

Outcome Oriented

The Online Newsletter of the
Center for Outcome Measurement in Brain Injury (COMBI)

Winter 2002

Measuring Up!

The COMBI continues to add more important scales to its resource center. As of November 2002 there are currently twenty-one measures featured and detailed in the COMBI.

- Agitated Behavior Scale (ABS)
- Awareness Questionnaire (AQ)
- Coma/Near Coma Scale (CNC)
- Community Integration Questionnaire (CIQ)
- The Craig Handicap Assessment and Reporting Technique (CHART)
- The CHART Short Form (CHART-SF)
- The Craig Hospital Inventory of Environmental Factors (CHIEF)
- Disability Rating Scale (DRS)
- The Family Needs Questionnaire (FNQ)
- Functional Assessment Measure (FAM)
- Functional Independence Measure (FIM)
- Glasgow Outcome Scale (GOS)
- Extended Glasgow Outcome Scale (GOS-E)
- Levels of Cognitive Functioning Scale (LCFS)
- Mayo Portland Adaptability Inventory (MPAI)
- Neurobehavioral Functioning Inventory (NFI)
- The Orientation Log (O-Log)
- The Patient Competency Rating Scale (PCRS)
- Satisfaction With Life Scale (SWLS)
- Service Obstacle Scale (SOS)
- Supervision Rating Scale (SRS)

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COMBI Funded for 2002-2007: Part of NIDRR TBI Model System Grant

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The COMBI is a collaborative website project started in 1998 by Santa Clara Valley Medical Center (SCVMC). The goal of the COMBI is to communicate information about common, current, and interesting outcome and assessment measures used in brain injury research and clinical assessment. Materials available include scale syllabi, administration and scoring guidelines, training and testing materials, information on scale properties, references, scale forums, and frequently asked questions (FAQs). Rating forms for most of the measures are also available for downloading.

Collaborating centers provide information on scales that they created or are comfortable discussing in order to act as a point of contact for answering questions (current collaborating centers are listed on page four). In its first four years the website was an incredible success, attracting over 180,000 visitors, disseminating over half a million pages of information! Over 10% of the users were from countries outside the US, allowing for broad dissemination, and going a long ways towards standardizing information available on certain brain injury outcome measures.

The COMBI was included as a dissemination activity in SCVMC's recently funded Traumatic Brain Injury Model System (TBIMS) Project scheduled to run from 2002 through 2007. SCVMC was pleased that all 10 of the original collaborating centers expressed intent to continue collaboration and seven of the original centers have offered to add information on eight additional scales. Four TBIMS projects who previously were not part of the COMBI have also expressed a desire to participate, each adding a new scale or measure to the COMBI.



The COMBI is a project of the Northern California Traumatic Brain Injury Model System at Santa Clara Valley Medical Center. Funding comes from a grant from the National Institute on Disability and Rehabilitation Research.

New Centers and New Measures

- Spaulding/Partners TBI Model System at Harvard Medical School: *Apathy Evaluation Scale*.
- The University of Washington TBIMS: *the EuroQol*.
- The Carolinas Brain Injury Rehabilitation and Research System: *the Neuropsychiatric Inventory*.
- The New York TBIMS: *Life After Traumatic Brain Injury assessment*.

Past Partners and New Measures

- Virginia Commonwealth University TBIMS: *the Quantity-Frequency-Variability Index*
The Neurobehavioral Rating Scale-Revised
- TBIMS at MossRehab: *the Moss Attention Rating Scale*
- Southeastern Michigan TBIMS: *London Handicap Scale*.
- Ohio State University: *Substance Abuse Questions*
- University of Alabama at Birmingham: *the Cognitive Log*
- Mayo Clinic TBIMS: *an additional measure*
- Methodist Rehabilitation Center: *an additional measure*

TBIMS Data Collectors' Survey

In August 2002 an online survey was made available to the data collection staff at the 17 funded Traumatic Brain Injury Model Systems. The Survey was meant to get perspectives on several outcome and assessment measures from individuals who were used to administering and interpreting the instruments. The outcome and assessment measures represented those found on the COMBI. Responses from 13 individuals are summarized in the following table.

Respondents were asked questions about ten different measures. Questions on the Disability Rating Scale and Functional Independence Measure were asked based on assessments as inpatients and at follow-up. Other scales were asked as if administered at follow-up (in the community). Most items were rated on a scale of 1-5, where 1 represented a very low value and 5 represented a very high value. A scale where the average expertise needed to rate an individual was 5 (very high) might be very complex or technical. A scale where the average difficulty in scoring was a 1 (very low) would be a very simple scale to score.

Five Data Managers, four Research Assistants, two Research Associates, and two Psychologists completed the survey. Respondents had an average of 4 years experience with TBI Model Systems data collection, with a range of 1-14 years.

Scales found to have high scores for expertise were:
 Disability Rating Scale (inpatient assessments)
 Functional Independence Measure (inpatient)
 Rancho (inpatient)
 Disability Rating Scale (at follow-up assessment)
 Functional Independence Measure (follow-up)
 Extended Glasgow Outcome Scale

One scale had a very high content difficulty:
 Disability Rating Scale (inpatient assessments)

Scales found to have low soundness scores were:
 Disability Rating Scale (at follow-up assessment)
 Extended Glasgow Outcome Scale (follow-up)
 Supervision Rating Scale (follow-up)
 Craig Hospital Inventory of Environ Factors (FU)

Inpatient assessments were often being done by a clinician rather than a research assistant. Comments under Mode were for modes of administration other than an in-person interview with a rater.

Numbers in **bold** were areas that were potential issues for a given measure (they were rated so high or low to register a potential concern in that area).

Medians & Ranges for Data Collector's Survey

	Expertise Required	Technical Difficulty	Content Difficulty
Inpatient: Disability Rating Scale (DRS)	4.0 3-5	2.0 4-5	4.0 4-5
Inpatient: Functional Independence Measure (FIM)	5.0 4-5	3.0 2-4	3.0 4-5
Inpatient: Levels of Cognitive Functioning (Rancho)	5.0 4-5	1.0 1-3	2.5 1-5
Community: DRS	4.0 3-5	3.0 1-4	3.0 2-4
Community: FIM	4.5 4-5	2.0 2-4	3.0 1-4
Community: Community Integration Questionnaire (CIQ)	2.0 1-3	1.0 1-3	1.0 1-3
Community: Satisfaction With Life Scale (SWLS)	1.0 1-4	1.0 1-4	1.0 1-4
Community: Neurobehavioral Functioning Inventory (NFI)	1.0 1-3	1.0 1-3	1.0 1-3
Community: Extended Glasgow Outcome Scale (GOS-E)	4.0 2-5	3.0 1-5	2.0 2-5
Community: Supervision Rating Scale (SRS)	3.0 1-4	1.0 1-3	2.0 1-3
Community: Craig Hospital Inventory of Environmental Factors (CHIEF)	1.0 1-4	2.0 1-5	3.0 1-5

Assessing The COMBI

LOG FILES 101

Did you know that every time you access a web page, a record of what you did is created? These records, called log files, give webmasters a lot of information about you and what you looked at on the site. We use the log files to assess how the COMBI is being used.

THE STATS

In the last five months (July –November 02) the COMBI has logged in 50,167 visitors. That's over 325 users a day! During this period 143,586 pages of information were reviewed (that's 1,530 megabytes of data).

The COMBI logs show that 87% of our users are within the United States and 13% are from 62 other countries. The COMBI is especially popular in Canada, the United Kingdom, Australia, Italy, and Japan. Our biggest referrals come from MSN.com, Google, the Brain Attack Coalition (www.stroke-site.org), AOL, and Yahoo.

The COMBI newsletter, *Outcome Oriented*, is primarily disseminated in Portable Document Format (PDF) from the website. Over the last five months, 3,650 newsletters were downloaded by COMBI users.

The COMBI continues to be very successful as a dissemination effort. In the past five months over 12,000 rating forms were downloaded. Itemized scale activity is summarized in the table below.

But please, no wagering. ☑

Scale Activity (Number of Visitors & Downloads)

July – November 2002

Scale	Visitors	Downloads
ABS	1208	403
AQ	1074	1783
CHART	856	1115
CHART-SF	470	482
CHIEF	535	724
CIQ	1135	733
CNC	977	710
DRS	1746	336
FAM	1942	1610
FIM	4522	na
FNQ	654	na
GOS	4306	na
GOS-E	1313	na
LCFS	970	430
MPAI	948	1320
NFI	780	na
O-LOG	462	501
PCRS	862	1926
SOS	366	315
SRS	544	379
SWLS	1690	na

Participant Understanding	Scoring Difficulty	Soundness	Time to Complete (Minutes)	Mode Comments
2.5 2-3	3.0 2-4	4.5 3-5	3.0 1-14	69% by clinician 38% by physician
3.5 3-4	3.0 2-4	5.0 4-5	15.0 12-30	69% by team assessment
NA	2.0 1-4	5.0 1-5	5.0 1-10	62% by clinician
2.5 1-4	3.0 2-5	3.0 2-4	5.0 5-15	77% exp with phone admin.
4.0 1-5	3.0 2-4	4.0 2-5	10.0 5-25	92% exp phone
5.0 4-5	1.0 1-3	4.0 1-5	8.0 5-15	92% exp phone 38% questionnaire
4.0 1-5	1.0 1-2	4.0 2-5	5.0 1-10	85% exp phone 54% questionnaire
3.0 1-5	1.0 1-2	4.0 1-5	16.5 5-25	62% exp phone 62% questionnaire
3.0 3-4	3.0 2-5	3.0 2-5	8.0 5-15	92% exp phone
3.0 1-4	2.0 1-4	3.0 1-5	3.0 1-10	93% exp phone 23% questionnaire
3.0 1-5	3.0 1-5	3.0 1-5	9.0 5-18	77% exp phone 46% questionnaire

Future Directions

This is the first *Outcome Oriented* newsletter for this funding cycle (2002-2007). We will be updating materials for all of our current measures. We are also working with the University of Washington TBIMS to bring you the EuroQol. We are also working with Ohio State University to bring you more information on substance abuse questions.

We are looking to add more training and testing materials for COMBI measures, and to make the existing materials more interactive (automatic email of results from testing exercises).

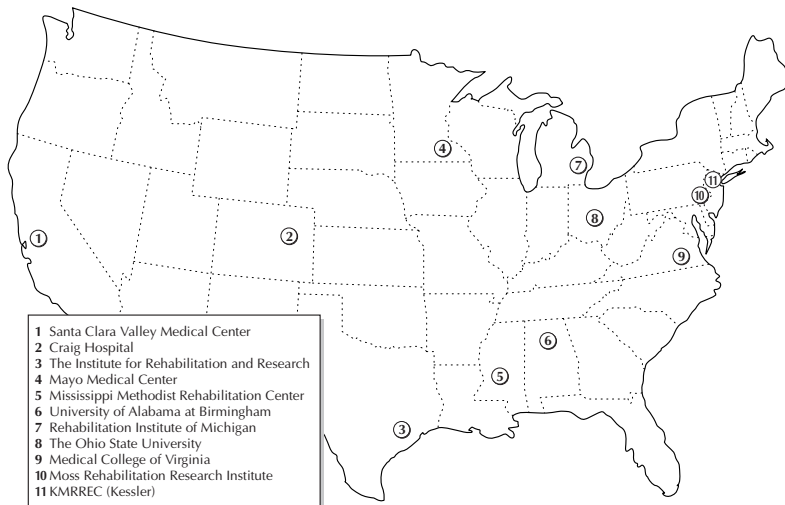
Please email us at <combi@tbi-sci.org> with your thoughts and suggestions. Let us know how we measure up! Thank you for allowing us to be your brain injury outcome measure resource! ☑

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This document is available online at:
<www.tbims.org/combi/combinews.html>

CREDIT TO OUR COLLABORATORS

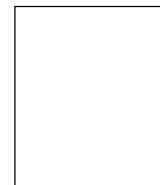


The COMBI is a collaborative project of eleven brain injury centers located across the US. Without the expertise of these centers this project would not be possible. We would like to offer special recognition to the individuals at these facilities who have taken the time to prepare materials for the COMBI and act as contacts:

- Tamara Bushnik, PhD, Jerry Wright, BA, Maurice Rappaport, MD, PhD, & Mary Lou Kohlmeier, RN, BSN at Santa Clara Valley Medical Center (Lead Center)
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UPDATE

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