

# Outcome Oriented

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

Winter 2000

## Measuring Up!

The COMBI continues to add more important scales to its resource center. As of November 2000 there are currently eighteen 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)

Disability Rating Scale (DRS)

The Family Needs Questionnaire (FNQ)

Functional Assessment Measure (FAM)

Functional Independence Measure (FIM)

Glasgow Outcome Scale (GOS)

Level 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 Adds Two Scales Major Update for MPAI Also Added

### Awareness Questionnaire (AQ)

The AQ was developed as a measure of impaired self-awareness after traumatic brain injury (TBI). The AQ consists of 3 forms; one form is completed by the person with TBI, one by a family member/significant other, and one by a clinician familiar with the person with TBI. The self-rated and family/significant others forms have 17 items while the clinician form has 18 items. On each form, the abilities of the person with TBI to perform various tasks after the injury as compared to before the injury are rated on a five point scale ranging from "much worse" to "much better."

The AQ takes about 10 minutes to administer. It is generally administered by a clinical neuropsychologist, but can be administered by any person trained in administration of questionnaires to the appropriate populations. The initial version of the AQ, as well as the results of a factor analysis that resulted in the current version of the AQ, were published in 1998. Information regarding the AQ was provided by Mark Sherer, Ph.D., ABPP-Cn of the Mississippi Methodist Rehabilitation Center.

### Service Obstacles Scale (SOS)

The Service Obstacles Scale (SOS) was developed to evaluate individuals' and caregivers' perceptions of brain injury services in the community with regard to quality and accessibility. The six-item scale solicits information regarding obstacles to receiving brain injury services, knowledge of and availability of resources, and satisfaction with the quality of care. Items are rated on a 7-point Likert-type scale ranging from Strongly Disagree through Strongly Agree. The SOS has three main components: (1) satisfaction with treatment resources; (2) finances as an obstacle to receiving services; and (3) transportation as an obstacle to receiving services.

Information regarding the SOS was contributed by Jeffrey S. Kreutzer, Ph.D., ABPP of the Virginia Commonwealth University.

### Mayo-Portland Adaptability Inventory – 3

For the last 10 years, the Mayo-Portland Adaptability Inventory (MPAI) has been under development as a measure of long-term (post-acute) outcome of acquired brain injury (ABI). Current analyses of the MPAI indicate that the current version is psychometrically sound and provides a well-focused and representative indication of the challenges - in terms of impairments, activity, and participation - experienced during long-term adaptation to ABI. The 30-item MPAI-3 offers a relatively detailed measure of emotions, behavior, functional abilities, physical disabilities, and societal participation. Considering the perspectives of persons with ABI, their significant others, as well as rehabilitation providers, has been an integral part of the assessment strategy of the MPAI throughout its development.

Information regarding the MPAI was contributed by James F. Malec, Ph.D., L.P. of the Mayo Foundation. ☑

### A COMBI Primer

The Center for Outcome Measurement in Brain Injury (COMBI) is an online resource center cataloguing information on brain injury outcome and assessment scales. The COMBI is funded by the National Institute on Disability and Rehabilitation Research (NIDRR) and is a collaborative project of ten TBI Model System Projects. Information on the COMBI is available free of charge.

Currently, the COMBI contains information on 18 outcome or assessment scales. 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. COMBI users have the advantage of instant access to the materials they want.

# 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. Programs that interpret log files can tell you what countries your users come from, what pages they looked at, what files they downloaded, what site referred them, even what operating system they use.

## THE STATS

In the last 6 months (June 00–November 00) the COMBI has logged in 24,684 visitors. That's over 140 users a day! During this period 99,402 pages of information were reviewed (that's 770 megabytes of information and graphics).

The COMBI logs show that 80% of our users are within the United States and 20% are from 65 other countries. The COMBI is especially popular in Canada, Australia, the United Kingdom, and Japan. Our biggest referrals come from MSN.com, Yahoo, Google, and Alta Vista.

The COMBI newsletter, *Outcome Oriented*, is primarily disseminated in Portable Document Format (PDF) from the website. Over the last six months, 833 newsletters were downloaded by COMBI users.

The COMBI continues to be very successful as a dissemination effort. In the past six months over 5,000 rating forms were downloaded. Itemized scale activity is summarized in the table below (but please, no wagering). ☑

### Scale Activity (Number of Visitors & Downloads)

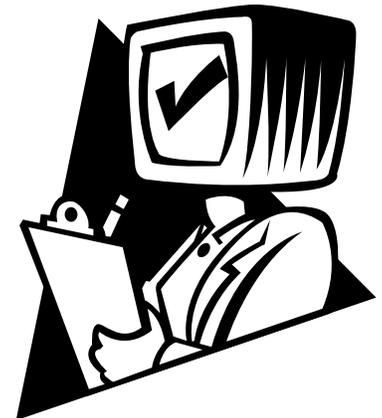
June –November 2000

Scale	Visitors	Downloads
ABS	757	286
AQ	502	852
CHART	442	485
CIQ	590	338
CNC	481	299
DRS	897	229
FAM	740	438
FIM	1484	na
FNQ	352	na
GOS	843	na
LCFS	531	na
MPAI	388	789
NFI	396	na
O-LOG	266	268
PCRS	445	907
SRS	432	264
SWLS	550	na

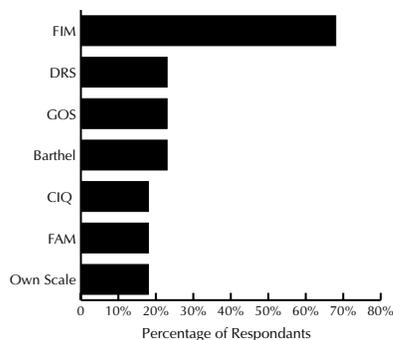
# And the Ballots are in...

## COMBI CONTINUES ONLINE SURVEY OF USERS

The COMBI has been collecting responses to an online survey of its users. The Survey is designed to find out who is using the COMBI, what sort of facility/organizations they work for, which outcome measures are being used, and what they are being used for. We also asked questions on what scales respondents felt were useful, and which were considered inadequate. Thirty two respondents completed the survey in this last year. In some instances multiple responses to a question could be appropriate, so some totals may be larger than 100%. Selected findings follow:



### Which Scales are in Use at Your Facility?



### COMBI users are from what facilities?

Acute Inpatient Rehab	43%
Subacute Care	37%
Skilled Nursing facility	13%
Residential Post acute care	30%
Day Treatment program	63%
Follow-up / community	63%
Other	37%

### What time periods are rated?

Admission to program	97%
Discharge from Program	90%
1 month post-injury	18%
3 months post-injury	53%
6 months post-injury	53%
9 months post-injury	6%
12 months post-injury	53%
24 months post-injury	24%

### Who rates outcome scales?

Occupational Therapist	67%
Physical Therapist	73%
Speech Pathologist	67%
Nurse	53%
Psychologist	53%
Physician	53%
Other	37%

### What are outcome scales used for?

Research	57%
Program Evaluation	79%
Accreditation	46%
Marketing	32%
Clinical Progress	82%

### Which scales are most useful (top answers)?

FIM	44%
FIM+FAM	44%
DRS	11%
SWLS	11%
MPAI	11%
GOS	11%
Goal Attainment Scaling	11%
LCFS	11%

### Why are these scales useful?

Measures broad range of impairments	
Well known	
Good reliability	
Individualized	
Applies to higher level issues	

### Which scales are inadequate?

FIM	45%
Barthel Index	36%
SRS	9%
FIM+FAM	9%
GOS	9%
CIQ	9%

### Issues with these measures?

Not sensitive	
Not appropriate	
Do not address specific areas	
No cognitive elements	
Too basic	

# Training and Testing Online?

## Building Assessment Skills in the Electronic Age

When the TBI Model Systems program expanded from five centers to 17 in 1998, the question of ensuring adequate training and inter-rater reliability was quickly raised. Several of the measures included in the National Database require the rater to interpret data gleaned from a variety of sources: medical chart review, physician and therapist notes, and interviews of the subject and/or caregiver. Clearly, the utility of this data lies in every rater from every center scoring in the same way, at least within an acceptable margin of error. And this is where the COMBI website has proven itself invaluable.

For each of the eighteen scales that are currently part of the COMBI, a section is provided for training and testing materials. Some scales, such as the Community Integration Questionnaire, do not require detailed training, while others, such as the Coma-Near Coma Scale, provide suggested rating strategies. For scales such as the Disability Rating Scale (DRS), Functional Assessment Measure (FAM), and Glasgow Outcome Scale (GOS) which require rater interpretation, detailed instructions on rating, training vignettes with annotated answers, and testing vignettes are made available.

For the DRS, all potential raters at each Model System are required to submit their scores on the testing vignettes via e-mail or fax to Santa Clara Valley Medical Center and have at least 80% of the ratings correct. When a rater passes this criterion, he/she is then able to rate the DRS independently and submit the data to the National Database. If a rater does not pass, he/she is given the opportunity to re-test using a second vignette. If the rater still does not pass, it is recommended that a mentoring system is implemented where the potential rater is paired up with someone who has passed the DRS testing to compare ratings on actual cases. To date, every TBI Model System has at least one rater who has passed the DRS testing.

The success of this on-line training and testing has been so great that it is now time to retire the current testing vignettes. Two new testing vignettes are now available on-line and the old testing vignettes have now become the training vignettes. In the not-too-distant future, the COMBI will take training and testing one step further; a rater taking the DRS test will be able to receive immediate feedback and scoring of his/her test. ☑



## No Loss for Words

As the body of professional papers on outcome measures continues to grow, we would like to suggest for your perusal some of the more interesting papers from the year 2000. These papers include topics and authors that are not necessarily related to the COMBI, but were felt to add significantly to the body of literature on outcome measurement in brain injury

Bogner JA, Corrigan JD, Bode RK, Heinemann AW: Rating scale analysis of the Agitated Behavior Scale. **J Head Trauma Rehabil** 15:656-69, 2000.

Bombardier CH, Heinemann AW: The construct validity of the Readiness to Change Questionnaire for persons with TBI. **J Head Trauma Rehabil** 15:696-709, 2000.

Cusick CP, Gerhart KA, Mellick DC: Participant-proxy reliability in traumatic brain injury outcome research. **J Head Trauma Rehabil** 15:739-49, 2000.

Malec JF, Moessner AM, Kragness M, Lezak MD: Refining a measure of brain injury sequelae to predict postacute rehabilitation outcome: rating scale analysis of the Mayo-Portland Adaptability Inventory. **J Head Trauma Rehabil** 15:670-82, 2000.

Nell V, Yates DW, Kruger J: An extended Glasgow Coma Scale (GCS-E) with enhanced sensitivity to mild brain injury. **Arch Phys Med Rehabil** 81:614-7, 2000.

Owensworth TL, McFarland KM, Young RM: Development and standardization of the Self-Regulation Skills Interview (SRSI): a new clinical assessment tool for acquired brain injury. **Clin Neuropsychol** 14:76-92, 2000.



Online training and testing materials are currently available for the DRS, FAM, and the GOS.

# Future Directions

The COMBI will continue to add new measures and act as a resource for the rehabilitation community. Planned additional instruments include the Extended Glasgow Outcome Scale (GOS-E), the Expanded Rancho (LCFS) Scale, and the Craig Hospital Inventory of Environmental Factors (CHIEF).

We are also seeking scales that focus on employment, vocational, and family dynamics issues.

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

Please email us at <combi@tbi-sci.org> with your thoughts and suggestions. Let us know how we measure up!

**Outcome Oriented** is a project of the Center for Outcome Measurement in Brain Injury (COMBI) which is funded by the U.S. Department of Education, Office of Special Education and Rehabilitative Services (OSERS), National Institute on Disability and Rehabilitation Research (NIDRR).

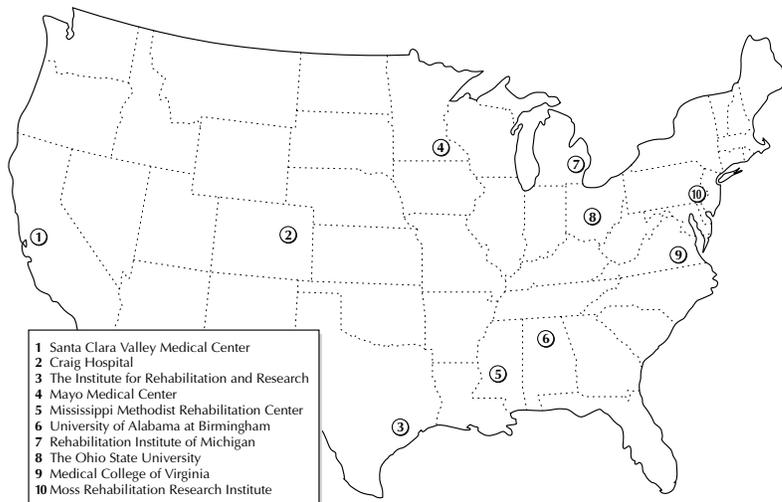
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This document is available online at:

<[www.tbims.org/combi/combinews.html](http://www.tbims.org/combi/combinews.html)>

# CREDIT TO OUR COLLABORATORS



The COMBI is a collaborative project of ten 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 Gustafson, RN, BSN, at Santa Clara Valley Medical Center (Lead Center)

Dave Mellick, MA at Craig Hospital

Corwin Boake, PhD at The Institute for Rehabilitation Research

James F. Malec, PhD, LP at the Mayo Medical Center

Mark Sherer, PhD, ABPP-Cn at the Mississippi Methodist Rehabilitation Center

Tom Novack, PhD at University of Alabama at Birmingham

Marcel Dijkers, PhD at Mount Sinai School of Medicine  
(Formerly at the Rehabilitation Institute of Michigan)

Jennifer Bogner, PhD & John D. Corrigan, PhD at the Ohio State University

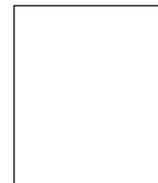
Jeffrey Kreutzer, PhD and Jenny Marwitz, MA at Medical College of Virginia

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## UPDATE

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Winter 2000