
Supplemental Table 1. Summary of Included Pediatric Stroke Studies
Supplemental Table 2. Outcome Measures in Pediatric Stroke Studies, Expanded Version
<table>
<thead>
<tr>
<th>Study Author /Year</th>
<th>Primary Study Goals</th>
<th>Total N (N in f/u, N f/u not available, N deaths,)</th>
<th>Age at Stroke Onset</th>
<th>Stroke Type</th>
<th>Outcome Measures</th>
</tr>
</thead>
</table>
| 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) | • 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 | • Neuropsychological Battery* |
| Brouwer 2010       | 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 | • Griffiths Mental Developmental Scales (GMDS) |
| Christerson 2010   | 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 | • International Classification of Functioning Disability and Health (ICF-CY)  
• Child Health Questionnaire (CHQ)  
• Short-Form General Health Survey (SF-36) |
| Cnossen 2010       | 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 | • Non-standard mRS (1-4)  
TAPQOL, TACQOL-PF, TACQOL-CF, and TAAQOL from TNO-AZL' |
| De Schryver 2000   | 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 | • 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 |
<p>| Delsing 2001       | Identify early prognostic factors in children with AIS | 31 (27, 0, 4) | 2 mo – 14.3 years | AIS | • Residual impairment measure combining mRS (1-4) and school performance |</p>
<table>
<thead>
<tr>
<th>Reference</th>
<th>Summary</th>
<th>Sample Size</th>
<th>Age Range</th>
<th>Stroke Type</th>
<th>Measures</th>
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</thead>
</table>
| deVeber‡ 2000⁹ | 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 | • PSOM  
• Two questions modified from the Euroqual measure |
| Domi‡ 2008⁹ | 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 | • PSOM |
| Everts 2008¹⁰ | 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 | • Neuropsychological battery⁴ |
| Friefeld‡ 2004¹¹ | 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 | • Pediatric Quality of Life Inventory (PedsQL)  
• PSOM |
| Ganesan 2000¹² | Investigate outcome for children with ischemic stroke | 128 (90, 23, 15) | 3 mo – 16 years | Ischemic | • 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 2002¹³ | 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 | • Pediatric Stroke Activity Limitation Measure (PSALM)  
• Child Health Questionnaire (CHQ)  
• PSOM  
• Short-Form 36 General Health Survey (SF-36) |
| Hariman 1991¹⁴ | 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 | • Modified Motor Assessment Scale (MAS)  
• Barthel Index  
• WISC-R  
• California Test of Personality (CTP)  
• Test of Language Development (TOLD) |
| Hetherington‡ 2005¹⁵ | 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 | • BSID-II  
• WISC, WAIS, WPPSI |
| Hurvitz 2004¹⁶ | 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 | • Vineland Adaptive Behavior Scales (VABS)  
• Diener Satisfaction with Life Scale |
<p>| Jordan | Obtain data regarding the association | 30 (30, 0, 5)² | 0–16 years | ICH | • Glasgow Outcome Scale (GOS) |</p>
<table>
<thead>
<tr>
<th>Year</th>
<th>Study Details</th>
<th>Sample Size</th>
<th>Follow-up</th>
<th>Outcome</th>
<th>Additional Measures</th>
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</thead>
<tbody>
<tr>
<td>2009</td>
<td>between intracerebral hemorrhage (ICH) volume/location and outcome in children.</td>
<td>44 (44, 0, 0)</td>
<td>8 mo – 17 years</td>
<td>All except venous, neonatal, recurrent, traumatic, or anoxic brain injury</td>
<td></td>
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<tr>
<td>Kim</td>
<td>Investigate recovery patterns and potential prognostic factors of pediatric stroke</td>
<td>50 (50, 0, 3)</td>
<td>2 mo – 17 years</td>
<td>ICH</td>
<td></td>
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<tr>
<td>Kumar</td>
<td>Analyze the etiology, clinical features, treatment options, and outcome assessment in children with spontaneous ICH</td>
<td>10 in the late stroke group: (10, 0, 0)</td>
<td>3 – 13 years</td>
<td>All except neonatal bleeds potentially associated with prematurity, neonatal watershed infarcts associated with hypoxia, other precipitating factors</td>
<td></td>
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<tr>
<td>Lansing</td>
<td>Characterize verbal and learning memory (VLM) following pediatric stroke; compare VLM profiles of stroke subjects with right vs. left hemisphere lesions and early (&lt; 12 months) vs. late (&gt; 12 months) strokes</td>
<td>12 in the late stroke group: (12, 0, 0)</td>
<td>7.8±3.2 years</td>
<td>A battery of neuropsychological tests covering the following intellectual, academic, linguistic, visuospatial, memory, and executive functions.</td>
<td></td>
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<tr>
<td>Lo</td>
<td>Determine whether the risk factors for ICH have changed compared with those in earlier published series; estimate the residual deficits in the survivors</td>
<td>85 (48, 8, 29)</td>
<td>7 days – 17 years</td>
<td>Modification of the PSOM</td>
<td></td>
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<tr>
<td>Max</td>
<td>Investigate attentional outcome after childhood stroke</td>
<td>12 in the late stroke group: (12, 0, 0)</td>
<td>7.8±3.2 years</td>
<td>Starry Night, Neurological exam, WISC-III</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>Investigate brain plasticity and vulnerability through the study of the relationship of age at the time of brain injury and neurocognitive and psychiatric outcome</td>
<td>12 in the late stroke group: (12, 0, 0)</td>
<td>7.8±3.2 years</td>
<td>BSID – edition not specified</td>
<td></td>
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<tr>
<td>McLinden</td>
<td>Assess the cognitive development of children with nonhemorrhagic neonatal stroke.</td>
<td>27 (27, 0, 0)</td>
<td>Neonates. No range or median given.</td>
<td>Ischemic: AIS and CSVT</td>
<td></td>
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<tr>
<td>Reference</td>
<td>Methods/Participants</td>
<td>Outcome Measures</td>
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<tr>
<td>Mercuri 2001</td>
<td>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.</td>
<td>24 (24, 0, 0) Neonates Cerebral Infarction • Structured neurologic examination • Griffiths Developmental Scales</td>
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<tr>
<td>Mercuri 2004</td>
<td>Assess neuromotor function at school age in children who had cerebral infarction on neonatal magnetic resonance imaging (MRI)</td>
<td>24 (22, 2, 0) Neonates Cerebral Infarction • 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</td>
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<tr>
<td>Pavlovic 2006</td>
<td>Obtain information about neurological and cognitive outcome for a population-based group of children after pediatric ischemic stroke</td>
<td>48 (33, 11, 4) Neonates Ischemic: AIS and CSVT • Nonstandard questionnaire • Detailed neurological examination • BSID-II, K-ABC, HAWIK-III, HAWIE-R**</td>
<td></td>
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<tr>
<td>Ricci 2008</td>
<td>Assess cognitive outcome at early school age in term-born children with Middle Cerebral Artery (MCA) territory infarction of perinatal onset; examine the correlation between cognitive abilities and lesions as seen on neonatal MRI, epilepsy, and hemiplegia.</td>
<td>31 (28, 2, 1) Neonates Middle Cerebral Artery (MCA) territory infarctions acquired perinatally • WIPPSI-R • WISC-III • Standardized neurological examination at early school age</td>
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<tr>
<td>Salih 2006</td>
<td>Report on the prognosis, neurologic outcome, and recurrences of stroke in Saudi children.</td>
<td>104 (90, 9, 5) 1 mo – 12 years “Pediatric Stroke”: Stroke type not specified • Denver Developmental Screening Test • VABS • Stanford-Binet Intelligence Scale • WISC- edition unspecified</td>
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<tr>
<td>Sreenan 2000</td>
<td>Evaluate long-term outcome of CT-documented cerebral infarction in term neonates to ascertain factors predicting risk of subsequent neurodevelopmental sequelae in early childhood</td>
<td>47 (46, 1, 0) Neonates Cerebral infarction • Neurological examination • Mental Development Index of BSID-II</td>
<td></td>
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<tr>
<td>Steinlin 2004</td>
<td>Analyze initial presentation, etiology, and long-term outcome of children suffering ischemic stroke</td>
<td>20 (16, 2, 2) 6 mo – 16.2 years Ischemic Stroke • Nonstandard Patient and Parent Questionnaires concerning: actual health, problems in daily living, speech, social life, school problems, and lifestyle satisfaction • mRS</td>
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<tr>
<td>Trauner 1993</td>
<td>Better define neurological and developmental implications of neonatal stroke</td>
<td>29 (29, 0, 0) Neonates All, excluding multiple unilateral or bilateral lesions, chronic or • Standard neurological examination • Stanford-Binet Intelligence Scale (ages 2-4) • WPPSI • WISC-R</td>
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</tbody>
</table>
Please note that the document contains medical and research information which may not be comprehensible without a suitable medical or research background. The text includes references to various assessments and follow-up studies on individuals with perinatal brain injury due to arterial ischemic stroke (AIS).

### Table

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
<th>Sample Size</th>
<th>Domain</th>
<th>Assessments</th>
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</thead>
<tbody>
<tr>
<td>Westmacott et al., 2009</td>
<td>Determine long-term neuropsychological implications of neonatal arterial ischemic stroke (AIS)</td>
<td>120 (26, 94, 0)</td>
<td>Neonates</td>
<td>AIS</td>
</tr>
<tr>
<td>Wulfeck, 1991</td>
<td>In infants with localized, unilateral cerebral infarction: examine neurologic status, investigate psychomotor, cognitive, and language abilities, and examine relationships between behavior and lesion severity</td>
<td>14 (14, 0, 0)</td>
<td>Infants</td>
<td>Cerebral Infarction</td>
</tr>
</tbody>
</table>

- PSOM
- WPPSI-R and WPPSI-III
- WISC-III and WISC-IV
- Neurologic examination
- BSID
- Sequenced Inventory of Communication Development (SICD)

### Additional Notes

- * 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), Report’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.
- †† 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

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<tbody>
<tr>
<td>Barthel Index (BI)</td>
<td>• Measures ability to do Activities of Daily Living (ADLs)</td>
<td>None specified</td>
<td>5-10 min</td>
<td>Yes(^35)</td>
<td>No</td>
<td>No</td>
<td>Pearson r score = 0.89-0.99 (in adults)(^36)</td>
<td>1</td>
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<td></td>
<td>• Score 0-5, 0-10, or 0-15 for certain ADLs, with 0 indicating inability to perform independently</td>
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<td></td>
<td>• Total score ranges from 0-100</td>
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<td></td>
<td>• No training: completed by observation in accordance with scale as written(^33)</td>
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<tr>
<td>Battelle Developmental Inventory (BDI-2); Battelle Developmental Inventory Screening Test (BDIST)</td>
<td>• Assesses developmental skills(^37)</td>
<td>Birth - 8 years(^37)</td>
<td>Complete: 1-2 hours</td>
<td>No</td>
<td>Yes(^38)</td>
<td>No</td>
<td>ICC: 0.90-0.99(^39)</td>
<td>0</td>
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<td></td>
<td>• 450 items for full inventory, 96 for screening test(^38)</td>
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<td>Screening Test: 10-30 min(^39)</td>
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<td></td>
<td>• Five domains: personal-social skills, adaptive behavior, motor ability, communication, and cognition(^38)</td>
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<td></td>
<td>• Structured items and observation for children and interview with caregiver(^39)</td>
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<td></td>
<td>• Administrator should be qualified in childhood education or healthcare; training is four hours(^37,40)</td>
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<tr>
<td>Bayley Scales of Infant and Toddler Development, Third Edition (BSID-III)</td>
<td>• Evaluates developmental delay in infants and pre-schoolers(^42)</td>
<td>1-42 months(^42)</td>
<td>30-90 minutes, depending on age(^42)</td>
<td>No</td>
<td>Yes(^43)</td>
<td>No</td>
<td>ICC: 0.47-0.96, depending on scale(^43)</td>
<td>6</td>
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<td>• Scales for five areas: Adaptive behavior, cognition, language, motor, and social-emotional(^42)</td>
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<td>• Parental questionnaire and direct observation by specialist in childhood development, such as a psychologist or a physician(^42)</td>
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<tr>
<td>California Verbal Learning Test – Children’s Version (CVLT-C)</td>
<td>• Assess verbal learning and memory in children and adolescents(^44)</td>
<td>5-16.11 years(^44)</td>
<td>15-20 min, plus 20 min interval for delayed recall measure(^44)</td>
<td>No</td>
<td>Yes(^46)</td>
<td>No</td>
<td>n/a</td>
<td>4</td>
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<tr>
<td></td>
<td>• 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)</td>
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<td>• Can be administered by trained examiner, including provider or assistant. Hand-grading is possible though computer</td>
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<tr>
<td>Test</td>
<td>Description</td>
<td>Administration</td>
<td>Scoring</td>
<td>Reliability</td>
<td>Notes</td>
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<tr>
<td>Child Health Questionnaire (CHQ)</td>
<td>Assesses a child’s physical, emotional, and social well-being from the perspective of a parent/guardian or child, depending on the form[^47^]. Consists of 28 or 50 items for parents, and 87 items for children, measuring 14 physical and psychosocial concepts[^47^]. Can be administered by anyone.</td>
<td>5-18 years; Self-assessment for ≥ 10 years[^47^]. Parent Form: 10-15 min.; Child Form: 15-25 min.[^47^].</td>
<td>No</td>
<td>Yes[^48^]</td>
<td>No</td>
<td>n/a</td>
<td>2</td>
<td></td>
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<tr>
<td>Denver Developmental Screening Tests II</td>
<td>Determines if a child’s development is within the normal range[^49^]. Consists of 125 items in the personal-social, fine motor-adaptive, language, and gross motor domains[^49^]. Administration directions can be followed by anyone with good child skills[^49^].</td>
<td>Infants and preschoolers(up to 6 years)[^50^]. 20 min.[^51^].</td>
<td>No</td>
<td>Yes[^50^]</td>
<td>No</td>
<td>Kappa statistic ≥ 0.75[^52^]</td>
<td>2</td>
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<tr>
<td>Diener Satisfaction with Life Scale (DSLS)</td>
<td>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 administrator[^53^].</td>
<td>Older juveniles to adults[^53^]. 5 min. max[^54^].</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>n/a</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Disability Rating Scale (DRS)</td>
<td>Designed to evaluate impairment, disability, and handicap for those with traumatic brain injury[^55^]. Eight items valued at 4, 5, or 6; total of 29-point scale with 30 indicating death[^55^]. Self-administered or scored by an interview with family member[^55^]. Limited training recommended[^55^].</td>
<td>Older juveniles to adults[^55^]. 15 min. max[^55^].</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Pearson r score = 0.97-0.98 (in adults)[^55^]</td>
<td>0</td>
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<tr>
<td>Extended Glasgow Outcome Scale (GOS-E)</td>
<td>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 review[^57^].</td>
<td>None specified; suggested ≥ 16 years[^58^]. Varies with length of structured interview[^8^].</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Weighted Kappa statistic: 0.84-0.85[^58^][^59^]</td>
<td>0</td>
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<tr>
<td>Measure</td>
<td>Description</td>
<td>Time Limit</td>
<td>Inter-rater Reliability</td>
<td>Administered by</td>
<td>Physician Training</td>
<td>Other Comments</td>
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| Functional Independence Measure for Children (WeeFIM) | - Measures functional independence<sup>60</sup>  
- 18 items for 3 main domains: self-care, mobility, and cognition<sup>60</sup>  
- Scale of 1-7 based on items, with 1 indicating “total assistance” and 7 indicating “complete independence”<sup>60</sup>  
- Scores of 1-5 denote “dependence”, whereas 6-7 are “independent”<sup>60,61</sup>  
- Administered by trained health, developmental, or educational professionals via structured parental interview or direct observation of child<sup>61,62</sup> | 6 months – 7 years; 6 months – 21 years for anyone with dev. Disability; specific module for 0-3 years<sup>60</sup> | No | Yes<sup>64</sup> | No              | ICC: 0.88-0.99<sup>65</sup> |
| Glasgow Outcome Scale (GOS)                 | - Global measure of outcome<sup>66</sup>  
- Five categories (1-5): dead, vegetative, severely disabled, moderately disabled, and good recovery<sup>66</sup>  
- Rating scale completed by healthcare professional upon direct examination, unstructured personal interview, and/or retrospective record review<sup>67</sup> | None specified | 5 min. max<sup>66</sup> | No | No              | No              | Weighted Kappa statistic: 0.31-0.79, depending on raters<sup>69</sup> |
| Griffiths Scales of Mental Development      | - Obtains level of mental development in infants and young children<sup>68</sup>  
- Split into two groups: 0-2 and 2-8 years<sup>68</sup>  
- 0-2 group has locomotor, personal-social, hearing-speech, eye-hand coordination, and performance scales; 3-8 adds practical reasoning scale<sup>68</sup>  
- Professionals must be trained by a course or a tutor to administer<sup>68</sup> | 0-8 years<sup>68</sup> | 50-60 min<sup>69</sup> | No | Yes<sup>69</sup> | No              | Varies by scale, but overall mostly >0.60<sup>68</sup> |
| King’s Outcome Scale for Childhood Head Injury (KOSCHI) | - 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<sup>70,71</sup> | 2-16 years<sup>70</sup> | Varies with method of obtaining clinical info<sup>70</sup> | No | Yes<sup>70</sup> | No              | Cohen’s Kappa: ~0.50<sup>70,71</sup> |
| Modified Rankin Scale (mRS)                 | - Global measure that focuses on symptoms  
- Original RS<sup>72</sup>  
- 5 min.<sup>72</sup> | Original RS | Yes<sup>74</sup> | No | No | No | Weighted Kappa |
<table>
<thead>
<tr>
<th>Test Name</th>
<th>Description</th>
<th>Scores/Duration</th>
<th>Agreement</th>
<th>Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mullen Scales of Early Learning (MSEL)</td>
<td>Assesses cognitive and motor ability in children</td>
<td>Birth-68 months</td>
<td>Yes</td>
<td>ICC: 0.91-0.99</td>
</tr>
<tr>
<td>Neurobehavioral Functioning Inventory (NFI)</td>
<td>Two surveys, for patients and family, that assess behavior and symptoms associated with TBI</td>
<td>Not specified</td>
<td>No</td>
<td>Agreement between patients and family members: 48-84%</td>
</tr>
<tr>
<td>Pediatric Evaluation of Disability Inventory (PEDI)</td>
<td>Measures self-care, mobility, and social function on three scales: functional skills, caregiver assistance, and modifications</td>
<td>6 months – 7 years</td>
<td>No</td>
<td>ICC: 0.95-0.99</td>
</tr>
<tr>
<td>Pediatric Quality of Life Inventory (PedsQL)</td>
<td>Evaluates quality of life in children and adolescents</td>
<td>2-18 years</td>
<td>Yes</td>
<td>n/a</td>
</tr>
<tr>
<td>Pediatric Stroke Activity Limitation Measure (PSALM)</td>
<td>Measures ADLs in domains including gross motor, fine motor, self-care, communication, social and emotional function, and education</td>
<td>Children (no specific age range provided)</td>
<td>No</td>
<td>Cohen’s Kappa: 0.89</td>
</tr>
</tbody>
</table>
indicating no disability and 3 indicating inability to perform\(^8\)

- Administered by healthcare professional\(^8\)

| Pediatric Stroke Outcome Measure (PSOM) | Neurological assessment tool\(^8\)
115 items measure behavior, mental status, cranial nerves, motor, gait, sensory, and cerebellar function\(^8\)
Five subscales with scores of 0-2: right sensorimotor, left sensorimotor, language production, language comprehension, and cognitive and behavioral performance\(^8\)
Total score of 0-10 dictates “normal”, “mild”, “moderate”, or “severe” deficit\(^8\)
Standardized neurological exam administered by neurologist\(^8\) | 0-18 years\(^8\) | n/a | Yes\(^9\) | Yes\(^8\) | Yes\(^8\) | 91%\(^8\) | 7 |
| Short Form General Health Survey (SF-36) | 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 index\(^8\)
Does not target a specific age, disease, or treatment group\(^8\)
Can be self-administered, administered by a computer, or administered by a trained interviewer in person or via telephone\(^8\) | ≥ 14 years\(^8\) | 5-10 min.\(^8\) | n/a | n/a | n/a | n/a | 2 |
| Stanford-Binet Intelligence Scale | Assesses intelligence and cognitive abilities in fluid reasoning, knowledge, quantitative processing, visual-spatial processing, and working memory\(^8\)
Ten subtests give a full-scale IQ, verbal and nonverbal IQ, and composite indices spanning 5 dimensions\(^8\)
Range of scores is 40 to 160: standard score mean is 100, standard deviation is 15\(^8\)
Administered by a competent examiner trained in psychology and individual intellectual assessment, preferably a psychologist\(^8\) | ≥ 2 years\(^8\) | Variable: approx. 5 minutes per subtest\(^8\) | No | Yes\(^8\) | No | Interrater Reliability Coefficient Range: 0.74-0.97\(^9\) | 2 |
| Vineland Adaptive Behavior Scale (VABS) | Assesses personal and social function\(^9\)
13 scores in 4 domains: communication, daily living skills, socialization, and motor skills\(^9\) | 0-18 years, low-functioning adults\(^9\) | 20-60 min.\(^9\) | No | Yes\(^9\) | No | Interrater Reliability Coefficient Range: | 2 |
Wechsler Intelligence Scales (WIS)

- Measures ability to adapt and constructively solve problems
- 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)
- Consists of two batteries of subtests in verbal and performance areas, which are summed to find an overall IQ score
- Score is normative with mean 100 and standard deviation 15. Mental retardation is considered 49 and below, while gifted is 130 and above
- Administered to individual examinees by trained examiner using complex set of test materials

<table>
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<tr>
<th>Test</th>
<th>Description</th>
<th>Norms</th>
<th>Validity</th>
<th>Reliability</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wechsler Intelligence Scales (WIS)</td>
<td>Measures ability to adapt and constructively solve problems</td>
<td>4 years – adult</td>
<td>Core subtests: 60-90 min.</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*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 deWeber manuscript in submission process: personal communication
Supplemental References


