS >50 (N=33)	50	75	100	100	100
Nondisabled (N=88)	75	100	100	100	100

Table 6: Percentile Distribution of Total CHART Scores by ASIA Score

	Interdecile Range Interquartile Range Median				
	10 th	25 th	50 th	75 th	90 th
Cervical-MIS=0 (N=29)	232	260	358	364	435
Cervical-MIS 1-49 (N=131)	227	334	410	457	491
Cervical-MIS >49 (N=44)	345	390	420	495	500
Thoracolumbar-MIS=50 (N=105)	345	399	449	489	500
Thoracolumbar-MIS >50 (N=33)	357	450	472	492	500
Nondisabled (N=88)	425	468	500	500	500

Tables 7-13 provide the characteristics of CHART as the scores relate to persons with differing Impairments. Persons with spinal cord injury (SCI), traumatic brain injury (TBI), Stroke, MS, Burn and Amputees were administered the CHART. While caution should be used in comparing the handicappedness of various impairments, the data show that the use of CHART across impairment groups is supported by its ability to differentiate assistance needs in a manner consistent with those needs that are associated with a certain disability.

Table 7 : Percentile Distribution of Physical Independence Scores by Impairment Group

	Interdecile Range Interquartile Range Median				
	10 th	25 th	50 th	75 th	90 th
SCI	50	80	93	100	100
TBI	88	99	100	100	100
MS	88	97	99	100	100
Stroke	4	86	99	100	100
Amputee	94	99	100	100	100
Burn	99	100	100	100	100

Table 8: Percentile Distribution of Cognitive Independence Scores by Impairment Group

	Interdecile Range Interquartile Range Median				
	10 th	25 th	50 th	75 th	90 th
SCI	82	94	100	100	100
TBI	34	63	88	100	100
MS	62	88	94	100	100
Stroke	26	52	88	100	100
Amputee	88	100	100	100	100
Burn	92	96	100	100	100

Table 9 : Percentile Distribution of Mobility Scores by Impairment Group

	Interdecile Range Interquartile Range Median				
	10 th	25 th	50 th	75 th	90 th
SCI	51	65	81	95	100
TBI	54	73	90	97	100
MS	47	67	82	95	100
Stroke	31	52	68	89	97
Amputee	70	87	95	99	100
Burn	72	92	97	100	100

Table 10 : Percentile Distribution of Social Integration Scores by Impairment Group

	Interdecile Range				
	10 th	25 th	50 th	75 th	90 th
	Interquartile Range Median				
SCI	45	70	85	100	100
TBI	30	90	80	100	100
MS	50	70	90	100	100
Stroke	20	40	61	84	98
Amputee	46	70	93	100	100
Burn	42	68	95	100	100

Table 11 : Percentile Distribution of Occupation Scores by Impairment Group

	Interdecile Range				
	10 th	25 th	50 th	75 th	90 th
	Interquartile Range Median				
SCI	16	37	79	100	100
TBI	15	35	88	100	100
MS	19	39	82	100	100
Stroke	2	9	31	55	90
Amputee	38	67	99	100	100
Burn	48	76	100	100	100

Table 12 : Percentile Distribution of Economic Self-Sufficiency Scores by Impairment Group

	Interdecile Range				
	10 th	25 th	50 th	75 th	90 th
	Interquartile Range Median				
SCI	25	50	100	100	100
TBI	25	63	100	100	100
MS	28	75	100	100	100
Stroke	25	50	100	100	100
Amputee	25	25	88	100	100
Burn	25	31	100	100	100

Table 13 : Percentile Distribution of CHART Scores by Impairment Group

	Interdecile Range				
	10 th	25 th	50 th	75 th	90 th
	Interquartile Range Median				
SCI	394	438	493	539	586
TBI	361	460	517	571	590
MS	387	457	521	568	594
Stroke	241	366	454	510	558
Amputee	450	492	536	579	597
Burn	415	498	550	594	599

The tables presented are intended to be used as guidelines. It is unlikely that your own testing results will exactly match the data in the tables. It is hoped, however, that this information will help you in identifying trends in CHART scores obtained from other individuals.

FACTORS INFLUENCING CHART SCORES

There are a variety of pre-morbid or post-rehabilitation factors that might explain CHART scores which deviate from the scores of other persons with similar impairments and disabilities. It has been suggested in the literature that certain pre-morbid behaviors, attitudes, and prior life experiences have been found to be correlates of successful rehabilitation outcomes. In addition to pre-existing individual characteristics, post-rehabilitation constraints and limitations may influence CHART scores. These factors include such things as family interference, alcohol or drug use, and awareness of vocational options. While CHART does not isolate any of these causes, it measures the combined consequences to the individual from these various factors.

CHART SCORING GUIDELINES AND INSTRUCTIONS

The following guidelines provide detailed instructions on how to compute each CHART dimension score and the total CHART score. It is very simple to calculate these scores manually; however, you may choose to utilize your own computerized data analysis systems.

The description of the scoring for each dimension will identify the CHART questions used in each score calculation and will describe the mathematical formulas used in computing the score. A sample of the CHART scoring form is attached as Appendix B.

Following the description of the scoring procedures, a series of suggestions and conventions are listed to assist in the interpretation and coding of responses from the CHART.

PHYSICAL INDEPENDENCE SCORE

In the **Physical Independence** dimension, a score of 100 indicates no handicap in an individual's ability to sustain a customarily effective independent existence. The need for regular or periodic assistance for activities which used to be performed independently is indicative of some degree of handicap.

SCORE COMPUTATION:

- A. Add the hours of paid to unpaid care in Question #1.
- B. Divide the hours of occasional care in Question #2 by 30. This computation results in an equivalent of hours per day of occasional care.
- C. Add the sums of "A" and "B".
- D. If the respondent instructs and directs his/her own attendants or caregivers (Question #3), multiply the answer of "C" by 3. If someone other than the respondent instructs and directs the attendants or care givers, multiply the answer of "C" by 4.
- E. Subtract the total in "D" from 100. The remainder will be the **Physical Independence** dimension score.

COGNITIVE INDEPENDENCE SCORE

In the **Cognitive Independence** dimension, a score of 100 indicates no handicap in an individual's ability to sustain a customarily effective independent existence. The need for regular or periodic supervision is indicative of some degree of handicap.

SCORE COMPUTATION:

- A. Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points; response #4 = 3 points; response #5 = 4 points; and response #6 = 5 points.
- B. Multiply points in "A" by 8.
- C. Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points; and response #4 = 3 points.
- D. Multiply points in "C" by 8.
- E. Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points.
- F. Multiply points in "E" by 6.
- G. Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points.
- H. Multiply points in "G" by 6.
- I. Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points; and response #4 = 3 points.
- J. Multiply points in "I" by 4.

- K. Add the sums of "B", "D", "F", "H", and "J".

MOBILITY SCORE

In the **Mobility** dimension, a score of 100 indicates no handicap in an individual's ability to move about effectively in his/her surroundings.

SCORE COMPUTATION:

- A. Multiply the number of hours out of bed (Question #4) by 2.
- B. Multiply the number of days per week out of the house (Question #5) by 5.
- C. Assign points for the responses in Question #6 as follows: no nights out = 0; 1-2 nights out = 10; 3-4 nights out = 15; 5 or more nights out = 20.
- D. For Questions #7-#12, assign 5 points for each "yes" response, 0 points for each "no" response.
- E. Add the sums from "A", "B", "C", and "D". The total will be the **Mobility** score. If this sum is greater than 100, enter 100.

OCCUPATION SCORE

In the **Occupation** dimension, a score of 100 indicates no handicap in an individual's ability to occupy time in the manner customary to that person's sex, age, and culture.

SCORE COMPUTATION:

- A. Multiply the number of hours working (Question #13) by 2.
- B. Multiply the number of hours in school (Question #14) by 2.
- C. Multiply the number of hours in active homemaking (Question #15) by 2.
- D. Multiply the number of hours in home maintenance (Question #16) by 2.
- E. Add the number of hours in volunteer work (Question #17) to the number of hours in recreational activities (Question #18) and the number of hours in other self-improvement (Question #19).
- F. Add the sums of "A", "B", "C", "D", and "E". The total will be the **Occupation** score. If the sum is greater than 100, enter 100.

SOCIAL INTEGRATION SCORE

In the **Social Integration** dimension, a score of 100 indicates no handicap in an individual's ability to participate in and maintain customary social relationships.

SCORE COMPUTATION:

- A. Assign 30 points if living with a spouse or significant other (Question #20) **OR** assign 20 points if living with an unrelated roommate and/or an attendant. (NOTE: if living with more

than one roommate, do not assign points for each person).

- B. Assign 20 points if involved in a romantic relationship, unless points are assigned in "A". If involved in a romantic relationship and points are assigned in "A", then "B" equals 30 minus "A".
- C. Add the number of children in the household and the number of other relatives in the household (Question #20) to the number of relatives contacted monthly (Question #22). Multiply this sum by 5. A **maximum** score for this component is 25 points.
- D. If living with more than one attendant, add the extra attendants to the number of business or organizational associates contacted monthly (Question #23). Multiply this total by 2. A **maximum** score for this component is 50 points.
- E. For the number of conversations initiated with strangers (Question #25), assign points as follows: none=0 points; 1 or 2=10 points; 3 to 5=15 points; 6 or more=20 points.
- F. Add the sums from "A", "B", "C", "D", "E", and "F". The total will be the **Social Integration** score. If the sum is greater than 100, enter 100.

ECONOMIC SELF-SUFFICIENCY SCORE

In the **Economic Self-Sufficiency** dimension, a score of 100 indicates no handicap in an individual's ability to sustain customary socio-economic activity and independence.

SCORE COMPUTATION:

- A. Calculate family size by adding respondent, plus partner if applicable (from question #20), plus number of children in household (question #20), plus other relatives in household (Question #20).
- B. Subtract the unreimbursed medical expenses (Question #27) from the annual income (question #26).
- C. Determine poverty level from family size calculated in "A" based on the table below. **The poverty levels change each year. Be sure to update your poverty levels annually, by "Weighted Average Poverty Levels" table, or by calling your local Census Bureau, or by their web page at www.census.gov.**
- D. Divide the value from "B" by the poverty level from "C".
- E. Determine points as follows: If the sum from "D" is:
 - 0.0 to less than 0.5 = 0 points
 - 0.5 to less than 1.0 = 25 points
 - 1.0 to less than 1.5 = 50 points
 - 1.5 to less than 2.0 = 75 points
 - 2.0 or greater = 100 points

This will be the **Economic Self-Sufficiency** score.

1991 ESTIMATED POVERTY LEVELS

If family size = 1	\$ 6,932
If family size = 2	\$ 8,867
If family size = 3	\$10,857
If family size = 4	\$13,921
If family size = 5	\$16,457
If family size = 6	\$18,590
If family size = 7	\$21,093
If family size = 8	\$23, 532
If family size = 9	\$27,978

CODING GUIDELINES AND CONVENTIONS

At times there may be some difficulty interpreting a CHART question response. The following guidelines are provided to assist you in making decisions regarding which values to assign to apparently ambiguous responses.

The number of each guideline refers to the number of the CHART question. For those CHART questions which are unlikely to have questionable interpretation, no specific guidelines have been provided.

If you come up with responses that don't seem to be adequately addressed by the guidelines and conventions listed below, please contact the CHART designers to discuss your problems and questions. These issues and their responses will be shared with all CHART users in order to insure uniform scoring.

1. If a person has a disability that would typically result in a high level of dependency, and indicates no attendant care is used, probe this a bit further. The respondent may not understand that assistance with dressing, grooming, bowel and bladder care, etc. is to be considered attendant care.
1. If an individual has various hours of assistance on different days of the week, ask the respondent to average the total number of hours of assistance per week, then divide that number by 7 to come up with a daily estimate.
2. Some individuals may state that they have help with regular household chores, but that may not be a change from their pre-injury status. For someone who never typically did things like ironing, grocery shopping, etc., he/she should not be penalized for not doing those activities post-injury. The key is to look for change in the level of assistance needed because of the injury.
3. If a person who has only occasional help is responsible for arranging that assistance and providing at least an equal portion of the instruction, he/she should be considered the person taking responsibility for directing care.
3. If instructing and directing care providers is a shared responsibility between the respondent and a spouse or parent (for example), you may need to probe further to determine who assumes main responsibility.
10. The responses to this question may vary according to season, weather, etc. For example, many people are out daily in the summer, but only one or two days a week in the winter. Ask the respondent to use his/her judgment, based on the climate in which he/she lives, to estimate the average number of days out per week throughout the year. Being out of the house and going somewhere

means that the person leaves his/her own 'property'. Being out in the garden or yard does not qualify as 'going somewhere'.

11. Any night spent away from a person's usual sleeping environment is considered a night away from home. Visiting family or friends and spending the night at someone else's house, therefore, is a night away from home.
12. Independence into and out of one's home/living environment means total independence; i.e., locking, unlocking, opening, and closing doors, pushing manual wheelchair or operating motorized wheelchair (if applicable) through doorways, and going up/down ramps or steps leading into and out of the house must all be accomplished independently.
12. If a person does not have independent access to **ALL** of the locations and items listed, the response must be coded "NO".
- 14-17. The respondents to Question #14-17 refer to an individual using transportation outside the home. Specifically, these items refer to using cars, vans, other private vehicles and public transportation. However, in cases where a person uses a wheelchair and states that the wheelchair is the primary form of transportation outside the home (i.e., does not use a car, van, or other vehicle), the scoring remains the same.
18. Respondents must be working in jobs for which they are **paid** in order to get points for this question. If a person is working but not getting paid, consider this voluntary activity and calculate the points based on the instructions for question #22.
20. Active homemaking, parenting, housekeeping, etc. is exactly what it means. Being at home with the children at night with everyone asleep is not considered 'active' parenting. Helping children with homework, playing or supervising play, however, are active. In addition, 'active' can imply supervising housework and food preparation. If someone is developing the household menus, arranging for housework to be done, or overseeing other individuals performing those activities, there is active involvement; therefore, count the time spent in these planning/supervising activities. However, don't credit someone with doing (for example) eight hours of yard work, if his/her only 'active' involvement was arranging and instructing the work needing to be done. This 'active' role might, in fact, take an hour, so credit for 1 hour is appropriate.
21. Hours spent in active home maintenance may vary with season and with weather. Use same logic employed in "#10" in estimating hours.

22. Consider all organized volunteer work; for example, that which is associated with churches or clubs. Also consider any time 'working' with no monetary compensation.

NOTE: For questions 18-22, do not duplicate responses in categories. For example, if someone 'plays' with the children and considers it sports or exercise, as well as active parenting, that individual can only receive credit in one category. In another example, a person who gardens as a hobby may describe spending 20 hours a week in home maintenance, then states that gardening is a hobby. When in doubt, allow the respondent to choose the category which best describes an activity.

- 27-30. Remember to count the number of people contacted, not the actual number of times a person is contacted. For example, someone may talk with a particular business associate on a daily basis – that is considered **one** contact, not **five** (typical working days of the week).

28. Don't worry about getting exact counts of business associates, if a person indicates "lots" or "dozens" of people are contacted. Remember, this category allows for a maximum of 10 contacts.

Again, be careful that you don't double count people in different categories!

31. Some respondents are unwilling to divulge information relating to their financial status. In

such cases, ask if the respondent is willing to indicate a range between which the annual income falls. When providing ranges, it will be most helpful to know the family size and the poverty level. You may then ask if the income is between two amounts.

31. Some people may indicate there is not household income from any source. Probe this, because there must be money from somewhere, whether it is from a charitable source, government funds, other family support, or something else.

REMEMBER: A dimension score can be calculated only if ALL the questions in that dimension have been answered. A total CHART score can be calculated only if there is a score for each dimension.

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CHART Short Form

To reduce the number of questions in CHART a multi dimensional analysis plan was designed. First, using data already gathered from a previous study, item-scale and item-total correlation coefficients were calculated for each scale. Second, regression analysis was performed on each subscale with the dependent measure being the scale score and the variables contributing to the subscale acting as the predictor variables. It was hypothesized that each subscale score could be accurately be predicted by fewer items. With two exceptions, the only variables that were selected to be in a subscale were those that entered into a stepwise regression model together explaining over 90% of the variance. Third, once the items had been selected for each subscale, the items were re-scored. Each subscale was computed to have a maximum score of 100, which indicates no handicap in that domain. Furthermore, efforts were made to keep all of the score weightings of the variables proportionate to the original weightings. Fourth, the CHART Short Form items and scoring will be evaluated on 1800 persons that will contribute to the Behavioral Risk Factor Surveillance System's survey of Colorado residents.

RESULTS AND CONCLUSIONS

All CHART subscale scores could be reduced by fewer questions to reach 90% explained variance except Economic Self-Sufficiency, which using the

main variables could only explain 45%. A possible explanation for the lack of predictive ability for the Economic subscale was the alarmingly high rate of refusal for economic questions. 40% of the people failed to respond to either the question about income or expenditures not covered by insurance. In light of the missing data, it was determined that those questions would change with the addition of response categories rather than open ended questions. These overall findings show that:

- ◆ Using the fewest number of items to predict the largest amount of variation explained is a reasonable method for shortening a questionnaire.
- ◆ CHART-SF sub-scales closely approximate the scores of the subscales gathered by the Original CHART.
- ◆ CHART-SF takes less time to administer than the Original CHART

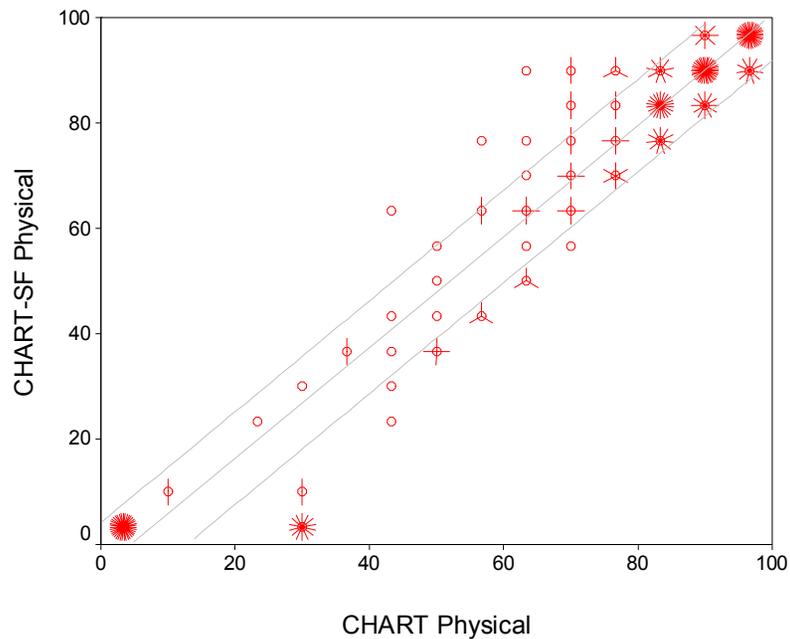
CHART-SF is a valuable tool for determining handicap for populations in which time is at a minimum. Although using a tool with fewer items may decrease the precision for smaller groups, the use of CHART-SF in larger populations will obviate the lack of precision by the change in confidence intervals

TABLES AND GRAPHS – CHART SF

The following tables represents all the questions asked as a part of CHART by sub-scale and entered into the regression model. The order of the questions represents the order the variables entered in the regression, meaning the most predictive questions are listed first. The percent explained variance is located on the right side of the tables by R^2 . Each of the CHART-SF scoring for the indicated variable is located in between the table and the graph for the respective subscale. Below each of the tables is a scatter plot of the Original CHART subscale score by the CHART Short Form subscale score. A 'sunflower' in which each petal represents one case marks each point. Additionally, a regression line is shown along with 95% confidence intervals.

Physical Independence Table and Graph

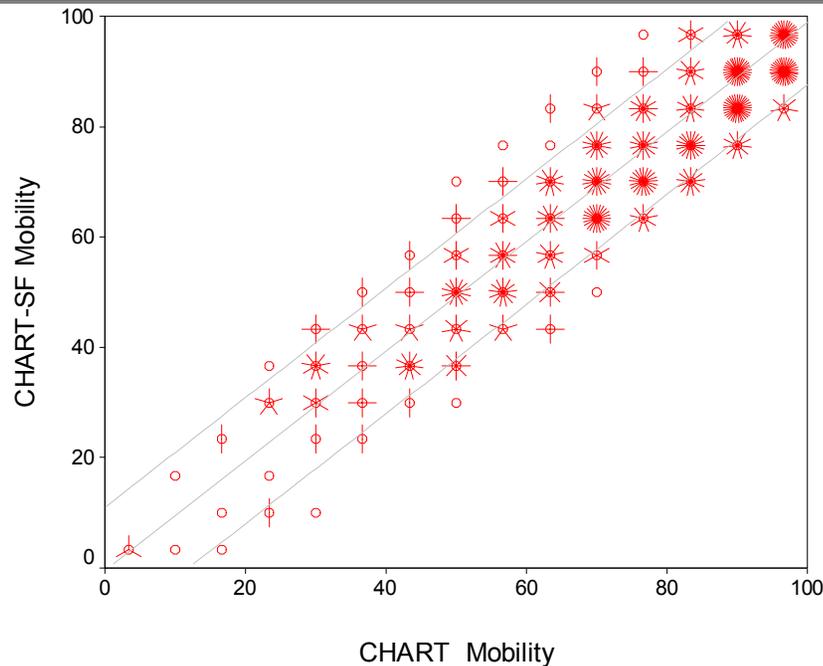
Code	Question	R ²
Hours Paid	How many hours in a typical 24-hour day do you have someone with you to provide physical assistance for personal care activities such as eating, bathing, dressing, toileting and mobility?	.520
Hours Unpaid	How many hours in a typical 24-hour day do you have someone with you to provide physical assistance for personal care activities such as eating, bathing, dressing, toileting and mobility?	.942
Hours per Month	Not including any regular care as reported above, how many hours in a <u>typical month</u> do you occasionally have assistance with such things as grocery shopping, laundry, housekeeping, or infrequent medical needs because of the disability?	.956
Who Trains	Who takes responsibility for instructing and directing your attendants and/or caregivers?	.956



$$100 - ((\text{Hours Paid} + \text{Hours Unpaid}) * 4)$$

Mobility Table and Graph

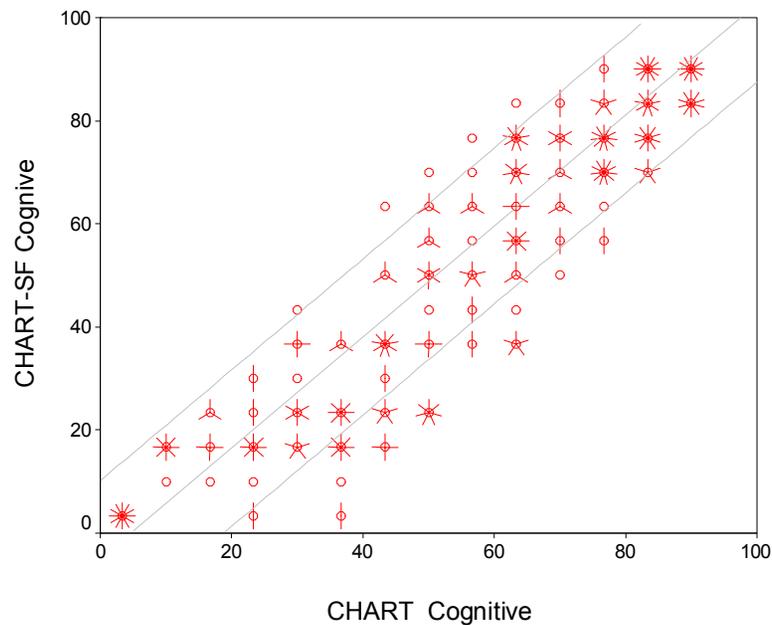
Code	Question	R ²
Days out of house	In a typical week, how many days do you get out of your house and go somewhere?	.720
Nights away from home	In the last year, how many nights have you spent away from your home (excluding hospitalizations)?	.871
Hours out of bed	On a typical day, how many hours are you out of bed?	.947
Transportation whenever	Does your transportation let you get out whenever you want?	.974
Enter and exit house	Can you enter and exit your home without any assistance from someone?	.984
Transportation without notice	Can you use your transportation with little or no advance notice?	.991
Independent access	In your home, do you have independent access to your sleeping area, kitchen, bathroom, telephone, and TV (or radio)?	.995
Transportation allow you to get all places	Does your transportation allow you to get to all the places you would like to go?	.998
Transportation independence	Can you use your transportation independently?	1.00



(Days out of the house *7) + (Hours out of bed *3) + (Nights away from home [10,15,20])

Cognitive Table and Graph

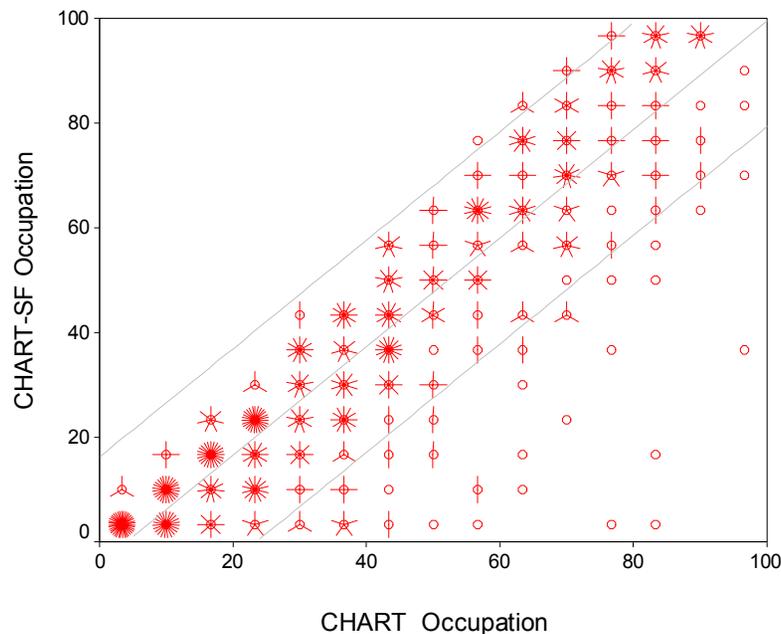
Code	Question	R ²
Home Assistance	How much time is someone with you in your home to assist you with activities that require remembering, decision making, or judgment?	.834
Outside Assistance	How much of the time is someone with you to help you with remembering, decision making, or judgment when you go away from your home?	.912
Remembering	How often do you have difficulty remembering important things that you must do?	.960
Money	How much of your money do you control?	.983
Communication	How often do you have difficulty communicating with other people?	1.00



(Assistance in the home *11) + (Assistance outside the home *15)

Occupation Table and Graph

Code	Question	R ²
Homemaking	How many hours per week do you spend in active homemaking including parenting, housekeeping, and food preparation?	.467
Working	How many hours per week do you spend working in a job for which you get paid?	.816
School	How many hours per week do you spend in school working toward a degree or in an accredited technical training program (including hours in class and studying)?	.894
Self Improvement*	How many hours per week do you spend in other self-improvement activities such as hobbies or leisure reading (Please do not include time spent watching TV or listening to the radio)?	.943
Maintenance	How many hours per week do you spend in home maintenance activities such as gardening, house repairs or home improvement?	.977
Recreation	How many hours per week do you spend in recreational activities such as sports, exercise, playing cards, or going to movies (Please do not include time spent watching TV or listening to the radio)?	.996
Volunteering	How many hours per week do you spend in ongoing volunteer work for an organization?	1.00



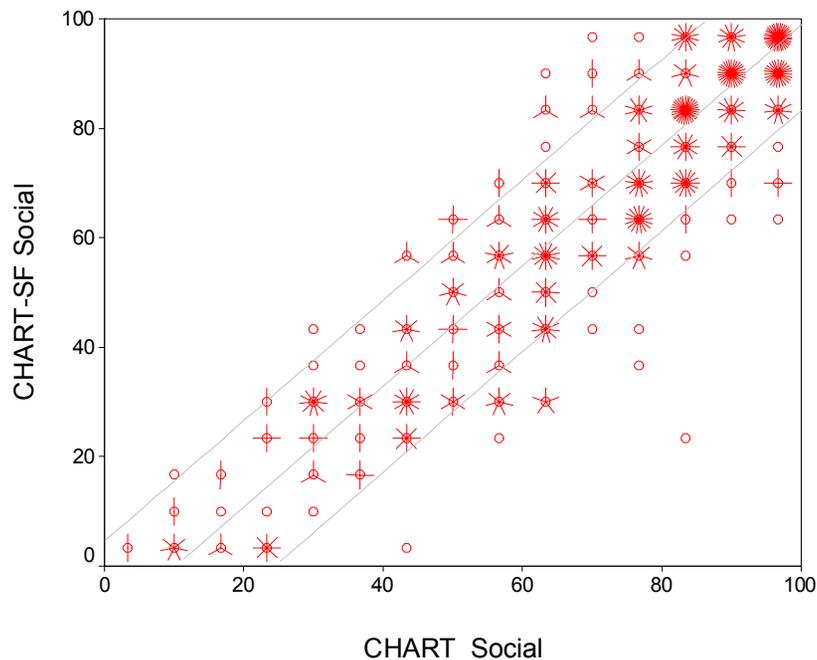
$$(\sum(\text{Work, School, Homemaking, Maintenance}) * 2.5) + (\text{Recreation} * 1.25)$$

*Note – Even though hours of self improvement was entered into the model, the question could not be used as it refers to "any other activity" which unless asked with all the questions, could derive a different meaning.

Instead Maintenance and Recreation were placed in the model providing an $r^2 = .965$

Social Integration Table and Graph

Code	Question	R ²
Friends	How many friends (non-relatives contacted outside business or organizational settings) do you visit, phone, or write to at least once a month?	.587
Living Situation*	Do you live alone? Do you live with a spouse or significant other? How many children do you live with? How many other relatives do you live with? How many roommates do you live with? How many attendants do you live with?	.748
Business	How many business or organizational associates do you visit, phone, or write to at least once a month?	.870
Strangers	With how many strangers have you initiated a conversation in the last month (for example, to ask information or place an order)?	.931
Family	How many relatives (not in your household) do you visit, phone, or write to at least once a month?	.973
Romantic	(If you don't live with a spouse or significant other) are you involved in a romantic relationship?	1.0

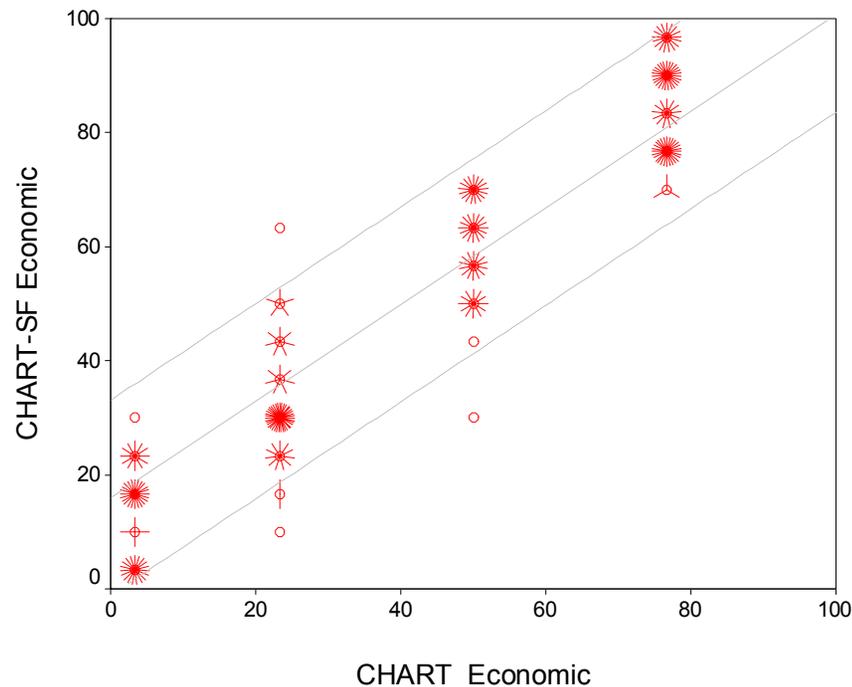


* All questions are replaced by these three -
 How many people do you live with?
 Is one of them your spouse or significant other?
 Of the people you live with how many (others) are relatives?

(Living Situation [0,25,38]+ (6*relatives in household)+(Strangers [15,23,30]) + (Business *2.5 [≤25]) + (Friends* 13[≤65])

Economic Self Sufficiency Table and Graph

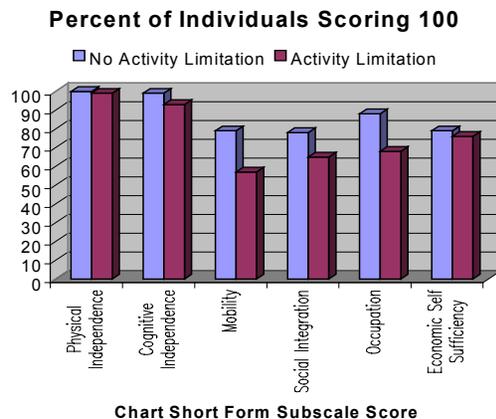
Code	Question	R ²
Income	Approximately what was the combined annual income, in the last year, of all family members in your household (Consider all sources including wages and earnings, disability benefits, pensions and retirement income, income from court settlements, investments and trust funds, child support and alimony, contributions from relatives, and any other source.)?	.405
Expense	Approximately how much did you pay last year for medical care expenses (Consider any amounts paid by yourself or the family members in your household and not reimbursed by insurance or benefits.)?	.441
Poverty	Poverty Level	.454



$$(((\text{Income}) - (\text{Expenses})) / \text{Poverty Level}) * 50$$

Behavioral Risk Factor Surveillance System (BRFSS) Analysis of CHART SF

Analysis from the 1999 BRFSS show that the vast majority of persons that specify that they do not have a physical or cognitive limitation, score 100 on many of the subscales. These numbers are consistently lower for persons who identify themselves as having some type of activity limitation. The table below reflects the proportion of persons scoring one hundred points on any given subscale by limitation. (This analysis is based on a sample of 2259 weighted to represent the population of Colorado 18 years or older).



Further, the mean subscale scores for all Chart SF items were significantly ($p < .01$ for economic subscale and $p < .001$ for all others) lower for persons with activity limitations. The following table shows the descriptive statistics of the subscales by activity limitation.

Descriptive information for CHART SF subscales by Activity Limitation

		<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>95% Confidence Interval for Mean</i>		<i>Minimum</i>	<i>Maximum</i>
Physical Independence	no	1783	100.00	.00	.00	100.00	100.00	100.00
	yes	461	99.41	5.71	98.88	99.93	28.00	100.00
	Total	2245	99.88	2.60	99.77	99.99	28.00	100.00
Cognitive Independence	no	1784	99.57	3.88	99.39	99.75	45.00	100.00
	yes	466	95.97	15.56	94.55	97.39	15.00	100.00
	Total	2250	98.82	8.01	98.49	99.16	15.00	100.00
Mobility	no	1777	97.02	8.02	96.65	97.39	38.00	100.00
	yes	477	91.43	14.46	90.13	92.73	16.00	100.00
	Total	2254	95.84	10.01	95.42	96.25	16.00	100.00
Social Integration	no	1727	94.79	13.26	94.17	95.42	.00	100.00
	yes	462	89.90	18.03	88.26	91.55	.00	100.00
	Total	2189	93.76	14.53	93.15	94.37	.00	100.00
Occupation	no	1711	95.77	14.28	95.10	96.45	.00	100.00
	yes	454	80.27	32.41	77.28	83.26	.00	100.00
	Total	2165	92.53	20.51	91.66	93.39	.00	100.00
Economic Self-Sufficiency	no	1578	92.50	18.65	91.58	93.42	.00	100.00
	yes	411	91.35	19.33	89.48	93.23	.00	100.00
	Total	1989	92.27	18.79	91.44	93.09	.00	100.00

SAMPLE

CHART Long Form

Craig Handicap Assessment and Reporting Technique

Blank copies of this form are available from:

Craig Hospital
Research Department
3425 South Clarkson Street
Englewood, Colorado 80110
(303) 789-8202

CHART – Long Form

WHAT ASSISTANCE DO YOU NEED?

People with disabilities often need assistance. We would like to differentiate between personal care for physical disabilities and supervision for cognitive problems. First, focus on physical "hands on" assistance: This includes help with eating, grooming, bathing, dressing, management of a ventilator or other equipment, transfers etc. Keeping in mind these daily activities...

1. How many hours in a typical 24-hour day do you have someone with you to provide physical assistance for personal care activities such as eating, bathing, dressing, toileting and mobility?

_____ hours paid assistance
 _____ hours unpaid (family, others)

2. Not including any regular care as reported above, how many hours in a typical month do you occasionally have assistance with such things as grocery shopping, laundry, housekeeping, or infrequent medical needs because of the disability?

_____ hours per month

3. Who takes responsibility for instructing and directing your attendants and/or caregivers?

- [1] _____ Self
 [2] _____ Someone Else
 [9] _____ Not applicable, does not use attendant care

Now, focus on supervision for cognitive problems instead of physical assistance. This includes remembering, decision making, judgment, etc..

4. How much time is someone with you in your home to assist you with activities that require remembering, decision making, or judgment?

- [1] _____ Someone else is always with me to observe or supervise.
 [2] _____ Someone else is always around, but they only check on me now and then.
 [3] _____ Sometimes I am left alone for an hour or two.
 [4] _____ Sometimes I am left alone for most of the day
 [5] _____ I have been left alone all day and all night, but someone checks in on me.
 [6] _____ I am left alone without anyone checking on me.

5. How much of the time is someone with you to help you with remembering, decision making, or judgment when you go away from your home?

- [1] _____ I am restricted from leaving, even with someone else.
 [2] _____ Someone is always with me to help with remembering, decision making or judgment when I go anywhere.
 [3] _____ I go to places on my own as long as they are familiar.
 [4] _____ I do not need help going anywhere.

6. How often do you have difficulty communicating with other people?

- [1] _____ I almost always have difficulty.
- [2] _____ I sometimes have difficulty.
- [3] _____ I almost never have difficulty.

7. How often do you have difficulty remembering important things that you must do?

- [1] _____ I almost always have difficulty.
- [2] _____ Sometimes I have difficulty.
- [3] _____ I almost never have difficulty.

8. How much of your money do you control?

- [1] _____ None, someone makes all money decisions for me.
- [2] _____ A small amount of spending money is given to me periodically.
- [3] _____ Most of my money, but someone does help me make major decisions.
- [4] _____ I make all my own money decisions (or if married, in joint participation with my partner).

Now, I have a series of questions about your typical activities.

ARE YOU UP AND ABOUT REGULARLY?

- 9. On a typical day, how many hours are you out of bed?
_____ hours
- 10. In a typical week, how many days do you get out of your house and go somewhere? _____ days
- 11. In the last year, how many nights have you spent away from your home (excluding hospitalizations?)
[0] _____ none [1] _____ 1-2 [3] _____ 3-4
[5] _____ 5 or more

12. Can you enter and exit your home without any assistance from someone?
___ yes ___ no

13. In your home, do you have independent access to your sleeping area, kitchen, bathroom, telephone, and TV (or radio)? ___ yes ___ no

IS YOUR TRANSPORTATION ADEQUATE?

14. Can you use your transportation independently?
___ yes ___ no

15. Does your transportation allow you to get to all the places you would like to go?
___ yes ___ no

16. Does your transportation let you get out whenever you want?
___ yes ___ no

17. Can you use your transportation with little or no advance notice?
___ yes ___ no

HOW DO YOU SPEND YOUR TIME?

18. How many hours per week do you spend working in a job for which you get paid?
hours _____ (occupation: _____)

19. How many hours per week do you spend in school working toward a degree or in an accredited technical training program (including hours in class and studying)? _____ hours

20. How many hours per week do you spend in active homemaking including parenting, housekeeping, and food preparation? _____ hours

21. How many hours per week do you spend in home maintenance activities such as gardening, house repairs or home improvement? _____ hours
22. How many hours per week do you spend in ongoing volunteer work for an organization? _____ hours
23. How many hours per week do you spend in recreational activities such as sports, exercise, playing cards, or going to movies? Please do not include time spent watching TV or listening to the radio. _____ hours
24. How many hours per week do you spend in other self-improvement activities such as hobbies or leisure reading? Please do not include time spent watching TV or listening to the radio. _____ hours

WITH WHOM DO YOU SPEND TIME?

25. Do you live alone? ___ yes ___ no
(If yes, skip to question 26.)
- 25a. (If you don't live alone) do you live with a spouse or significant other? ___ yes ___ no
- 25b. How many children do you live with? ____
- 25c. How many other relatives do you live with? ____
- 25d. How many roommates do you live with? ____
- 25e. How many attendants do you live with? ____
26. (If you don't live with a spouse or significant other) are you involved in a romantic relationship?
___ yes ___ no ___ N/A (lives with spouse or S.O)
27. How many relatives (not in your household) do you visit, phone, or write to at least once a month?
___ relatives

28. How many business or organizational associates do you visit, phone, or write to at least once a month?
___ Associates
29. How many friends (non-relatives contacted outside business or organizational settings) do you visit, phone, or write to at least once a month? _____ Friends
30. With how many strangers have you initiated a conversation in the last month (for example, to ask information or place an order)?
[0] ___ none [1] ___ 1-2 [3] ___ 3-5 [6] ___ 6 or more

WHAT FINANCIAL RESOURCES DO YOU HAVE?

31. Approximately what was the combined annual income, in the last year, of all family members in your household? (consider all sources including wages and earnings, disability benefits, pensions and retirement income, income from court settlements, investments and trust funds, child support and alimony, contributions from relatives, and any other source.)
\$ _____ .
32. Approximately how much did you pay last year for medical care expenses? (Consider any amounts paid by yourself or the family members in your household and not reimbursed by insurance or benefits.)
\$ _____ .

For information regarding CHART please contact:
Craig Hospital
Research Department
3425 S. Clarkson Street
Englewood, Colorado 80110
(303) 789-8202
 dmellick@craighospital.org

SAMPLE

CHART Long Form Scoring

Craig Handicap Assessment
and Reporting Technique
Scoring Form

This form is designed to allow for interviewing and coding simultaneously; however, until you are more familiar with the CHART, you may wish to refer to the specific guidelines in your CHART brochure.

The letters on this form match the letters on the scoring guidelines in the CHART brochure.

Blank copies of this form are available from:

Craig Hospital
Research Department
3425 South Clarkson Street
Englewood, Colorado 80110
(303) 789-8202

Revised Craig Handicap Assessment and Reporting Technique Scoring Form

PHYSICAL INDEPENDENCE

<p>1. How many hours in a typical 24-hour day do you have someone with you to provide physical assistance for personal care activities such as eating, bathing, dressing, toileting and mobility?</p> <p>_____ hours paid assistance _____ hours unpaid (family, others)</p>	<p>Total the hours of paid and unpaid care.</p>	<p>_____</p> <p>+</p> <p>_____</p>
<p>2. Not including any regular care as reported above, how many hours in a <u>typical month</u> do you occasionally have assistance with such things as grocery shopping, laundry, housekeeping, or infrequent medical needs because of the disability?</p> <p>_____ hours per month</p>	<p>Divide the hours of occasional care by 30.</p> <p>Add the sums of "A" and "B".</p>	<p>(_____ / 30)</p> <p>=</p> <p>_____</p>
<p>3. Who takes responsibility for instructing and directing your attendants and/or caregivers?</p> <p>_____ Self _____ Someone Else _____ Not applicable, does not use attendant care</p>	<p>If the respondent instructs and directs his/her own attendants or caregivers, multiply the answer of "C" by 3.</p> <p>If someone other than the respondent instructs and directs the attendants or care givers, multiply the answer of "C" by 4.</p> <p>Subtract the total in "D" from 100.</p>	<p style="text-align: right;">X 3 or 4</p> <p>=</p> <p>_____</p> <p>100 minus</p> <p>_____</p> <p>sum from "D" above</p> <p>=</p> <div style="border: 1px solid black; width: 100%; height: 20px; margin-top: 5px;"></div>

COGNITIVE INDEPENDENCE

4. How much time is someone with you in your home to assist you with activities that require remembering, decision making, or judgment?

- 1 _____ Someone else is always with me to observe or supervise.
- 2 _____ Someone else is always around, but they only check on me now and then.
- 3 _____ Sometimes I am left alone for an hour or two.
- 4 _____ Sometimes I am left alone for most of the day
- 5 _____ I have been left alone all day and all night, but someone checks in on me.
- 6 _____ I am left alone without anyone checking on me.

5. How much of the time is someone with you to help you with remembering, decision making, or judgment when you go away from your home?

- 1 _____ I am restricted from leaving, even with someone else.
- 2 _____ Someone is always with me to help with remembering, decision making or judgment when I go anywhere.
- 3 _____ I go to places on my own as long as they are familiar.
- 4 _____ I do not need help going anywhere.

6. How often do you have difficulty communicating with other people?

- 1 _____ I almost always have difficulty.
- 2 _____ I sometimes have difficulty.
- 3 _____ I almost never have difficulty.

7. How often do you have difficulty remembering important things that you must do.

- 1 _____ I almost always have difficulty.
- 2 _____ Sometimes I have difficulty.
- 3 _____ I almost never have difficulty.

8. How much of your money do you control?

- 1 _____ None, someone makes all money decisions for me.
- 2 _____ A small amount of spending money is given to me periodically.
- 3 _____ Most of my money, but someone does help me make major decisions.
- 4 _____ I make all my own money decisions (or if married, in joint participation with my partner).

Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points; response #4 = 3 points; response #5 = 4 points; and response #6 = 5 points.

_____.

x8

=

_____.

Multiply points in "A" by 8.

+

Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points; and response #4 = 3 points.

_____.

x8

=

Multiply points in "C" by 8.

_____.

+

Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points.

_____.

x6

=

Multiply points in "E" by 6.

+

Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points.

_____.

x6

=

Multiply points in "G" by 6.

_____.

+

Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points; and response #4 = 3 points.

_____.

x4

=

Multiply points in "I" by 4.

Add the sums of "B", "D", "F", "H", and "J".

_____.

=

9. On a typical day, how many hours are you out of bed? _____ hours
10. In a typical week, how many days do you get out of your house and go somewhere? _____ days
11. In the last year, how many nights have you spent away from your home (excluding hospitalizations?)
 ___ none ___ 1-2 ___ 3-4 ___ 5 or more
12. Can you enter and exit your home without any assistance from someone? yes ___ no ___
13. In your home, do you have independent access to your sleeping area, kitchen, bathroom, telephone, and TV (or radio)? ___ yes ___ no
14. Can you use your transportation independently?
 ___ yes ___ no
15. Does your transportation allow you to get to all the places you would like to go? ___ yes ___ no
16. Does your transportation let you get out whenever you want?
 ___ yes ___ no
17. Can you use your transportation with little or no advance notice?
 ___ yes ___ no

Multiply the number of hours out of bed by 2.

Multiply the number of days per week out of the house by 5.

Assign points as follows: no nights out = 0; 1-2 nights out = 10; 3-4 nights out = 15; 5 or more nights = 20.

For questions #12-#17, assign 5 points for each "yes" response and 0 points for each "no" response.

Add the sums from "A", "B", "C", and "D". If the total sum is greater than 100, enter 100.

MOBILITY

_____.

+

_____.

+

_____.

+

_____.

(#12)

+

_____.

(#13)

+

_____.

(#14)

+

_____.

(#15)

+

_____.

(#16)

+

_____.

(#17)

=

OCCUPATION

18. How many hours per week do you spend working in a job for which you get paid? _____ hours

Multiply the number of hours working by 2.

+

19. How many hours per week do you spend in school working toward a degree or in an accredited technical training program (including hours in class and studying)? _____ hours

Multiply the number of hours in school by 2.

+

20. How many hours per week do you spend in active homemaking including parenting, housekeeping, and food preparation? _____ hours

Multiply the number of hours in active homemaking by 2.

+

21. How many hours per week do you spend in home maintenance activities such as gardening, house repairs or home improvement? _____ hours

Multiply the number of hours in home maintenance by 2.

+

22. How many hours per week do you spend in ongoing volunteer work for an organization? _____ hours

Add the number of hours in volunteer work to the number of hours in recreational activities and the number of hours in other self-improvement activities.

(#22)
+

23. How many hours per week do you spend in recreational activities such as sports, exercise, playing cards, or going to movies? Please do not include time spent watching TV or listening to the radio. _____ hours

(#23)
+

24. How many hours per week do you spend in other self-improvement activities such as hobbies or leisure reading? Please do not include time spent watching TV or listening to the radio. _____ hours

Add the sums of "A", "B", "C", "D", and "E". If the total sum is greater than 100, enter 100.

(#24)

=

--

**SOCIAL
INTEGRATION**

25. Do you live alone? ___Yes ___No

Assign 30 points if living with spouse/partner OR assign 20 points if living with unrelated roommate and/or an attendant.

25a. (If you don't live alone) do you live with a spouse or significant other?

25b. How many children do you live with? _____

25c. How many other relatives do you live with? _____

25d. How many roommates do you live with? _____

25e. How many attendants do you live with? _____

+

26. (If you don't live with a spouse or significant other) are you involved in a romantic relationship?

___ Yes ___ No ___ N/A

Assign 20 points if in a romantic relationship, unless points are assigned in "A". If in a romantic relationship and points are assigned in "A", then "B" equals 30 minus "A".

+

27. How many relatives (not in your household) do you visit, phone, or write to at least once a month? _____relatives

Add the number of children in household and number of other relatives in household to number of relatives contacted monthly. Multiply by 5. A maximum score for this component is 25 points.

+

28. How many business or organizational associates do you visit, phone, or write to at least once a month? _____ Associates

If living with more than one attendant, add extra attendants to number of business or organizational associates contacted monthly. Multiply by 2. A maximum score for this component is 20 points.

+

29. How many friends (non-relatives contacted outside business or organizational settings) do you visit, phone, or write to at least once a month? _____ Friends

If living with more than one roommate, add extra roommate to number of friends contacted monthly. Multiply by 10. A Maximum score for this component is 50 points.

+

30. With how many strangers have you initiated a conversation in the last month (for example, to ask information or place an order)?
___ none ___ 1-2 ___ 3-5 ___ 6 or more

Assign points as follows: none = 0 points; 1-2 = 10 points; 3-5 = 15 points; 6 or more = 20 points.

Add the sums from "A", "B", "C", "D", "E", and "F". If the total sum is greater than 100, enter 100.

=

--

**ECONOMIC
SELF
SUFFICIENCY**

31. Approximately what was the combined annual income, in the last year, of all family members in your household? (consider all sources including wages and earnings, disability benefits, pensions and retirement income, income from court settlements, investments and trust funds, child support and alimony, contributions from relatives, and any other source.)

\$ _____.

Calculate family size by adding respondent, plus partner (if living with respondent), plus number of children in household, plus other relatives in household.

_____.
Family size

_____.
(#31)
minus

32. Approximately how much did you pay last year for medical care expenses? (Consider any amounts paid by yourself or the family members in your household and not reimbursed by insurance or benefits.)

\$ _____.

Subtract the unreimbursed medical expenses from the annual income (amount in question #31 minus amount in question #32).

_____.
(#32)

Determine poverty level from family size calculated in "A".

=

Divide the value from "B" by the poverty level from "C".

_____.
divided by

Determine points as follows:
If the sum from "D" is:

_____.
Poverty level

=

- 0.0 to <0.5 = 0 points
- to <1.0 =25 points
- to <1.5 =50 points
- 1.5 to <2.0 =75 points
- 2.0 or greater =100 points

_____.
Convert to points as indicated

=

SAMPLE

CHART Short Form

Craig Handicap Assessment
and Reporting Technique

Blank copies of this form are available from:

Craig Hospital
Research Department
3425 South Clarkson Street
Englewood, Colorado 80110
(303) 789-8202

CHART Short Form - Interview

WHAT ASSISTANCE DO YOU NEED?

People with disabilities often need assistance. We would like to differentiate between personal care for physical disabilities and supervision for cognitive problems. First, focus on physical "hands on" assistance: This includes help with eating, grooming, bathing, dressing, management of a ventilator or other equipment, transfers etc. Keeping in mind these daily activities...

1. How many hours in a typical 24-hour day do you have someone with you to provide physical assistance for personal care activities such as eating, bathing, dressing, toileting and mobility?

_____ hours paid assistance
_____ hours unpaid (family, others)

Now, focus on supervision for cognitive problems instead of physical assistance. This includes remembering, decision making, judgment, etc..

2. How much time is someone with you in your home to assist you with activities that require remembering, decision making, or judgment?

- [1] _____ Someone else is always with me to observe or supervise.
[2] _____ Someone else is always around, but they only check on me now and then.
[3] _____ Sometimes I am left alone for an hour or two.
[4] _____ Sometimes I am left alone for most of the day
[5] _____ I have been left alone all day and all night, but someone checks in on me.
[6] _____ I am left alone without anyone checking on me.

3. How much of the time is someone with you to help you with remembering, decision making, or judgment when you go away from your home?

- [1] _____ I am restricted from leaving, even with someone else.
[2] _____ Someone is always with me to help with remembering, decision making or judgment when I go anywhere.
[3] _____ I go to places on my own as long as they are familiar.
[4] _____ I do not need help going anywhere.

Now, I have a series of questions about your typical activities.

ARE YOU UP AND ABOUT REGULARLY?

4. On a typical day, how many hours are you out of bed?
_____ hours
5. In a typical week, how many days do you get out of your house and go somewhere? _____ days
6. In the last year, how many nights have you spent away from your home (excluding hospitalizations?)
[0] _____ none [1] _____ 1-2 [3] _____ 3-4
[5] _____ 5 or more

HOW DO YOU SPEND YOUR TIME?

7. How many hours per week do you spend working in a job for which you get paid? hours _____
(occupation: _____)
8. How many hours per week do you spend in school working toward a degree or in an accredited technical training program (including hours in class and studying)? _____ Hours

9. How many hours per week do you spend in active homemaking including parenting, housekeeping, and food preparation? _____ Hours
10. How many hours per week do you spend in home maintenance activities such as gardening, house repairs or home improvement? _____ Hours
11. How many hours per week do you spend in recreational activities such as sports, exercise, playing cards, or going to movies? Please do not include time spent watching TV or listening to the radio.
Hours

WITH WHOM DO YOU SPEND TIME?

12. How many people do you live with? _____
13. Is one of them your spouse or significant other?
[1]___Yes [0]___No [9]___Not applicable (subject lives alone)
14. Of the people you live with how many are relatives?

15. How many business or organizational associates do you visit, phone, or write to at least once a month?
_____ associates
16. How many friends (non-relatives contacted outside business or organizational settings) do you visit, phone, or write to at least once a month? _____ friends
17. With how many strangers have you initiated a conversation in the last month (for example, to ask information or place an order)?

[0] ___ none [1]___ 1-2 [3]___ 3-5 [6]___ 6 or more

WHAT FINANCIAL RESOURCES DO YOU HAVE?

18. Approximately what was the combined annual income, in the last year, of all family members in your household? (consider all sources including wages and earnings, disability benefits, pensions and retirement income, income from court settlements, investments and trust funds, child support and alimony, contributions from relatives, and any other source.)
 - a. Less than 25,000 - If no ask e; if yes ask b
 - b. Less than 20,000 - If no code 22500; if yes ask c
 - c. Less than 15,000 - If no code 17500; if yes ask d
 - d. Less than 10,000 - If no code 12500; if yes code 5000
 - e. Less than 35,000 - If no ask f; if yes code 30000
 - f. Less than 50,000 - If no ask g; if yes code 42500
 - g. Less than 75,000 - If no code h; if yes code 62500
 - h. 75,000 or more code 80000
19. Approximately how much did you pay last year for medical care expenses? (Consider any amounts paid by yourself or the family members in your household and not reimbursed by insurance or benefits.)

"Would you say your unreimbursed medical expenses are...."

 - a. Less than 1000 if "no" ask b if "yes" code 500.
 - b. Less than 2500 if "no" ask c if "yes" code 1750.
 - c. Less than 5000 if "no" ask d if "yes" code 3750.
 - d. Less than 10000 if "no" code e if "yes" code 7500.
 - e. 10000 or more code 15000

For information regarding CHART please contact:

**Craig Hospital
Research Department
3425 S. Clarkson Street
Englewood, Colorado 80110
(303) 789-8202
dmellick@craighospital.org**

SAMPLE

CHART Short Form

Craig Handicap Assessment
and Reporting Technique

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Research Department
3425 South Clarkson Street
Englewood, Colorado 80110
(303) 789-8202

CHART Short Form - Paper

WHAT ASSISTANCE DO YOU NEED?

People with disabilities often need assistance. We would like to differentiate between personal care for physical disabilities and supervision for cognitive problems. First, focus on physical "hands on" assistance: This includes help with eating, grooming, bathing, dressing, management of a ventilator or other equipment, transfers etc. Keeping in mind these daily activities...

1. How many hours in a typical 24-hour day do you have someone with you to provide physical assistance for personal care activities such as eating, bathing, dressing, toileting and mobility?

_____ hours paid assistance
_____ hours unpaid (family, others)

Now, focus on supervision for cognitive problems instead of physical assistance. This includes remembering, decision making, judgment, etc..

2. How much time is someone with you in your home to assist you with activities that require remembering, decision making, or judgment?

- [1] _____ Someone else is always with me to observe or supervise.
[2] _____ Someone else is always around, but they only check on me now and then.
[3] _____ Sometimes I am left alone for an hour or two.
[4] _____ Sometimes I am left alone for most of the day
[5] _____ I have been left alone all day and all night, but someone checks in on me.
[6] _____ I am left alone without anyone checking on me.

3. How much of the time is someone with you to help you with remembering, decision making, or judgment when you go away from your home?

- [1] _____ I am restricted from leaving, even with someone else.
[2] _____ Someone is always with me to help with remembering, decision making or judgment when I go anywhere.
[3] _____ I go to places on my own as long as they are familiar.
[4] _____ I do not need help going anywhere.

Now, I have a series of questions about your typical activities.

ARE YOU UP AND ABOUT REGULARLY?

4. On a typical day, how many hours are you out of bed?
_____ hours
5. In a typical week, how many days do you get out of your house and go somewhere? _____ days
6. In the last year, how many nights have you spent away from your home (excluding hospitalizations?)
[0] _____ none [1] _____ 1-2 [3] _____ 3-4
[5] _____ 5 or more

HOW DO YOU SPEND YOUR TIME?

7. How many hours per week do you spend working in a job for which you get paid? hours _____
(occupation: _____)
8. How many hours per week do you spend in school working toward a degree or in an accredited technical training program (including hours in class and studying)? _____ Hours

9. How many hours per week do you spend in active homemaking including parenting, housekeeping, and food preparation? _____ Hours
10. How many hours per week do you spend in home maintenance activities such as gardening, house repairs or home improvement? _____ Hours
11. How many hours per week do you spend in recreational activities such as sports, exercise, playing cards, or going to movies? Please do not include time spent watching TV or listening to the radio.
Hours

WITH WHOM DO YOU SPEND TIME?

12. How many people do you live with? ____
13. Is one of them your spouse or significant other?
[1]____Yes [0]____No [9]____Not applicable (subject lives alone)
14. Of the people you live with how many (others) are relatives?

15. How many business or organizational associates do you visit, phone, or write to at least once a month?
_____ associates
16. How many friends (non-relatives contacted outside business or organizational settings) do you visit, phone, or write to at least once a month? _____ friends
17. With how many strangers have you initiated a conversation in the last month (for example, to ask information or place an order)?

[0] ____ none [1]____ 1-2 [3]____ 3-5 [6]____ 6 or more

WHAT FINANCIAL RESOURCES DO YOU HAVE?

18. Approximately what was the combined annual income, in the last year, of **all family members in your household?** (consider all sources including wages and earnings, disability benefits, pensions and retirement income, income from court settlements, investments and trust funds, child support and alimony, contributions from relatives, and any other source.)

- Less than 10,000
- 10,000 – 15,000
- 15,000 – 20,000
- 20,000 – 25,000
- 25,000 – 35,000
- 35,000 – 50,000
- 50,000 – 75,000
- 75,000 or more

19. Approximately how much did you pay last year for medical care expenses? (Consider any amounts paid by yourself or the family members in your household and not reimbursed by insurance or benefits.)

"Would you say your unreimbursed medical expenses are...."

- Less than 1000
- 1,000 – 2,500
- 2,500 – 5,000
- 5,000 – 10,000
- 10,000 or more

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Englewood, Colorado 80110
(303) 789-8202
 dmellick@craighospital.org

SAMPLE

CHART Short Form Scoring

Craig Handicap Assessment and Reporting Technique Scoring Form

This form is designed to allow for interviewing and coding simultaneously; however, until you are more familiar with the CHART, you may wish to refer to the specific guidelines in your CHART brochure.

The letters on this form match the letters on the scoring guidelines in the CHART brochure.

Blank copies of this form are available from:

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Research Department
3425 South Clarkson Street
Englewood, Colorado 80110
(303) 789-8202

Craig Handicap Assessment and Reporting Technique Scoring Short Form

PHYSICAL INDEPENDENCE

1. How many hours in a typical 24-hour day do you have someone with you to provide physical assistance for personal care activities such as eating, bathing, dressing, toileting and mobility?
- _____ hours paid assistance _____ hours unpaid (family, others)

- A. Total the hours of paid and unpaid care, multiply by 4, and subtract that number from 100.

$$\begin{array}{r} 100 \\ \text{minus} \\ \hline = \end{array}$$

COGNITIVE INDEPENDENCE

2. How much time is someone with you in your home to assist you with activities that require remembering, decision making, or judgment?
- 1 _____ Someone else is always with me to observe or supervise.
 2 _____ Someone else is always around, but they only check on me now and then.
 3 _____ Sometimes I am left alone for an hour or two.
 4 _____ Sometimes I am left alone for most of the day
 5 _____ I have been left alone all day and all night, but someone checks in on me.
 6 _____ I am left alone without anyone checking on me.

- A. Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points; response #4 = 3 points; response #5 = 4 points; and response #6 = 5 points.

$$\begin{array}{r} \hline \\ \times 11 \\ \hline = \\ \hline \end{array}$$

- B. Multiply points in "A" by 11.

3. How much of the time is someone with you to help you with remembering, decision making, or judgment when you go away from your home?
- 1 _____ I am restricted from leaving, even with someone else.
 2 _____ Someone is always with me to help with remembering, decision making or judgment when I go anywhere.
 3 _____ I go to places on my own as long as they are familiar.
 4 _____ I do not need help going anywhere.

- C. Assign points as follows: response #1 = 0 points; response #2 = 1 point; response #3 = 2 points; and response #4 = 3 points.

$$\begin{array}{r} + \\ \hline \\ \times 15 \\ \hline = \\ \hline \end{array}$$

- D. Multiply points in "C" by 15.

$$\begin{array}{r} \hline \\ = \end{array}$$

Add the sums of "B" and "D". If the total sum is greater than 100, enter 100.

4. On a typical day, how many hours are you out of bed? _____ hours
5. In a typical week, how many days do you get out of your house and go somewhere?
_____ days
6. In the last year, how many nights have you spent away from your home (excluding hospitalizations?)
_____ none _____ 1-2 _____ 3-4 _____ 5 or more

7. How many hours per week do you spend working in a job for which you get paid? _____ hours
8. How many hours per week do you spend in school working toward a degree or in an accredited technical training program (including hours in class and studying)?
_____ hours
9. How many hours per week do you spend in active homemaking including parenting, housekeeping, and food preparation? _____ hours
10. How many hours per week do you spend in home maintenance activities such as gardening, house repairs or home improvement? _____ hours
11. How many hours per week do you spend in recreational activities such as sports, exercise, playing cards, or going to movies? Please do not include time spent watching TV or listening to the radio. _____ hours

- A. Multiply the number of hours out of bed by 3.
- B. Multiply the number of days per week out of the house by 7.
- C. Assign points as follows: no nights out = 0; 1-2 nights out = 10; 3-4 nights out = 15; 5 or more nights = 20. If the total sum is greater than 100, enter 100.

Add the sums of "A", "B", and "C". If the total sum is greater than 100, enter 100.

MOBILITY

$$\begin{array}{r} \text{_____} \\ + \\ \text{_____} \\ + \\ \text{_____} \\ = \end{array}$$

- A. Multiply the number of hours working by 2.5.
- B. Multiply the number of hours in school by 2.5.
- C. Multiply the number of hours in active homemaking by 2.5.
- D. Multiply the number of hours in home maintenance by 2.5.
- E. Multiply the number of recreational activities by 1.25

Add the sums of "A", "B", "C", "D", and "E". If the total sum is greater than 100, enter 100.

OCCUPATION

$$\begin{array}{r} \text{_____} \\ + \\ \text{_____} \\ + \\ \text{_____} \\ + \\ \text{_____} \\ + \\ \text{_____} \\ = \end{array}$$

**SOCIAL
INTEGRATION**

12. How many people do you live with?

13. Is one of them your spouse or significant other?

14. of the people you live with how many (others) are relatives?

15. How many business or organizational associates do you visit, phone, or write to at least once a month? _____ Associates

16. How many friends (non-relatives contacted outside business or organizational settings) do you visit, phone, or write to at least once a month? _____ Friends

17. With how many strangers have you initiated a conversation in the last month (for example, to ask information or place an order)?

none ____ 1-2 ____ 3-5 ____ 6 or more

A. Assign 38 points if living with spouse/partner OR assign 25 points if living with unrelated roommate and/or an attendant.

Add an additional six points for every relative that lives in the household.

B. Multiply number of business associates by 2.5. A maximum score for this component is 25 points.

C. _____
Multiply by 13. A
Maximum score for this component is 65 points.

D. Assign points as follows: none = 0 points; 1-2 = 15 points; 3-5 = 23 points; 6 or more = 30 points.

_____.

+

_____.

+

_____.

+

_____.

+

_____.

=

Add the sums from "A", "B", "C", and "D". If the total sum is greater than 100, enter 100.

**ECONOMIC
SELF
SUFFICIENCY**

18. Approximately what was the combined annual income, in the last year, of **all family members in your household**? (consider all sources including wages and earnings, disability benefits, pensions and retirement income, income from court settlements, investments and trust funds, child support and alimony, contributions from relatives, and any other source.)

- a. Less than 25,000 - If no ask e; if yes ask b
- b. Less than 20,000 - If no code 22500; if yes ask c
- c. Less than 15,000 - If no code 17500; if yes ask d
- d. Less than 10,000 - If no code 12500; if yes code 5000
- e. Less than 35,000 - If no ask f; if yes code 30000
- f. Less than 50,000 - If no ask g; if yes code 42500
- g. Less than 75,000 - If no code h; if yes code 62500
- h. 75,000 or more code 80000

19. Approximately how much did you pay last year for medical care expenses? (Consider any amounts paid by yourself or the family members in your household and **not reimbursed** by insurance or benefits.)

- a. Less than 1000 if "no" ask b if "yes" code 500.
- b. Less than 2500 if "no" ask c if "yes" code 1750.
- c. Less than 5000 if "no" ask d if "yes" code 3750.
- d. Less than 10000 if "no" code e if "yes" code 7500.
- e. 10000 or more code 15000

A. Calculate family size by adding respondent, plus partner (if living with respondent), plus other relatives in household.

Family size

(#19)
minus

B. Subtract the unreimbursed medical expenses from the annual income (amount in question #19 minus amount in question #20.

(#20)
=

C. Determine poverty level from family size calculated in "A".

divided by

D. Divide the value from "B" by the poverty level from "C".

Poverty level

E. Multiply by 50

*50
=

=

If the total sum is greater than 100, enter 100.