

Outcome Oriented

Summer 2004
Issue 10

Measuring Up!

The COMBI continues to add more important scales to its resource center. As of June 2004 there are currently 25 measures featured and detailed in the COMBI.

- Agitated Behavior Scale (ABS)
- Alcohol and Substance use items
- Awareness Questionnaire (AQ)
- Coma/Near Coma Scale (CNC)
- Community Integration Questionnaire (CIQ)
- Confusion Assessment Protocol (CAP)
- 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)
- Employment variables after TBI
- 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)
- Mississippi Aphasia Screening Test (MAST)
- 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)

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

10th Issue Retrospective: What's it all about, COMBI?

Jerry Wright
Rehabilitation Research Center
Santa Clara Valley Medical Center

This COMBI has nothing to do with strollers, chemical compounds, or flavored not-bad-tasting yogurts. The Center for Outcome Measurement in Brain Injury, or COMBI, is an online resource center cataloguing information on brain injury outcome and assessment scales. The COMBI project is funded by the National Institute on Disability and Rehabilitation Research (NIDRR) and is a collaborative project of twelve Traumatic Brain Injury (TBI) Model System Projects and the TBI National Data Center. TBI Model Systems Projects contribute their scales and expertise to make the COMBI a valuable resource. The COMBI is coordinated from Santa Clara Valley Medical Center in San Jose, California.

Currently, the COMBI contains information on 25 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. Information on the COMBI is available free of charge. Some scales are proprietary. In these cases, the COMBI gives you background information on the scale and contact information for the scale owner.

The genesis for the COMBI started back in 1990. Santa Clara Valley Medical Center (SCVMC) was home to a very popular adjunct scale to the Functional Independence Measure (FIM) for individuals with brain injuries and/or strokes called the Functional Assessment Measure (FAM). SCVMC had created a researcher's packet, of which they were mailing out between 10 and 25 packets a week, often to exotic foreign locales (at their own expense). The packet for the FAM and later the Disability Rating Scale (DRS) were added to SCVMC's relatively new website (on America Online) in 1996. This worked out very well, with between 25-50 people downloading the packets

Continued on Page 2



Start it all off at <www.tbims.org/combi>



The Disability Rating Scale (DRS) is one of the 25 measures featured on the COMBI.

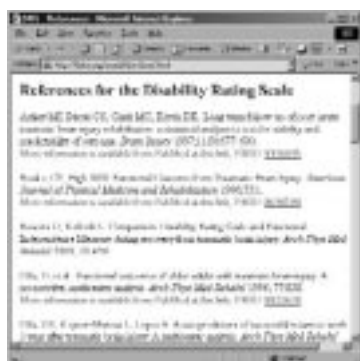


The DRS has a downloadable rating form in portable document format (PDF). Nonproprietary materials require no registration or payment to use.

10th Issue Retrospective (continued from Page 1)



Got a question?
It may already be answered in our
Frequently Asked Questions area.



For many of our reference citations,
you can now access the entire PubMed abstract.



Our bulletin board area is a running list
of questions and answers

each week. The experiment was so successful that SCVMC decided to add a similar but enhanced collaborative activity to its 1997-2002 funding cycle. SCVMC approached other TBI Model Systems to see if they would like to contribute their expertise in creating an Internet dissemination project. Each center would contribute information regarding scales that they had developed or worked with. Center staff would also be responsible for fielding questions regarding their instruments. Not only would we provide access to the scales, we could also provide access to the experts that had developed them. The COMBI was born!

In July of 1998, when the COMBI officially opened to the public, it included six measures and was a collaborative effort between four brain injury model systems. Since 1998 we have been adding several new measures and scales each year. Starting in 1999, a bi-annual newsletter of facts and figures about the measures has been produced. In 2000, a bulletin board/ forum system was added. In 2001, a regular statistics column from Scott Millis, PhD was added to *Outcome Oriented*. In 2004 our reference citations were linked to the PubMed database to allow users to easily review pertinent research abstracts.

This newsletter, *Outcome Oriented*, now in its 10th issue, introduces new features available on the COMBI website, discusses new scales available on the COMBI, and also includes other articles having to do with brain injury outcome measures. Past articles have included topics such as: comparing the GOS and DRS, the impact of Medicare's Prospective Payment System on data collection, the FAM: a scale in crisis, and an article showing what information is available for each scale (including COMBI's first centerfold). Since 2001, *Outcome Oriented* has also been featuring a regular statistics column that has included topics such as: dealing with missing data, the problem with P values, and statistical power analysis.

The COMBI bulletin board features over 25 topic areas, including areas to suggest new scales, to give feedback about the COMBI, to discuss specific outcome measures, as well as an area to post general brain injury-related issues. The bulletin boards are all moderated, often times by the same individuals that contributed scale information.

Most recently, reference citations on the COMBI have been updated to include links to full abstracts available at PubMed.

Even though this article is a retrospective for the COMBI, as a special bonus for those of you that have made it this far, I wanted to mention two additional electronic resources that are well worth checking out. The first is METRIC (Measurement Excellence and Training Resource Information Center) available at <www.measurementexperts.org>. METRIC is a project of the Veterans' Administration (VA) Health Services Research and Development Service. METRIC has been charged with improving the overall measurement quality in VA research. At the METRIC site you can learn about measurement, find a broad range of instruments and read critical reviews on selected instruments. The reviews are outstanding. METRIC also reviews other Internet sites that feature measurement information (like the COMBI). The other electronic resource (Health and Psychosocial Instruments or HaPI) is typically only available to universities and libraries. It is a database of citations that identify and evaluate measurement instruments used in health and psychosocial studies. HaPI is provided by Ovid Technologies. If your library or university has access, this can also be a valuable tool for finding out more about different scales and measures not featured in the COMBI.

Please drop me a line (jerry.wright@hhs.co.scl.ca.us) and let me know what you'd like to see in future versions of the COMBI. We really want to measure up to your expectations!

Nearly
the Worst
Statistical Joke Ever

One statistic turns to the other and says,
"So how are you finding married life?"

The other statistic responds,
"It's okay, but you lose a degree of freedom."

The Confusion Assessment Protocol (CAP)

The Confusion Assessment Protocol (CAP) is a combination of objective measures of orientation and cognition and clinician ratings of other symptoms of early confusion after traumatic brain injury (TBI). Patients in early recovery from TBI are acutely confused. The term Post-Traumatic Amnesia (PTA) has been used to describe this state. However, commonly used measures of PTA primarily assess orientation and memory and fail to assess other measures of confusion. The scale authors have developed seven key symptoms to describe Post-traumatic Confusional State (PCS): disorientation, cognitive impairment, restlessness, fluctuation in presentation, nighttime sleep disturbance, decreased daytime level of arousal, and psychotic type symptoms. Administration may require up to 30 minutes. This measure is still in an early phase of development with several investigations ongoing.

The Mississippi Aphasia Screening Test (MAST)

The Mississippi Aphasia Screening Test (MAST) was developed as a brief, repeatable screening measure for individuals with severely impaired communication/language skills. Such a brief measure may be advantageous for individuals with severe language impairments who may be frustrated and stressed during lengthy testing sessions. The MAST was designed to be used for serial assessments to detect changes in language abilities over time. The MAST was initially developed by a team of neuropsychologists, psychiatrists, and speech-language pathologists. The current form has nine subtests that range from 1 to 10 items per subscale. The MAST can be administered in 5 to 15 minutes. Finally, it has been utilized with a wide variety of patient populations including traumatic brain injury, stroke, epilepsy, anoxia, dementia, and various encephalopathies.

A Technical Report on: Studying Employment Following Traumatic Brain Injury

This technical report is intended as a resource for researchers in the area of traumatic brain injury (TBI) who are interested in studying employment. While the measurement portion of this report is based on TBI Model System methodology, it is the result of reviews of methods for collecting such data in individuals who are not disabled, those with TBI, and other populations. As a result, this information should be useful to researchers regardless of their involvement in the TBI Model Systems.

This report is organized into three sections:

- Research on Traumatic Brain Injury and Employment;
- Challenges Related to Studying Employment in Traumatic Brain Injury;
- Measurement of Employment in the TBI Model System.

The first two sections provide background information that is useful for considering the information presented in the third section.

New Links to PubMed Abstracts

Scale reference sections now have links to PubMed abstracts. PubMed is a service of the National Library of Medicine. It includes over 14 million citations for biomedical articles back to the 1950's. These citations are all from Medline and additional life science journals. PubMed also includes links to full-text articles (when available).

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 six months (December 03 – May 04) the COMBI has logged in over 92,000 visitors. That's over 500 users a day! During this period 227,000 pages of information were reviewed (that's 2,343 megabytes of data).

The COMBI logs show that 89% of our users are within the United States and 11% are from 62 other countries. The COMBI is especially popular in Canada, the United Kingdom, Australia, Italy, and Japan. Our biggest referrals come from Google, Yahoo, MSN, stroke-site.org, and AOL.

The COMBI newsletter, *Outcome Oriented*, is primarily disseminated in Portable Document Format (PDF) from the website. Over the last six months, 4,086 newsletters were downloaded by COMBI users.

Itemized scale activity is summarized in the table below. *Please, no wagering.*

Scale Activity (Number of Visitors & Downloads) December 2003 to May 2004

Scale	Visitors	Downloads
ABS	1617	463
AQ	1333	1576
CAP	742	590
CHART	2146	1042
CHART-SF	620	575
CHIEF	606	501
CIQ	1511	847
CNC	1175	825
DRS	3119	470
EMPLOY	208	216
FAM	3051	1839
FIM	6363	na
FNQ	863	na
GOS	4930	na
GOS-E	1007	na
LCFS	1313	540
MAST	513	520
MPAI	1172	3380
NFI	720	na
O-LOG	577	529
PCRS	1008	1730
SOS	466	286
SRS	725	438
SUBS	509	592
SWLS	2415	na

Future Directions

This is the third *Outcome Oriented* newsletter for this funding cycle (2002-2007). We are updating materials for all of our current measures. 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! ☑

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, National Institute on Disability and Rehabilitation Research. The contents of this newsletter were developed under a grant from the Department of Education. However those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal government.

Address inquiries to

Jerry Wright, Editor. Phone (408) 793-6430;
Email jerry.wright@hhs.co.scl.ca.us

This document is available online at:

<www.tbims.org/combi/combinews.html>

CREDIT TO OUR COLLABORATORS



The COMBI is a collaborative project of thirteen 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, Laura Jamison, and Maurice Rappaport, MD, PhD at Santa Clara Valley Medical Center (**Lead Center**)

Dave Mellick, MA and Cindy Harrison-Felix, PhD at Craig Hospital

Corwin Boake, PhD and Angelle Sander, PhD at The Institute for Rehabilitation Research
James F. Malec, PhD, LP at the Mayo Medical Center

Mark Sherer, PhD, ABPP-Cn and Risa Nakase-Thompson, PhD 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

Flora Hammond, MD at Charlotte Institute of Rehabilitation

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

Tessa Hart, PhD at Moss Rehabilitation Research Institute

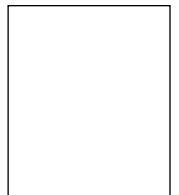
Scott Millis, PhD at Kessler Medical Rehabilitation Research and Education Corporation

Therese O'Neil-Pirozzi, ScD, CCC-SLP at Harvard Medical School and Northeastern University ☑



**SANTA CLARA
VALLEY
MEDICAL CENTER**

Rehabilitation Research Center for TBI & SCI
Santa Clara Valley Medical Center
751 South Bascom Avenue
San Jose, CA 95128



UPDATE

Center for Outcome Measurement
in Brain Injury (COMBI)
<www.tbims.org/combi>

SUMMER 2004