

SUPPLEMENTARY DIGITAL MATERIAL 1

Evaluation tool references

<i>Area of competence</i>	<i>Evaluation tool</i>	<i>Reference</i>
Anamnestic Information	Coma Glasgow Scale (GCS)	<ul style="list-style-type: none"> Teasdale G, Jennett B. Assessment of coma and impaired consciousness. A practical scale. <i>Lancet</i>. 1974 Jul 13;2(7872):81-4. doi: 10.1016/s0140-6736(74)91639-0. PMID: 4136544.
Area of clinical stability	Paroxistic Sympathic Hyperactivity (PSH)	<ul style="list-style-type: none"> Baguley IJ, Perkes IE, Ortega JFF., Rabinstein AA, Dolce G, and. Hendricks HT. Paroxysmal Sympathetic Hyperactivity after Acquired Brain Injury: Consensus on Conceptual Definition, Nomenclature, and Diagnostic Criteria. <i>Journal of Neurotrauma</i> 31:1515–1520, 2014
	NPUAP/EPUAP	<ul style="list-style-type: none"> National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. <i>Prevention and Treatment of Pressure Ulcers: Quick Reference Guide</i>. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Australia; Prevenzione e Trattamento delle Ulcere da Pressione: Guida Rapida di Riferimento © National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel e Pressure Pan Pacific Injury Alliance; traduzione italiana-linee-guida-epuap-final-version-updated-jan2016.pdf
	Nociception Coma Scale (NCS)	<ul style="list-style-type: none"> Schnakers C, Chatelle C, Vanhauzenhuysse A, Majerus S, Ledoux D, Boly M, Bruno MA, Boveroux P, Demertzi A, Moonen G.,Laureys S. The Nociception Coma Scale: A new tool to assess nociception in disorders of consciousness. <i>Pain</i> 2010;148(2):215-9 Chatelle C, Majerus S, Whyte J, Laureys S, Schnakers C. A sensitive scale to assess nociceptive pain in patients with disorders of consciousness. <i>J Neurol Neurosurg Psychiatry</i> 2012;83:1233–1237 Sattin D, Pagani M, Covelli V, Giovannetti AM, Leonardi M. The Italian version of the Nociception Coma Scale. <i>International Journal of Rehabilitation Research</i> 2013, 36:182–186 Bagnato S, Boccagni C, Sant’Angelo A, Alito A, Galardi G. Pain assessment with the revised nociception coma scale and outcomes of patients with unresponsive wakefulness syndrome: results from a pilot study. <i>Neurological Sciences</i> (2018) 39:1073–1077
	Nociception Rating Scale (NRS)	<ul style="list-style-type: none"> Scott J, Huskisson EC. Vertical or horizontal visual analogue scales. <i>Annals of Rheumatological Disease</i>, 1979; 38, 560

	Pain Assessment in Advanced Dementia (PAINAD)	<ul style="list-style-type: none"> Herr K, Bjoro K, Decker S. Tools for assessment of pain in nonverbal older adults with dementia: a state-of-the-science review. <i>J Pain Symptom Manage.</i> 2006 Feb;31(2): 170-92. doi: 10.1016/j.jpainsymman.2005.07.001. PMID: 16488350. Warden V, Hurley AC, Volicer L. Development and psychometric evaluation of the Pain Assessment in Advanced Dementia (PAINAD) scale. <i>Am Med Dir Assoc</i> 2003; 4(1):9-15 Costardi D, Rozzini L, Costanzi C, Ghianda D, Franzoni S, Padovani A, Trabucchi M. The italian version of the pain assessment in advanced dementia (PAINAD) scale. <i>Arch Gerontol Geriatr.</i> 2007 Mar-Apr;44(2):175-80
Area of Basic Vital Functions	Dysphagia Outcome and Severity Scale DOSS	<ul style="list-style-type: none"> O'Neil KH, Purdy M, Falk J, Gallo L. The Dysphagia Outcome and Severity Scale. <i>Dysphagia</i> 14 (3):139–145 (1999) Zarkada A, Regan J. Inter-rater Reliability of the Dysphagia Outcome and Severity Scale (DOSS): Effects of Clinical Experience, Audio-Recording and Training. <i>Dysphagia.</i> 2018 Jun;33(3):329-336
	Early Rehabilitation Index (ERI)	<ul style="list-style-type: none"> Arbeitsgemeinschaft Neurologische Frührehabilitation. Der Frühreha-Index: Ein Manual zur Operationalisierung [The Frühreha-Index (FRI): a manual for its operationalization]. <i>Rehabilitation (Stuttg).</i> 2010 Feb;49(1):22-9. German. doi: 10.1055/s-0029-1246153. Epub 2010 Feb 22. PMID: 20178058. Schönle C. Die orthopädisch-traumatologische Rehabilitation--ein überflüssiges Relikt?[Orthopedic traumatologic rehabilitation--a superfluous anachronism?]. <i>Rehabilitation (Stuttg).</i>2000 Jun;39(3):156-67. German.
	Early Rehabilitation Barthel Index (ERBI)	<ul style="list-style-type: none"> Schonle PW. The Early Rehabilitation Barthel Index (ERBI) an early rehabilitation focused extension of the Barthel Index. <i>Rehabilitation</i> 1995, 34: 69-73 Rollnik JD. The Early Rehabilitation Barthel Index (ERBI). <i>Rehabilitation (Stuttg)</i> 2011;50:408-11
	Levels of Cognitive Functioning (LCF)	<ul style="list-style-type: none"> Hagen C, Malkmus D, Durham P. Cognitive assessment and goal setting. In <i>Rehabilitation of the head injured adult: comprehensive management.</i> Downey Ca: professional staff association of Rancho Los Amigos Hospital, Inc., 1979 Gouvier WD, Blanton PD, La Porte KK et al. Reliability and Validity of the Disability Rating Scale and the Levels of Cognitive Functioning Scale in monitoring recovery from severe head injury. <i>Archives of Physical Medicine and Rehabilitation,</i> 1987, 68: 94-97.

<p style="text-align: center;">Area of Relational Communicative and Cognitive Behavioral functions</p>	<p style="text-align: center;">Coma recovery Scale-Revised (CRS-R)</p>	<ul style="list-style-type: none"> • Giacino JT, Kalmar K, Whyte J. The JFK Coma Recovery Scale-Revised: measurement characteristics and diagnostic utility. Arch Phys Med Rehabil 2004 Dec;85(12):2020-9 • Schnakers C, Vanhaudenhuyse A, Giacino J, Ventura M, Boly M, Majerus S, Moonen G and Laureys S. Diagnostic accuracy of the vegetative and minimally conscious state: Clinical consensus versus standardized neurobehavioral assessment. BMC Neurology 2009, 9:35 • Lombardi F, Gatta G, Sacco S, Muratori A, Carole A. The Italian version of the Coma Recovery Scale-Revised (CRS-R) Functional Neurology 2007; 22(1): 47-61 • Estraneo A, Moretta P, De Tanti A, Gatta G, Giacino JT, Trojano L and Italian CRS-R Multicentre Validation Group. An Italian multicentre validation study of the coma recovery scale-revised Eur J Phys Rehabil Med 2015 Oct;51(5):627-34. Epub 2014 Mar 6 • Seel RT, Sherer M, Whyte J, Katz DI, Giacino JT, Rosenbaum AM, Hammond FM, Kalmar K, Pape TL, Zafonte R, Biester RC, Kaelin D, Kean J, Zasler N. American Congress of Rehabilitation Medicine, Brain Injury-Interdisciplinary Special Interest Group, Disorders of Consciousness Task Force. Assessment scales for disorders of consciousness: evidence-based recommendations for clinical practice and research. Arch Phys Med Rehabil 2010 Dec;91(12):1795-813 • Bodien YG, Carlowicz CA, Chatelle C, Giacino JT. Sensitivity and Specificity of the Coma Recovery Scale-Revised Total Score in Detection of Conscious Awareness. Arch Phys Med Rehabil. 2016 March; 97(3): 490–492
	<p style="text-align: center;">Galveston Orientation and Amnesia Test (GOAT)</p>	<ul style="list-style-type: none"> • Levin H.S., O'Donnell V.M., Grossmann R.: The Galveston Orientation and Amnesia Test: a Practical scale to assess cognition after head injury. The Journal of Nervous and Mental Disease, 167:675-684, 1979 • Bode RK, Heinemann AW, Semik P. Measurement properties of the Galveston Orientation and Amnesia Test (GOAT) and improvement patterns during inpatient rehabilitation. J Head Trauma Rehabil 2000, 15(1):637-55
<p style="text-align: center;">Area of Sensory-Motor Functions -Mobility and Transfers</p>		<ul style="list-style-type: none"> • Griffith ER, Mayer NH. Hypertonicity and movement disorders. In: Rosenthal M. et al (Eds): Rehabilitation of the adult and child with traumatic brain injury, II Ed. FA Davis, Philadelphia, 1990

<p>Area of Autonomy in Daily Life Activities</p>	<p>modified Barthel Index (mBI)</p>	<ul style="list-style-type: none"> • Shah S, Vanclay F and Cooper. Improving the sensitivity of the Barthel Index for Stroke rehabilitation. J Clin Epidemiol (1989) 42:703-9 • Mahoney FL, Barthel DW. Functional evaluation: the Barthel Index. Maryland State Med J 1965; 14:61-65 • Wade DT and Collin C. The Barthel ADL index: a standard measure of physical disability. International Disability Studies 1988 11; 89-92 • Castiglia SF, Galeoto G, Lauti A, Palumbo A, Tirinelli F, Viselli F, Santilli V, Sacchetti ML. The culturally adapted Italian version of the Barthel Index (IcaBI): assessment of structural validity, inter-rater reliability and responsiveness to clinically relevant improvements in patients admitted to inpatient rehabilitation centers. Funct Neurol. 2017 Oct/Dec;22(4):221-228.
<p>AREA of Adaptation and Social Reintegration</p>	<p>Supervision Rating Scale (SRS)</p>	<ul style="list-style-type: none"> • Boake C. Supervision rating scale: a measure of functional outcome from brain injury. Arch Phys Med Rehabil 1996 Aug;77(8):765-72 • Cantagallo A, Maietti A, Hall KM, Bushnik T. Comparison among functional outcome measures for traumatic brain injury: assessment in the Italian community. Eur Med Phys, 36:171-182, 2000
	<p>Community Integration Questionnaire (CIQ)</p>	<ul style="list-style-type: none"> • Willer B, Rosenthal M, Kreutzer JS et al. Assessment of community integration following rehabilitation for traumatic brain injury. Journal of Head Trauma Rehabilitation 8:75-87, 1993 • Willer B, Ottenbacher K, Coad ML. The Community Integration Questionnaire: a comparative examination. American Journal of Physical Medicine and Rehabilitation, 73: 103-111, 1994 • Corrigan JD, Deming R. Psychometric characteristics of the Community Integration Questionnaire: replication and extension. Journal of Head Trauma Rehabilitation, 10: 41-53, 1995 • Hall KM, Mann N, High W et al. Functional measures after traumatic brain injury: ceiling effects of FIM, FIM +FAM, DRS and CIQ Journal of Head Trauma Rehabilitation, 11: 27-39, 1996 • Lombardi F, Orsi P, Mammi P et al. Validità del Community Integration Questionnaire (CIQ) e dati normativi per l'Italia. Giornale Italiano di Medicina Riabilitativa, 11: 23-34, 1997
	<p>The Glasgow Outcome Scale (GOS)</p>	<ul style="list-style-type: none"> • Jennett B, Bond M. Assessment of outcome after severe brain damage. Lancet, 1:480-484, 1975 • Jennett B, Snoek J, Bond MR et al. Disability after severe head injury: observation on the use of the Glasgow Outcome Scale, J Neur Neurosurg and Psyc. Apr 1981 • Teasdale GM, Pettigrew LE, Wilson JT, Murray G, Jennett B. Analyzing outcome of treatment of severe head injury: a review and update on advancing the use of the GOS. Journal of Neurotrauma 1998 15: 587-597

Multidimensional Outcome Evaluation Tools	Glasgow Outcome Scale-Expanded (GOS-E)	<ul style="list-style-type: none"> Levin HS, Boake C, Song J, Mc Cauley S, Contant C, Diaz Marchan P, Brundage S, Goodman H, Kotria KJ. Validity and sensitivity to change of the extended GOS in mild to moderate TBI. <i>Journal of Neurotrauma</i> 2001; 18: 575-584 Wilson JT, Pettigrew LE, Teasdale GM. Structured interviews for the GOS and the GOS -E: guidelines for their use <i>Journal of Neurotrauma</i> 1998 :15 573-585
	Disability Rating Scale (DRS)	<ul style="list-style-type: none"> Rappaport M, Hall KM, Hopkins K, et al. Disability rating scale for severe head trauma: coma to community. <i>Archives of Physical Medicine and Rehabilitation</i>, 63: 118-23, 1982 Eliason M, Topp B. Predictive validity of Rappaport's Disability Rating Scale in subjects with acute brain dysfunction. <i>Physical Therapy</i>, 64: 1357-1361, 1984 Hall KM, Cope DN, Rappaport M. Glasgow Outcome Scale and Disability Rating Scale: comparative usefulness in following recovery in traumatic head injury. <i>Archives of Physical Medicine and Rehabilitation</i>, 66: 35-37, 1985 Gouvier WD, Blanton PD, La Porte KK et al. Reliability and Validity of the Disability Rating Scale and the Levels of Cognitive Functioning Scale in monitoring recovery from severe head injury. <i>Archives of Physical Medicine and Rehabilitation</i>, 68: 94-97, 1987 Fleming JM, Maas F. Prognosis of rehabilitation outcome in head injury using the Disability Rating Scale. <i>Arch Phys Med Rehabil</i>. 1994 Feb;75(2):156-63. PMID: 8311671.
	Quality of Life after Brain Injury Overall Scale (QoLIBRI-OS)	<ul style="list-style-type: none"> Von Steinbuechel N, Petersen C, Bullinger M and QOLIBRI Group. Assessment of health-related quality of life in persons after traumatic brain injury--development of the Qolibri, a specific measure. <i>Acta NeurochirSuppl</i>. 2005;93:43-9 Von Steinbuechel N, Wilson L, Gibbons H, et al. QOLIBRI Overall Scale: a brief index of health-related quality of life after traumatic brain injury. <i>J Neurol Neurosurg Psychiatry</i> 83(11):1041-7·July 2012