

Supplemental material for: Engelmann, KA, Jordan LC, Outcome Measures Used in Pediatric Stroke Studies: A Systematic Review; Arch Neurol 2011;69(1): 23-27.

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Supplemental Table 1. Summary of Included Pediatric Stroke Studies

Supplemental Table 2. Outcome Measures in Pediatric Stroke Studies, Expanded Version

Supplemental Table 1. Summary of Included Pediatric Stroke Studies

Study Author /Year	Primary Study Goals	Total N (N in f/u, N f/u not available, N deaths,)	Age at Stroke Onset	Stroke Type	Outcome Measures
Beslow ¹ 2010	Describe features of children with Intracerebral Hemorrhage (ICH); Determine predictors of short-term outcome	22 (21, 0, 1)	4.2-16.6 years	Intracerebral Hemorrhage (ICH)	<ul style="list-style-type: none"> • Pediatric Stroke Outcome Measure (PSOM) • King's Outcome Scale for Childhood Head Injury (KOSCHI)
Block ² 1999	Directly measure attention, memory, and language in order to evaluate empirically the severity and laterality of sequelae	11 (11, 0, 0)	6 mo – 15 years	Unilateral non-hemorrhagic strokes	<ul style="list-style-type: none"> • Neuropsychological Battery*
Brouwer 2010 ³	In a hospital-based population admitted to a level 3 NICU, describe clinical and neuroimaging data in the neonatal period and relate imaging finding to outcome	53 (37, 3, 13)	Full-term neonates	ICH	<ul style="list-style-type: none"> • Griffiths Mental Developmental Scales (GMDS)
Christerson 2010 ⁴	In a population-based cohort of childhood stroke, evaluate long-term outcome with respect to neurological outcome, school performance, activities of daily life, and health-related quality of life	51 (46, 1, 4)	Onset age range n/a. Inclusion criteria: 28 days – 18 years	Arterial Ischemic Stroke (AIS), Cerebral Sinus Venous Thrombosis (CSVT), and non-traumatic hemorrhagic stroke	<ul style="list-style-type: none"> • International Classification of Functioning Disability and Health (ICF-CY) • Child Health Questionnaire (CHQ) • Short-Form General Health Survey (SF-36)
Cnossen 2010 ⁵	Study functional outcome in children after pediatric AIS and identify risk factors influencing quality of life	76 (66, 2, 8)	1 mo – 17 years	AIS	<ul style="list-style-type: none"> • Non-standard mRS (1-4) TAPQOL, TACQOL-PF, TACQOL-CF, and TAAQOL from TNO-AZL¹
De Schryver 2000 ⁶	Gather data regarding the physical sequelae, cognitive function, and quality of life in children who have experienced ischemic stroke	37 (27, 6, 4)	3 mo – 14 years	Ischemic	<ul style="list-style-type: none"> • International Classification of Impairments, Disabilities, and Handicaps • Modified Rankin Scale (mRS) • Coloured and Standard Progressive Matrices • Wechsler Intelligence Scale for Children – Revised, Dutch version (WISC-RN) • Wechsler Intelligence Scale for Adults (WAIS) • Adapted Card-Sorting Task for Children • Denver Developmental Screening Tests II • Nonstandard QOL questionnaires
Delsing 2001 ⁷	Identify early prognostic factors in children with AIS	31 (27, 0, 4)	2 mo – 14.3 years	AIS	<ul style="list-style-type: none"> • Residual impairment measure combining mRS (1-4) and school performance

deVeber [‡] 2000 ⁸	Define the immediate and long-term predictors of neurologic outcome in children surviving ischemic stroke	163 (163, 0, 0)	0 – 17.8 years	Ischemic: AIS, CSVT, or both	<ul style="list-style-type: none"> • PSOM • Two questions modified from the Euroqual measure
Domi [‡] 2008 ⁹	Define frequency, predictors, and outcomes of stroke associated with cardiac surgery in children with congenital heart disease	30 (25, 1, 4)	Mean age: 4.1 years	AIS and CSVT	<ul style="list-style-type: none"> • PSOM
Everts 2008 ¹⁰	Assess cognitive functioning, motor outcome, behavior, and quality of life after childhood stroke; study the relationship between variables influencing rehabilitation and outcome	21 (21, 0, 0)	0.1-17.6 years	“Stroke”: Stroke type not specified	<ul style="list-style-type: none"> • Neuropsychological battery[§]
Friefeld [‡] 2004 ¹¹	Examine parent and child perspectives on quality of life, and factors that correlate with reduced QOL for child survivors of stroke	100 (100, 0, 0)	2-18 years	Ischemic: AIS and CSVT	<ul style="list-style-type: none"> • Pediatric Quality of Life Inventory (PedsQL) • PSOM
Ganesan 2000 ¹²	Investigate outcome for children with ischemic stroke	128 (90, 23, 15)	3 mo – 16 years	Ischemic	<ul style="list-style-type: none"> • Nonstandard parental questionnaire • Bayley Scales of Infant Development (BSID-II) • WISC, WAIS, Wechsler Preschool and Primary Scale of Intelligence (WPPSI) • Clinical Evaluation of Language Fundamentals, Revised and Preschool Forms
Gordon 2002 ¹³	Describe the functional consequences of childhood stroke in terms of activity limitation; explore the relationship between extent of brain damage, impairment, and functional sequelae	17 (17, 0, 0)	14 mo – 13.5 years	Ischemic	<ul style="list-style-type: none"> • Pediatric Stroke Activity Limitation Measure (PSALM) • Child Health Questionnaire (CHQ) • PSOM • Short-Form 36 General Health Survey (SF-36)
Hariman 1991 ¹⁴	Evaluate retrospectively the functional status of 14 Sickle-Cell Disease (SCD) children with strokes; compare SCD children with age-matched and gender-matched SCD children who had not had strokes	14 (14, 0, 0)	5 – 18 years	“Stroke”: Stroke type not specified	<ul style="list-style-type: none"> • Modified Motor Assessment Scale (MAS) • Barthel Index • WISC-R • California Test of Personality (CTP) • Test of Language Development (TOLD)
Hetherington [‡] 2005 ¹⁵	Address the differential effects of arterial ischemic stroke and sinovenous thrombosis on short-term cognitive outcome	72 (72, 0, 0)	Mean age for AIS = 4.9; CSVT= 4.2	Ischemic: AIS and CSVT	<ul style="list-style-type: none"> • BSID-II • WISC, WAIS, WPPSI
Hurvitz 2004 ¹⁶	Examine the long-term functional, psychosocial, and medical outcome of pediatric stroke survivors.	50 (29, 18, 3)	8 mo – 17.7 years	All, except due to trauma, CP, nonacute, nonvascular	<ul style="list-style-type: none"> • Vineland Adaptive Behavior Scales (VABS) • Diener Satisfaction with Life Scale
Jordan	Obtain data regarding the association	30 (30, 0, 5)	0–16 years	ICH	<ul style="list-style-type: none"> • Glasgow Outcome Scale (GOS)

2009 ¹⁷	between intracerebral hemorrhage (ICH) volume/location and outcome in children.				
Kim 2009 ¹⁸	Investigate recovery patterns and potential prognostic factors of pediatric stroke	44 (44, 0, 0)	8 mo – 17 years	All except venous, neonatal, recurrent, traumatic, or anoxic brain injury	<ul style="list-style-type: none"> • Modified Brunnstrom stages • Gross Motor Function Classification System • Activities of daily living (ADLs)
Kumar 2009 ¹⁹	Analyze the etiology, clinical features, treatment options, and outcome assessment in children with spontaneous ICH	50 (50, 0, 3)	2 mo – 17 years	ICH	<ul style="list-style-type: none"> • GOS
Lansing [¶] 2004 ²⁰	Characterize verbal and learning memory (VLM) following pediatric stroke; compare VLM profiles of stroke subjects with right vs. left hemisphere lesions and early (< 12 months) vs. late (> 12 months) strokes	10 in the late stroke group: (10, 0, 0)	3 – 13 years (late group)	All except neonatal bleeds potentially associated with prematurity, neonatal watershed infarcts associated with hypoxia, other precipitating factors	<ul style="list-style-type: none"> • WISC-III • California Verbal Learning Test – Children’s Version (CVLT-C)
Lo 2008 ²¹	Determine whether the risk factors for ICH have changed compared with those in earlier published series; estimate the residual deficits in the survivors	85 (48, 8, 29)	7 days – 17 years	ICH	<ul style="list-style-type: none"> • Modification of the PSOM
Max [¶] 2004 ²²	Investigate attentional outcome after childhood stroke	12 in the late stroke group: (12, 0, 0)	7.8±3.2 years (late group)	All except neonatal bleeds potentially associated with prematurity, neonatal watershed infarcts associated with hypoxia, other precipitating factors	<ul style="list-style-type: none"> • Starry Night • Neurological exam • WISC-III
Max [¶] 2010 ²³	Investigate brain plasticity and vulnerability through the study of the relationship of age at the time of brain injury and neurocognitive and psychiatric outcome	12 in the late stroke group: (12, 0, 0)	7.8±3.2 years (late group)	All except neonatal bleeds potentially associated with prematurity, neonatal watershed infarcts associated with hypoxia, other precipitating factors	<ul style="list-style-type: none"> • A battery of neuropsychological tests[#] covering the following intellectual, academic, linguistic, visuospatial, memory, and executive functions.
McLinden [‡] 2007 ²⁴	Assess the cognitive development of children with nonhemorrhagic neonatal stroke.	27 (27, 0, 0)	Neonates. No range or median given.	Ischemic: AIS and CSVT	<ul style="list-style-type: none"> • BSID – edition not specified

Mercuri 2001 ²⁵	Evaluate the occurrence of prothrombotic disorders in a cohort of infants with neonatal stroke; document any association of prothrombotic disorders with the type of infarct seen on magnetic resonance imaging (MRI) and clinical outcome.	24 (24, 0, 0)	Neonates	Cerebral Infarction	<ul style="list-style-type: none"> • Structured neurologic examination • Griffiths Developmental Scales
Mercuri 2004 ²⁶	Assess neuromotor function at school age in children who had cerebral infarction on neonatal magnetic resonance imaging (MRI)	24 (22, 2, 0)	Neonates	Cerebral Infarction	<ul style="list-style-type: none"> • Early: Structured neurologic examination for infants, Griffiths Neurodevelopmental scales • School Age: Touwen's Examination of the Child with Minor Neurologic Dysfunction, Movement Assessment Battery for Children (Mov ABC), WPPSI-R
Pavlovic 2006 ²⁷	Obtain information about neurological and cognitive outcome for a population-based group of children after pediatric ischemic stroke	48 (33, 11, 4)	0.9-16.3 years	Ischemic: AIS and CSVT	<ul style="list-style-type: none"> • Nonstandard questionnaire • Detailed neurological examination • BSID-II, K-ABC, HAWIK-III, HAWIE-R**
Ricci 2008 ²⁸	Assess cognitive outcome at early school age in term-born children with MCA territory infarction of perinatal onset; examine the correlation between cognitive abilities and lesions as seen on neonatal MRI, epilepsy, and hemiplegia.	31 (28, 2, 1)	5.33-10.33 years	Middle Cerebral Artery (MCA) territory infarctions acquired perinatally	<ul style="list-style-type: none"> • WIPPSI-R • WISC-III • Standardized neurological examination at early school age
Salih 2006 ²⁹	Report on the prognosis, neurologic outcome, and recurrences of stroke in Saudi children.	104 (90, 9, 5)	1 mo – 12 years	"Pediatric Stroke": Stroke type not specified	<ul style="list-style-type: none"> • Denver Developmental Screening Test • VABS • Stanford-Binet Intelligence Scale • WISC- edition unspecified
Sreenan 2000 ³⁰	Evaluate long-term outcome of CT-documented cerebral infarction in term neonates to ascertain factors predicting risk of subsequent neurodevelopmental sequelae in early childhood	47 (46, 1, 0)	Neonates	Cerebral infarction	<ul style="list-style-type: none"> • Neurological examination • Mental Development Index of BSID-II
Steinlin 2004 ³¹	Analyze initial presentation, etiology, and long-term outcome of children suffering ischemic stroke	20 (16, 2, 2)	6 mo – 16.2 years	Ischemic Stroke	<ul style="list-style-type: none"> • Nonstandard Patient and Parent Questionnaires concerning: actual health, problems in daily living, speech, social life, school problems, and lifestyle satisfaction • mRS
Trauner 1993 ³²	Better define neurological and developmental implications of neonatal stroke	29 (29, 0, 0)	Neonates	All, excluding multiple unilateral or bilateral lesions, chronic or	<ul style="list-style-type: none"> • Standard neurological examination • Stanford-Binet Intelligence Scale (ages 2-4) • WPPSI • WISC-R

				potentially evolving lesions, or evidence of a disorder that produced global brain damage	
Westmacott [‡] 2009 ³³	Determine long-term neuropsychological implications of neonatal arterial ischemic stroke (AIS)	120 (26, 94, 0)	Neonates	AIS	<ul style="list-style-type: none"> • PSOM • WPPSI-R and WPPSI-III • WISC-III and WISC-IV
Wulfeck 1991 ³⁴	In infants with localized, unilateral cerebral infarction: examine neurologic status, investigate psychomotor, cognitive, and language abilities, and examine relationships between behavior and lesion severity	14 (14, 0, 0)	Infants	Cerebral Infarction	<ul style="list-style-type: none"> • Neurologic examination • BSID • Sequenced Inventory of Communication Development (SICD)

- * Symbol Digit Modalities Test (SDMT), Trail Making Test, Parts A and B (TMT-A, TMT-B), California Verbal Learning Test (CVLT), Rivermead Behavioural Memory Test (RBMT), Revised Token Test (RTT), Reporter's Test, Wechsler Intelligence Scale for Children and Adults (WISC-III, WAIS-R)
- [†] TNO-AZL = The Netherlands Organization for Applied Scientific Research Academic Medical Center Leiden; TAPQOL = Preschool Children Quality of Life Questionnaire for children aged 1-6; TACQOL-PF = Children's Quality of Life Questionnaire Parent Form; TACQOL-CF = Children's Quality of Life Questionnaire Child Form; TAAQOL = Adolescents' Quality of Life Questionnaire for adolescents aged 16 years and older
- [‡] Indicates overlapping sample sets from The Hospital for Sick Children, Toronto, Ontario, Canada and the Children's Hospital at Chedoke-McMaster, Hamilton, Ontario, Canada
- [§] Wechsler Intelligence Scale for Children (WISC-III), Wechsler Adult Intelligence Scale (WAIS), German version of the California Verbal Learning Test (CVLT), Rey-Osterrieth Figure, Test of Attentional Performance (TAP), Dual-Task Paradigm, Kaufman Assessment Battery for Children
- ^{||} Studies using the GOS include "death" as a follow-up outcome; therefore, Total N is not the sum of N at f/u, N f/u not available, and N deaths.
- [¶] Indicates overlapping sample sets from Max, et al. study: Max, J.E., Mathews, K., Lansing, A.E., Robertson, B.A.M., Fox, P., Lancaster, J., Manes, F.F., & Smith, J. (2002). Psychiatric disorders after childhood stroke. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41, 555–562.
- [#] Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Present and Lifetime Version (K-SADS-PL), Children's Global Assessment Scale (CGAS), Neuropsychiatric Rating Schedule (NPRS), Wechsler Intelligence Scale for Children (WISC-III), Wide-Range Achievement Test-Revised (WRAT-R), Multilingual Aphasia Examination (MAE) Sentence Repetition, MAE Token Test, Test of Written Language (TOWL-3), Developmental Test of Visual-Motor Integration (VMI), California Verbal Learning Test – Children's Version (CVLT-C), Rey-Osterrieth Complex Figure Test (REY-O), Design Fluency, Multilingual Aphasia Examination Controlled Oral Word Association (COWA), Wisconsin Card Sorting Test (WCST)
- ^{**} Bayley Scales of Infant Development (BSID-II) (age range 0-42 months), Kaufman Assessment Battery for Children (K-ABC), Hamburg-Wechsler Intelligence Test for Children (HAWIK-III, German version of WISC-R) (age range 6.0-16.11 years), and the Hamburg-Wechsler Intelligence Test for Adults (HAWIE-R, German version of WAIS-R) (age range 16-74 years).

Supplemental Table 2. Outcome Measures in Pediatric Stroke Studies, Expanded Version								
Name	Description	Age Range	Length	Stroke Validity?	Pediatric Validity?	Pediatric Stroke Validity?	Interrater Reliability*	Used in N Studies
Barthel Index (BI)	<ul style="list-style-type: none"> Measures ability to do Activities of Daily Living (ADLs) Score 0-5, 0-10, or 0-15 for certain ADLs, with 0 indicating inability to perform independently Total score ranges from 0-100 No training: completed by observation in accordance with scale as written³⁵ 	None specified	5-10 min ³⁵	Yes ³⁶	No	No	Pearson r score = 0.89-0.99 (in adults) ³⁶	1
Battelle Developmental Inventory (BDI-2); Battelle Developmental Inventory Screening Test (BDIST)	<ul style="list-style-type: none"> Assesses developmental skills³⁷ 450 items for full inventory, 96 for screening test^{38,39} Five domains: personal-social skills, adaptive behavior, motor ability, communication, and cognition³⁸ Structured items and observation for children and interview with caregiver³⁹ Administrator should be qualified in childhood education or healthcare; training is four hours^{37,40} 	Birth - 8 years ³⁷	Complete: 1-2 hours Screening Test: 10-30 min ³⁷	No	Yes ⁴⁰	No	ICC: 0.90-0.99 ⁴¹	0
Bayley Scales of Infant and Toddler Development, Third Edition (BSID-III)	<ul style="list-style-type: none"> Evaluates developmental delay in infants and pre-schoolers⁴² Scales for five areas: Adaptive behavior, cognition, language, motor, and social-emotional⁴² Parental questionnaire and direct observation by specialist in childhood development, such as a psychologist or a physician⁴² 	1-42 months ⁴²	30-90 minutes, depending on age ⁴²	No	Yes ⁴³	No	ICC: 0.47-0.96, depending on scale ⁴³	6
California Verbal Learning Test – Children’s Version (CVLT-C)	<ul style="list-style-type: none"> Assess verbal learning and memory in children and adolescents⁴⁴ Consists of everyday memory task in which child recalls a list. Short- and long- delay free recall and cued recall are performed along with a recognition task^{44,45} Can be administered by trained examiner, including provider or assistant. Hand-grading is possible though computer 	5-16.11 years ⁴⁴	15-20 min, plus 20 min interval for delayed recall measure ⁴⁴	No	Yes ⁴⁶	No	n/a	4

	calculation is recommended ⁴⁵							
Child Health Questionnaire (CHQ)	<ul style="list-style-type: none"> Assesses a child's physical, emotional, and social well-being from the perspective of a parent/guardian or child, depending on the form⁴⁷ Consists of 28 or 50 items for parents, and 87 items for children, measuring 14 physical and psychosocial concepts⁴⁷ Can be administered by anyone⁴⁷ 	5-18 years; Self-assessment for ≥ 10 years ⁴⁷	Parent Form: 10-15 min.; Child Form: 15-25 min. ⁴⁷	No	Yes ⁴⁸	No	n/a	2
Denver Developmental Screening Tests II	<ul style="list-style-type: none"> Determines if a child's development is within the normal range⁴⁹ Consists of 125 items in the personal-social, fine motor-adaptive, language, and gross motor domains⁵⁰ Administration directions can be followed by anyone with good child skills⁴⁹ 	Infants and Preschoolers (up to 6 years) ⁵⁰	20 min. ⁵¹	No	Yes ⁵⁰	No	Kappa statistic ≥ 0.75 ⁵²	2
Diener Satisfaction with Life Scale (DSLS)	<ul style="list-style-type: none"> Measures life satisfaction, defined as one part of subjective "well-being" Five items scored 1-7 Total score of 5-35, with 35 indicating the highest level of satisfaction Completed by patient without administrator⁵³ 	Older juveniles to adults ⁵³	5 min. max ⁵⁴	No	No	No	n/a	1
Disability Rating Scale (DRS)	<ul style="list-style-type: none"> Designed to evaluate impairment, disability, and handicap for those with traumatic brain injury⁵⁵ Eight items valued at 4, 5, or 6; total of 29-point scale with 30 indicating death⁵⁶⁵⁵ Self-administered or scored by an interview with family member⁵⁵ Limited training recommended⁵⁵ 	Older juveniles to adults ⁵⁵	15 min. max ⁵⁵	No	No	No	Pearson r score = 0.97-0.98 (in adults) ⁵⁵	0
Extended Glasgow Outcome Scale (GOS-E)	<ul style="list-style-type: none"> Global measure of outcome Eight categories (1-8): dead, vegetative, lower severe disability, upper severe disability, lower moderate disability, upper moderate disability, lower good recovery, upper good recovery Rating scale completed by healthcare professional upon direct examination, structured personal interview, and/or retrospective record review⁵⁷ 	None specified; suggested ≥ 16 years ⁵⁸	Varies with length of structured interview ⁵⁸	No	No	No	Weighted Kappa statistic: 0.84-0.85 ⁵⁸⁵⁹	0

Functional Independence Measure for Children (WeeFIM)	<ul style="list-style-type: none"> Measures functional independence⁶⁰ 18 items for 3 main domains: self-care, mobility, and cognition⁶⁰ Scale of 1-7 based on items, with 1 indicating “total assistance” and 7 indicating “complete independence”⁶⁰ Scores of 1-5 denote “dependence”, whereas 6-7 are “independent”^{60,61} Administered by trained health, developmental, or educational professionals via structured parental interview or direct observation of child^{61,62} 	6 months – 7 years; 6 months – 21 years for anyone with dev. Disability; specific module for 0-3 years ⁶⁰	No time limit for tasks, generally <20 min. ^{61,63}	No	Yes ⁶⁴	No	ICC: 0.88-0.99 ⁶⁵	0
Glasgow Outcome Scale (GOS)	<ul style="list-style-type: none"> Global measure of outcome⁶⁶ Five categories (1-5): dead, vegetative, severely disabled, moderately disabled, and good recovery⁶⁶ Rating scale completed by healthcare professional upon direct examination, unstructured personal interview, and/or retrospective record review⁶⁷ 	None specified	5 min. max ⁶⁶	No	No	No	Weighted Kappa statistic: 0.31-0.79, depending on raters ⁶⁷	2
Griffiths Scales of Mental Development	<ul style="list-style-type: none"> Obtains level of mental development in infants and young children⁶⁸ Split into two groups: 0-2 and 2-8 years⁶⁸ 0-2 group has locomotor, personal-social, hearing-speech, eye-hand coordination, and performance scales; 3-8 adds practical reasoning scale⁶⁸ Professionals must be trained by a course or a tutor to administer⁶⁸ 	0-8 years ⁶⁸	50-60 min. ⁶⁹	No	Yes ⁶⁹	No	Varies by scale, but overall mostly >0.60 ⁶⁸	3
King’s Outcome Scale for Childhood Head Injury (KOSCHI)	<ul style="list-style-type: none"> The GOS-E, adapted for children Eight categories: dead, vegetative, severe disability (no self-care), severe disability (child assists with activities), moderate disability (supervision), moderate disability (independent with sequelae), good recovery (non-interfering sequelae), good recovery (no detectable sequelae) Rating scale completed by healthcare professional upon observation, interview, and/or retrospective record review^{70,71} 	2-16 years ⁷⁰	Varies with method of obtaining clinical info ⁷⁰	No	Yes ⁷⁰	No	Cohen’s Kappa: ~0.50 ^{70,71}	1
Modified Rankin Scale (mRS)	<ul style="list-style-type: none"> Global measure that focuses on symptoms 	Original RS	5 min. ⁷²	Yes ⁷³	No	No	Weighted Kappa	4

	<p>and disability after stroke⁷²</p> <ul style="list-style-type: none"> • Score 0-6: no symptoms, no significant disability, slight disability, moderate disability, moderate severe disability, severe disability, and death⁷² • Administered by a health care professional with a decision tool⁷² 	designed for > 60 years, but used with other pops. ⁷³					statistic ranges from 0.71 to 0.93 ⁷³	
Mullen Scales of Early Learning (MSEL)	<ul style="list-style-type: none"> • Assesses cognitive and motor ability in children • Five scales: gross motor, fine motor, visual reception, expressive language, and receptive language • Administered by professional specifically trained for MSEL administration⁷⁴ 	Birth-68 months ⁷⁴	15-60 min., depending on age ⁷⁴	No	Yes ⁷⁴	No	ICC: 0.91-0.99 ⁷⁵	0
Neurobehavioral Functioning Inventory (NFI)	<ul style="list-style-type: none"> • Two surveys, for patients and family, that assess behavior and symptoms associated with TBI • 76 items test depression, somatic, memory/attention, communication, aggression, and motor • Self-administered with instructions⁷⁶ 	Not specified	10-15 min. ⁷⁶	No	No	No	Agreement between patients and family members: 48-84% ⁷⁷	0
Pediatric Evaluation of Disability Inventory (PEDI)	<ul style="list-style-type: none"> • Measures self-care, mobility, and social function on three scales: functional skills, caregiver assistance, and modifications⁷⁸ • Overall scores given for each domain⁷⁸ • Detailed, structured interview by research assistant or other healthcare professional⁷⁹ 	6 months – 7 years ⁷⁸	45-60 min. ⁷⁹	No	Yes ⁸⁰	No	ICC: 0.95-0.99 ⁷⁹	0
Pediatric Quality of Life Inventory (PedsQL)	<ul style="list-style-type: none"> • Evaluates quality of life in children and adolescents⁸¹ • Separates by age: 2-4, 5-7, 8-12, 13-18, with self-reporting beginning at age 5 • 23 items include physical, social, emotional, and school functioning • Disease-specific inventories available • Administered by trained professional or self-completed⁸¹ 	2-18 years ⁸¹	5 min. ⁸¹	No	Yes ^{81,82}	No	n/a	1
Pediatric Stroke Activity Limitation Measure (PSALM)	<ul style="list-style-type: none"> • Measures ADLs in domains including gross motor, fine motor, self-care, communication, social and emotional function, and education⁸³ • Score of 0-3 for each domain, with 0 	Children (no specific age range provided)	5 min. ⁸⁴	No ^{85,84}	No ^{85,84}	No ^{85,84}	Cohen's Kappa: 0.89 ⁸³	1

	<p>indicating no disability and 3 indicating inability to perform⁸³</p> <ul style="list-style-type: none"> Administered by healthcare professional⁸⁴ 	⁸⁴						
Pediatric Stroke Outcome Measure (PSOM)	<ul style="list-style-type: none"> Neurological assessment tool⁸⁶ 115 items measure behavior, mental status, cranial nerves, motor, gait, sensory, and cerebellar function⁸⁶ Five subscales with scores of 0-2: right sensorimotor, left sensorimotor, language production, language comprehension, and cognitive and behavioral performance⁸⁶ Total score of 0-10 dictates “normal”, “mild”, “moderate”, or “severe” deficit⁸⁶ Standardized neurological exam administered by neurologist⁸⁶ 	0-18 years ⁸⁶	n/a	Yes ^{†86}	Yes ⁸⁶	Yes ⁸⁶	91% ^{†86}	7
Short Form General Health Survey (SF-36)	<ul style="list-style-type: none"> A generic measure that yields a profile of functional health and well-being scores, physical and mental health summary measures, and a preference-based health utility index⁸⁷ Does not target a specific age, disease, or treatment group⁸⁷ Can be self-administered, administered by a computer, or administered by a trained interviewer in person or via telephone⁸⁷ 	≥ 14 years ⁸⁷	5-10 min. ⁸⁷	n/a	n/a	n/a	n/a	2
Stanford-Binet Intelligence Scale	<ul style="list-style-type: none"> Assesses intelligence and cognitive abilities in fluid reasoning, knowledge, quantitative processing, visual-spatial processing, and working memory⁸⁸ Ten subtests give a full-scale IQ, verbal and nonverbal IQ, and composite indices spanning 5 dimensions⁸⁸ Range of scores is 40 to 160: standard score mean is 100, standard deviation is 15⁸⁸ Administered by a competent examiner trained in psychology and individual intellectual assessment, preferably a psychologist⁸⁹ 	≥ 2 years ⁸⁸	Variable: approx. 5 minutes per subtest ⁸⁸	No	Yes ⁹⁰	No	Interrater Reliability Coefficient Range: 0.74-0.97 ⁹⁰	2
Vineland Adaptive Behavior Scale (VABS)	<ul style="list-style-type: none"> Assesses personal and social function⁹¹ 13 scores in 4 domains: communication, daily living skills, socialization, and motor skills⁹¹ 	0-18 years, low-functioning adults ⁹²	20-60 min. ⁹¹	No	Yes ⁹¹	No	Interrater Reliability Coefficient Range:	2

	<ul style="list-style-type: none"> Expanded form available⁹¹ Performed via semi-structured interview with social worker, psychologist, or equivalent⁹¹ 						0.62-0.78	
Wechsler Intelligence Scales (WIS)	<ul style="list-style-type: none"> Measures ability to adapt and constructively solve problems⁹³ Three different scales: Preschool and Primary Scale of Intelligence (WPPSI-R; ages 4 – 6.5 years), WIS for Children (WISC; 6 – 16 years), and Adult Intelligence Scale (WAIS-III)⁹³ Consists of two batteries of subtests in verbal and performance areas, which are summed to find an overall IQ score⁹³ Score is normative with mean 100 and standard deviation 15. Mental retardation is considered 49 and below, while gifted is 130 and above⁹³ Administered to individual examinees by trained examiner using complex set of test materials⁹³ 	4 years – adult ⁹³	Core subtests: 60-90 min. ⁹⁴	No	Yes ⁹⁴	No	n/a	15

* Information on interrater reliability is as specific as possible. For some outcome measures, details of interrater reliability were not reported in numerical form.

† Validated for AIS and CVST but not ICH

‡ From initial study. New deVeber manuscript in submission process: personal communication

Supplemental References

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