Best Practices for School Reintegration of Youth with Co-Occurring SCI and TBI

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CLINICAL SCENARIO: Although approximately 60% of individuals who sustain a spinal cord injury (SCI) are also diagnosed with traumatic brain injury (TBI), there is a lack of research exploring outcomes in the dually diagnosed population. For example, no studies have addressed the impact of co-occurring SCI and TBI on educational functioning in children and adolescents. Youth with TBI commonly display deficits in memory, attention, executive functioning, speech and language abilities, as well as behavioral dysregulation; all factors that can compromise educational progress. When these issues are combined with the functional limitations of SCI, children may face significant challenges when returning to school. As no investigations have explored these topics in the dually diagnosed SCI/TBI population, no recommendations for best practices exist to guide medical and rehabilitation professionals in facilitating successful school reintegration.

FOCUSED CLINICAL QUESTION: What are best practices for school reintegration of youth with co-occurring SCI and TBI?

CLINICAL BOTTOM LINE: There are no comprehensive, evidence-based recommendations for school reintegration, placement, or supports among children dually diagnosed with SCI and TBI. However, findings from the SCI and TBI literature offer separate recommendations that may be of use.

SUMMARY of Search, ‘Best’ Evidence’ appraised, and Key Findings:

7 articles met inclusion criteria and helped answer clinical question best:

- Physical, cognitive, behavioral, academic, and/or social problems may impact children’s school performance after TBI.
- Successful re-entry into school following pediatric TBI depends on four essential principles: Effective assessment; multidisciplinary teaming; facilitation of peer interactions; and planning for provision and withdrawal of support.

- Early school reintegration promotes independence and normative developmental progress for children and youth with SCI.
- Pediatric rehabilitation professionals should work closely with school personnel to ensure successful transition.

Chesire DJ, Canto AI, Buckley VA. Hospital-school collaboration to serve the needs of children with traumatic brain injury. J App Sch Psychol, 2011;27 60-76.
- Children and youth with TBI experience intellectual, academic, behavioral, affective, and social difficulties, but school-based services addressing these issues are often inadequate and slow to appear.
- One school district’s attempts to implement a best-practices model to deliver services to students with TBI is discussed.
- Functional assessment of children with TBI using a comprehensive Response-to-Intervention model is discussed.

- Children known or suspected to have TBI should be administered intellectual, psychoeducational, and neuropsychological testing to assess educational needs.
- Enhanced teacher training specific to TBI is recommended.
- School personnel should continually review progress of students with TBI and maintain communication with children’s medical providers.

- Occupational therapists should assume a primary role in fostering re-integration into the school setting by acting as patient advocates and liaisons between the medical and school community.

- Children with SCI returned to school relatively quickly following injury (median for children with paraplegia = 10 days following discharge from hospital; median for children with tetraplegia = 62 days post-discharge). Students surveyed (N=15) encountered a range of architectural barriers in returning to school, most prominently in terms of using school bathrooms.

Limitation of this CAT: This critically appraised topic has not been peer-reviewed by another independent person/scientist.

SEARCH STRATEGY:

Terms used to guide Search Strategy:
- Patient/Client Group: Youth with spinal cord injury, ages birth to 18
- Intervention (or Assessment): N/a
- Comparison: N/a
- Outcome(s): The existing literature has not yet established best practices for school re-integration, supports, and/or placement of children with co-occurring SCI and TBI.

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INCLUSION and EXCLUSION CRITERIA

- **Inclusion**: As no empirical investigations were present in the literature specific to children diagnosed with both TBI and SCI, manuscripts were included if they offered school re-entry, support, or placement recommendations specific to children with TBI or SCI.

- **Exclusion**: Articles were excluded if not peer-reviewed. Specificity to the pediatric population was planned as an exclusion criterion, but no articles related to adult education were identified.

BEST EVIDENCE

The following papers were identified as the ‘best’ evidence and selected for critical appraisal.

**Reasons for selecting these studies were**: Because no single manuscript provided recommendations regarding school re-integration, supports, and/or placement of children co-diagnosed with TBI and SCI, articles providing specific, comprehensive recommendations for TBI or SCI were selected. The most comprehensive of these were Deidrick & Farmer, 2005 (TBI); Chesire, Canto & Buckley, 2011 (TBI); and Graham, Weingarden & Murphy, 1991 (SCI).

SUMMARY OF BEST EVIDENCE

### School re-entry following traumatic brain injury (Deidrick & Farmer 2005).

**Aim/Objective of the Study**: To review the topic of school re-entry after pediatric TBI and make specific recommendations for facilitating academic success among children with TBI.

**Design**: N/a

**Setting**: N/a

**Participants**: N/a

**Interventions**: N/a

**Outcome Measures**: N/a

**Original Authors’ Conclusions**: Challenges to successful post-TBI school re-integration include cognitive difficulties, behavioral dysregulation, and psychosocial issues. Successful school re-entry depends on effective assessment, multidisciplinary collaboration, psychosocial support and/or intervention, and extensive planning for provision and eventual withdrawal of supports. Parents, physicians, rehabilitation professionals, and special educational staff should collaborate to develop an individualized education plan (IEP) to organize and document team efforts. Frequent re-assessment evaluating medical and cognitive status should be performed during the first few years following TBI to ensure that educational supports are adequate. Several formal TBI school-re-entry protocols have been developed, including North Carolina’s Project ACCESS and Student Centered Education Management and Advocacy (SCEMA). Specific recommendations for each phase of school re-entry are provided.

### School reintegration: A rehabilitation goal for the spinal cord injured adolescent. (Graham, Weingarden, & Murphy, 1991).

**Aim/Objective of the Study**: To describe legal and practical issues surrounding school re-integration for children with SCI, as well as present results of a survey of adolescents with SCI related to school re-entry.

**Design**: Survey

**Setting**: Southeastern Michigan SCI System

**Participants**: 13 adolescents with SCI

**Interventions**: N/a

**Outcome Measures**: N/a

**Original Authors’ Conclusions**: A model for school reintegration is discussed. In this model, children and youth with SCI are provided with a minimum of two hours of instruction per week while in hospital. Occupational therapists incorporate school-specific skills (e.g., typing, writing, and introduction of assistive technology). The hospital’s social worker, psychologist, and hospital teacher focus on preparing students to re-enter the school setting. Before students return to school, an IEP is developed with specific reference to the impact of physical disabilities on the educational experience. Results of a survey of 13 youth who had received these services revealed that students reported that peers and teachers were generally friendly and welcoming. However, reluctance to ask for help in some settings and architectural barriers presented barriers to participation. Minimal access to educational and
vocational counseling was reported post-school re-entry. In terms of specific educational supports, three students with quadriplegia were assigned a note-taker, and others used a tape-recorder. It was recommended that the hospital rehabilitation team take a lead role in facilitating early school re-entry and minimizing lost educational time. Emphasis should be placed on mainstreaming as much as possible.

Hospital-school collaboration to serve the needs of children with traumatic brain injury (Chesire, Canto & Buckley, 2011).

**Aim/Objective of the Study:** To illustrate a model for school reintegration of children with TBI.

**Design:** N/a

**Setting:** N/a

**Participants:** N/a

**Interventions:** N/a

**Outcome Measures:** N/a

**Original Authors’ Conclusions:** The authors propose that three components are necessary to successful service delivery for students with TBI: 1) The school psychologist should provide teachers and school counselors with education and support regarding working with children with TBI; 2) School psychologists should receive ongoing training regarding assessment and best practices for educating children with TBI; 3) Schools should provide adequate administrative support to facilitate ongoing training and service delivery efforts.

Returning to school after a spinal cord injury: Perspectives from four adolescents (Mulcahey, 1991).

**Aim/Objective of the Study:** A phenomenological approach was used to explore the experience of returning to school among four adolescents with SCI.

**Design:** Qualitative

**Setting:** N/a

**Participants:** 4 adolescents with SCI

**Interventions:** N/a

**Outcome Measures:** N/a

**Original Authors’ Conclusions:** Participants reported “a major gap between the rehabilitation world and authentic environments.” All identified accessibility as a major barrier to returning to school, and social interactions between adolescents with SCI and teachers were reportedly difficult. Some youth suggested that teachers and other staff appeared to believe that SCI is associated with cognitive deficits. It was recommended occupational therapists assume a primary role in preparing youth for school re-entry and facilitating students’ reintegration into the community. Furthermore, occupational therapists were advised to assume liaison roles between families and school personnel in order to ensure that schools are adequately prepared to welcome students with SCI.

Response to intervention: The functional assessment of children returning to school with traumatic brain injury (Dykeman, 2009)

**Aim/Objective of the Study:** To describe functional assessment of children with TBI using a Response-to-Intervention (RTI) model.

**Design:** N/a

**Setting:** N/a

**Participants:** N/a

**Interventions:** N/a

**Outcome Measures:** N/a

**Original Authors’ Conclusions:** Formal transition services linking students to appropriate support agencies enhance the ability of children with TBI to complete educational programming. Functional assessment of behavior allows for a quick and comprehensive method of charting the behavior of children with TBI across all stages of recovery. Special educational services should utilize the Response-to-Intervention model, in which instruction is divided into three tiers: 1) traditional instruction; 2) formulation of a child study team which develops instructional and classroom modifications; and 3) special educational placement including individualized instruction with intensive interventions. Children with TBI generally return to school with needs at tier 2 or 3.
**Educating students with TBI: Themes and recommendations** (Ylvisaker et al., 2001)

**Aim/Objective of the Study:** To synthesize findings and experiences of 10 educational consultants and researchers related to the education of children with TBI.

**Design:** Survey

**Setting:** N/a

**Participants:** 10 educational researchers and consultants

**Interventions:** N/a

**Outcome Measures:** N/a

**Original Authors’ Conclusions:** Respondents suggested that states should standardize definitions of TBI and special educational criteria to ensure that all students entitled to services receive them. Respondents also suggested that standardized and improved methods for communicating with hospital/medical staff be implemented to facilitate students’ transition to school. Enhanced training regarding behavioral needs as well as administration of neuropsychological, intellectual, and psychoeducational tests for school mental health specialists were recommended. Ongoing investigation of educational interventions for TBI was also suggested, with specific recommendations made for classroom and/or instructional modifications including delivering material in small increments, curriculum modification, behavioral supports, and sequential learning.

**Return to school after spinal cord injury** (Sandford, Falk-Palec, & Spears, 1999).

**Aim/Objective of Study:** To determine time elapsed between discharge from inpatient rehabilitation and physical return to the classroom among students with SCI.

**Design:** Retrospective review

**Setting:** A US Spinal Cord Injury Center

**Participants:** 15 youth ages 8 to 18 at time of SCI

**Interventions:** N/a

**Outcome Measures:** N/a

**Original Authors’ Conclusions:** Children with SCI return to school relatively quickly following injury. A median 10 days elapsed between discharge and return to school for youth with quadriplegia, as opposed to a median 62 days for children with tetraplegia. Students commonly encountered barriers to returning to school, most commonly architectural in nature.

**IMPLICATIONS FOR PRACTICE, EDUCATION and FUTURE RESEARCH**

**Practice:**
- Preparation for school reintegration should be a major focus of rehabilitation of children with TBI and SCI.
- Educational needs of children with both TBI and SCI can vary widely, such that there is no “one size fits all” plan for reintegrating co-diagnosed children into the school setting. Both the SCI and TBI literature stress that effective, timely planning involving parents, hospital personnel, pediatric rehabilitation professionals, and representatives of the school is key to successful school re-entry.
- Therefore, medical and pediatric rehabilitation professionals should work closely with parents and schools to ensure that appropriate supports are in place for children with SCI and TBI. Specific supports and services may include:
  - Comprehensive assessment of cognitive and intellectual abilities, including neuropsychological and psychoeducational testing, prior to school re-entry.
  - Collaborative development and monitoring of a team-based Individualized Education Plan (IEP) detailing appropriate instructional and classroom modifications prior to school re-entry.
  - Supports specific to TBI may include: A shortened school day, peer buddies, curriculum modification, behavioral supports, one-on-one tutoring, and reduced workload.
  - Supports specific to SCI may include: Availability of a personal care aide, provision of recording devices for students unable to take notes in class, handicapped-accessible transportation to all school-related activities (including after-school programming and field trips), and handicapped-accessible classroom desks placed in an inclusive manner alongside classmates.
Recommended school supports shared in the TBI and SCI literature include extra time to transition between classes, provision of separate sets of textbooks for school and home, assistive technology (e.g., electronic planners; voice-recognition-enabled laptop computers), and paraprofessional note-takers.

**Education:**
- Pediatric rehabilitation professionals should provide education to both parents and school personnel regarding clinical aspects of TBI and SCI that may impact children’s educational functioning.
- Pediatric rehabilitation professionals should receive ongoing training regarding legal issues surrounding education of children with disabilities.
- Pediatric rehabilitation professionals should serve as advocates for parents in obtaining appropriate services for children with SCI and TBI and liaise with the school district as necessary.

**Research:**
- No empirical studies have investigated models for school re-integration or educational supports for children co-diagnosed with SCI and TBI. Future studies should seek to develop comprehensive recommendations that could be used by medical and pediatric rehabilitation professionals to foster successful school reintegration of children with SCI and TBI.