# University of Dayton eCommons

Counselor Education and Human Services Faculty Publications

Department of Counselor Education and Human Services

5-2016

# School-Based Traumatic Brain Injury and Concussion Management Program

Susan C. Davies *University of Dayton*, sdavies1@udayton.edu

Follow this and additional works at: https://ecommons.udayton.edu/edc fac pub

Part of the Counselor Education Commons, Educational Administration and Supervision
Commons, Educational Assessment, Evaluation, and Research Commons, Educational Leadership
Commons, Educational Psychology Commons, and the Higher Education Commons

## eCommons Citation

Davies, Susan C., "School-Based Traumatic Brain Injury and Concussion Management Program" (2016). Counselor Education and Human Services Faculty Publications. 43.

https://ecommons.udayton.edu/edc fac pub/43

This Article is brought to you for free and open access by the Department of Counselor Education and Human Services at eCommons. It has been accepted for inclusion in Counselor Education and Human Services Faculty Publications by an authorized administrator of eCommons. For more information, please contact frice1@udayton.edu, mschlangen1@udayton.edu.

| Running Head: TBI PROJECT   | 1     |
|---|-------|
|   |       |
|   |       |
|   |       |
|   |       |
|   |       |
|   |       |
|   |       |
|   |       |
|   |       |
| School-Based Traumatic Brain Injury Program and Concussion Management Team            |       |
| By Susan C. Davies  |       |
| University of Dayton  |       |
|   |       |
|   |       |
|   |       |
|   |       |
|   |       |
| Address correspondence to Susan C. Davies, University of Dayton, Department of Counse | lor   |
| Education, 300 College Park, Dayton, OH 45469-2962. E-mail: sdavies1@udayton.edu. Ph  | none: |
| (937)229-3652. Fax: (937)229-1055   |       |
|   |       |
|   |       |
|   |       |

#### Abstract

Traumatic brain injuries (TBIs), including concussions, can result in a constellation of physical, cognitive, emotional, and behavioral symptoms that affect students' well-being and performance at school. Despite these effects, school personnel remain under-prepared to identify, educate, and assist this population of students. This article describes a model of service delivery for students with TBI in a large urban school district. The district's TBI Program and Concussion Management Team address unique issues related to assessment, intervention, and transition planning for this population of students, as well as prevention and education efforts in the district as a whole. This model involved designating a district-level school psychologist to serve as a point person for TBI cases, which improved accurate identification of students with TBI, facilitated coordination of concussion management efforts, and provided a smooth transition for students with TBI from the hospital or clinic back to school. Suggestions for increasing school psychologists' involvement with TBI cases are proposed, including strategies for serving as team leaders, for coordinating data-based decision making and progress monitoring, and for training others in the school community about traumatic brain injuries.

School-Based Traumatic Brain Injury and Concussion Management Program

A traumatic brain injury (TBI) is an acquired brain injury caused by an external force, such as a bump, blow, or jolt to the head. It can also be caused by a penetrating head injury, such as a gunshot wound. A concussion is a type of mild traumatic brain injury (mTBI) that results in short-term impairment of neurological function (Centers for Disease Control and Prevention [CDC], 2015). TBIs of all severity levels can adversely affect students' cognition, academic performance, behavior, and emotional well-being in the short-term or long-term. While school psychologists typically learn some information about TBIs in graduate school and through professional development initiatives, many lack the requisite knowledge and skills to adequately meet the needs of this population of students (Davies, 2013). While it would be ideal for all school psychologists to be more prepared to assess and intervene with TBI cases, an alternate model is to have one school psychologist with special expertise in TBI who serves as a district-level "point person" for all TBI and concussion cases.

## **TBI Overview**

Prognosis following a TBI varies based upon the type and severity of injury; survivors of more severe TBIs are expected to have higher and more permanent degrees of impairment than those with mild TBIs. However, individuals who have sustained mild TBIs, including concussions, have also reported symptoms that disrupt their learning, physical health, and relationships (Bakhos, Lockhart, Myers, & Linakis, 2010; Keenan & Bratton, 2006; McGrath, 2010). While much recent media attention has focused on sports-related concussions, a number of TBIs occur off the playing field and are caused by falls, accidents, and assaults (CDC, 2015).

The Individuals with Disabilities Education Improvement Act (IDEIA, 2004) defines TBI as:

... an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; problem-solving; sensory, perceptual and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or brain injuries induced by birth trauma. (34 Code of Federal Regulations 300.7(c)(12))

Under-identification. According to the CDC, approximately 1.7 million people sustain TBIs in the US each year; about 700,000 of those are children (Faul et al., 2010). However, when including the potential cases of concussion that are not seen in medical facilities, the numbers are likely closer to 3.8 million per year (Langlois, Rutland-Brown, & Wald, 2006). At any time, about 130,000 students in kindergarten through 12<sup>th</sup> grade would be expected to have severe enough TBIs to warrant special education services (Glang et al., 2008); however, federal special education census data reports only 26,000—about 20% of these students—receiving services under IDEA's TBI label in 2011-2012 (National Center for Education Statistics, 2013).

Based on the relatively low numbers of students identified with TBIs under IDEA, it is sometimes referred to as a "low-incidence" disability. However, TBI is actually the leading cause of death and disability in childhood and adolescence (Asemota, George, Bowman, Haider, & Schneider, 2013; Kirk, Fallon, Fraser, Robinson, & Vassallo, 2014). While these students may

be receiving services under a different label, the statistics highlight the fact that school psychologists generally may lack sufficient understanding of traumatic brain injuries to appropriately apply the label. This lack of knowledge, coupled with the complexity of symptoms that can vary from child to child, can lead to misclassification of students with TBI (Gordon, Oswald, Vaughn, Connors, & Brown, 2013). In addition to lack of understanding, educators may also have insufficient time or resources to focus on students with TBI, exacerbating the situation.

To misclassify a student with TBI with a different disability label can lead to that student's being misunderstood by teachers. For example, a child with TBI who experiences resulting social, emotional, and behavioral problems may be misclassified as having an emotional or behavioral disability. In such students, cognitive deficits are often ignored. The misclassification can lead to avoidance of others and social isolation, which can result in confusion, anger, and further disruptive behavior. This can bring about a student's eventual school failure or dropping out of school, parent/school conflict, and overall feelings of demoralization.

Students with mild TBIs are even more difficult to identify than those with moderate or severe injuries because often schools are not told about these injuries and because consequences are not as readily evident to educators (Gordon et al., 2013). Students who have sustained mile TBIs often do not receive medical treatment and so do not attribute signs and symptoms to a head injury that occurred days—or even weeks—before. School psychologists are rarely called upon to meet the needs of students who have sustained more mild TBIs, including concussions. Results of a recent study indicated that most school psychologists have little or no involvement with students who sustained concussions (Davies, in press). While parents of students with concussions may provide some kind of notification to the school (e.g., call to nurse, email to

teachers), such information is not systematically documented. Thus, if there are academic, physical, or emotional problems post-injury or if a second injury is sustained, there may not be sufficient information for a strong, coordinated school-based response.

## **Needs of Students with TBI**

In addition to the potential issues described above, survivors of TBI present a unique constellation of deficits, including deficits in attention, memory, executive functions, social skills, emotional regulation, behavior management, and academic skills. Skills are often inconsistent; some higher-level skills may be retained, while lower-level skills are impaired. These deficits may improve, but they may also worsen over time, which is not often seen in students with other types of disabilities. Evaluation data may also be puzzling; for example, academic achievement testing may show a student's skills are commensurate with typical sameage peers, yet his or her actual classroom performance may be significantly diminished. Effects vary depending on the age of injury, type of injury, and presence of preexisting conditions, such as migraines or mental health issues.

Furthermore, it is not uncommon for TBIs to have delayed consequences, in which case educational problems may not be observed until a student is presented with increased demands at school. For example, a child who was hit by a car at age two may appear to have recovered fully, but then begin to experience academic and social problems in elementary school that are a result of the TBI sustained several years earlier. Such cases require highly skilled school psychologists to appropriately document, evaluate, and report on the incident and resulting impairments. With this in mind, when any child is evaluated because of academic or behavior problems, the school psychologist should consider TBI as a *possible* cause and include questions related to TBI in interviews with parents.

Proper identification of students with TBI requires strong communication among the school team, family members, and medical personnel. This facilitates effective transition planning, sharing of medical records and coordinating of paperwork, preplanning before a student's return to school, and education of the school team and classmates about TBI. An initial experience dealing with the special education process can be abrupt and confusing, particularly when the family may also be working through grief and financial issues related to their child's TBI. However, school personnel often do not have adequate knowledge and training of TBI and thus often fail to identify and understand the needs of students with TBI. This lack of understanding, especially if there is weak communication between a student's doctors, parents, and school personnel, can interfere with his or her needs being met. In fact, school staff's lack of knowledge about TBI is a primary reason for parents' dissatisfaction with school services (Gfroerer, Wade, & Wu, 2008; Glang et al., 2004).

## **Specialization Areas for School Psychologists**

Demands for areas of expertise and for competence in various domains of practice within the field of school psychology are leading practitioners to consider adopting specialized roles within the field (Fagan, 2002; Miller, DeOrnellas, & Maricle, 2009; Reynolds, 2011). However, most training programs train students only broadly, particularly in specialist-level programs. While the role of the school psychologist might benefit from expansion, research shows that "role time allocations are much the same proportionally as they were many years ago" (Fagan, 2002, p. 7; Taub & Valentine, 2014). Thus, the field of school psychology faces the dilemma of practitioners' need to fulfill specialized roles to meet the diverse needs of students and schools, but without sufficient training to do so. Such training could be obtained through graduate-level

coursework, professional development, and supervised experience in school settings (Miler, Maricle, & DeOrnellas, 2009).

With appropriate training, school psychologists could specialize in diverse areas, including "autism, childhood schizophrenia, traumatic brain injury, attention deficit hyperactivity disorder, profound intellectual disabilities, and a variety of chronic illnesses" (Reynolds, 2011, p. 926); other areas of specialization include "early childhood assessment, child abuse, crisis intervention, vocational and career development, reading disabilities, curriculum-based assessment, giftedness, secondary and postsecondary settings, or neuropsychology" (Fagan, 2002, pp.6-7), as well as pervasive developmental disabilities assessment and intervention, and behavioral consultation, assessment, and intervention (Miller, Maricle, & DeOrnellas, 2009).

Thus, one solution to the problem of unmet needs in students with TBI in particular is to explore the use of a school psychologist with special training and interest in TBI to serve as a point person and district-consultant for TBI cases. This person can facilitate the transition from hospital or rehabilitation back to school and can conduct subsequent evaluations and interventions for the same student. A school psychologist with special expertise in TBI can also effectively consult with families, school teams, coaches, and medical providers; plan transitions from the hospital or rehabilitation center; conduct evaluations; and design and monitor interventions. Further, such a specialist can initiate prevention and education efforts. Following is a description of one district's use of this model.

## **Columbus City School District**

Columbus City School District is an urban school district in the midwestern United States that serves over 51,000 students in 109 schools. Data from the Centers for Disease Control and Prevention (CDC, 2010) indicated a rate of approximately 308 emergency department visits and

36 hospitalizations for traumatic brain injuries per 50,000 children ages 5-19 in the four-year period of 2002-2006. Thus, we would expect about that many children in this district to have sustained traumatic brain injuries each year. The injured students seen in the emergency departments and subsequently released were likely to have incurred mild TBIs, and the injuries that resulted in hospitalizations were likely to have been more moderate or severe.

## **TBI Project**

The *TBI Project* initially came about when a representative from Ohio Legal Rights Services (OLRS) approached the district's Director of Special Education in 2005 with a pilot project, the goals of which were improving TBI awareness, educating others about TBI, and increasing identification and support of students with TBI. OLRS conducted an in-service presentation with the district psychologists, providing brochures, posters, and other literature about TBI. The district was asked to identify a school psychologist who could focus on the district's TBI cases. A school psychologist already working with the district's "low incidence" populations initially served in this role. At the time, this psychologist reported having only *three or four* students with TBI on her caseload (in a district of 51,000 students) (S. Timms, personal communication, April 23, 2015). Then, in 2006, the psychologist who currently served in the role of TBI school psychologist volunteered to be a special consultant for the district's TBI cases. She was given a one-day-per-week allocation for this role; during the other four days of the week she worked in three elementary schools.

This school psychologist began conducting in-service sessions with the other psychologists and school-based teams; as a result, information about TBI spread, and school psychologists began to ask better questions when conducting evaluations in their buildings. As a

result, more cases were referred to the TBI school psychologist, and the next year, her allocation of time for the *TBI project* increased to two days per week.

## **School-Based Concussion Management Program**

Because the needs of students with concussions can differ from those of students with moderate and severe TBIs, in 2009, Columbus City School District developed a *School-Based Concussion Management Program* that is distinct from the *TBI Project*. This addresses the need for more concussion prevention and education; it also helps to ensure that students who have sustained concussions and are symptomatic are cared for and monitored upon return to school. Assessment of academic and behavioral needs, development of accommodations, monitoring the progress of interventions, leading a school-based team, and consulting with families and medical professionals are all part of a school psychologist's repertoire of skills. Clearly, students with concussions would benefit from all of these services upon their return to school.

Figure 2 illustrates Columbus City School District's concussion plan related to prevention and

Figure 2 illustrates Columbus City School District's concussion plan related to prevention and education. Figure 3 includes protocols for concussions that have been sustained.

While student athletes should be asymptomatic and cleared by a medical professional before returning to play, students can return to school with mild concussion symptoms as long as appropriate adjustments are made to the educational environment. Post-concussion students may need academic, behavioral, or mental health support in order to be successful upon their return to school. A few such accommodations might include a shortened school day, extended deadlines for exams and assignments, modifications to exams and assignments, preferential seating, and provision of class notes in advance. If students with concussion symptoms do not receive physical and cognitive rest, their symptoms can flare and prolong recovery. These supports are facilitated by the *School-Based Concussion Management Program*, which ensures a consistent

response, documentation of progress, clear communication between home and school, and general support for students with concussions.

Insert Figure 1: Concussion Plan Part 1—Prevention and Education

About here

Insert Figure 2: Concussion Plan Part 2—Protocols for Concussions Sustained

About here

Once a concussion has been reported, the TBI school psychologist facilitates the development of a one-page concussion management plan. This plan includes a list of symptoms or problems that teachers should watch for, as well as a list of accommodations that should be put in place as soon as the student returns to school. The student is also given a post-concussion symptom scale to use for recording daily symptom ratings on a 1-6 scale. This form is different for a 504 plan, which might be used when a child is experiencing persistent post-concussion symptoms beyond the point at which recovery was expected. The concussion management plan is similar to a short-term "medical care plan" that might be provided to a child attending school with a broken leg or other short-term injury.

By 2013, the Columbus TBI school psychologist's allocation increased to three days a week. That year, Ohio's Return-to-Play law (ORC 3707.511) went into effect, which prohibits schools from allowing a student to practice for or compete in school sports until he or she has been cleared by a qualified medical professional. This law led to additional in-service presentations conducted by psychologists for the athletic trainers and athletic directors. The TBI

school psychologist's caseload increased further. The following year, her allotment of time devoted to TBI and concussion cases increased to four days per week.

## **TBI School Psychologist's Activities**

The following details of the TBI school psychologist's role in various aspects of TBI and concussion cases can be replicated by other school districts seeking to develop a similar model:

Screening. The district takes a two-pronged approach to screening. The nurse sends a general health questionnaire to all parents. In addition to general questions about growth and development, medications, and allergies, the questionnaire asks two TBI screener questions: *Has this child ever been seen in the emergency room or been hospitalized for a head injury?* and *Has your child ever lost consciousness as the result of a fall, car accident, or being hit in the head?* This allows documentation of injury to become part of a student's record, whether the child is currently symptomatic or not. The nurses are instructed to send any positive responses on to the TBI school psychologist, who can then send to the parents a more comprehensive two-page screener that asks detailed follow-up questions about the injury and about any possible academic and behavioral effects. This two-page questionnaire is also used if a school psychologist in the district receives a referral for a possible TBI.

**Evaluation.** When a student is being evaluated—or reevaluated—for special education services in the district, all school psychologists are instructed to include questions about previous head injuries in any parent or caregiver interviews. Sample questions include "Has your child ever hit his/her head or gotten hit in the head?"; "Did your child ever lose consciousness or have a concussion?"; "Did your child ever have surgery to the head or brain?" "Has your child ever had a stroke?" "Has your child been diagnosed with a brain tumor?" Such questions thus categorize TBI as a possible special education category. Respondents who give affirmative

answers are then instructed to check specific symptoms from a list of possible post-injury problems, such as headaches, irritability, increased fatigue, memory problems, academic difficulties, changes in friends. Results are reviewed and appropriate cases are sent to the TBI school psychologist.

The TBI school psychologist leads all of the TBI evaluations in the district, including evaluations of students who sustained brain injuries many months or years prior to referral. Such injuries might have been the result of such incidents as early childhood accidents, abuse, or summer sports injuries. It is not uncommon for TBIs to have delayed consequences, in which case educational problems may not be observed until a student is later presented with increased demands at school. The TBI school psychologist is also responsible for reviewing outside evaluation data, such as hospital-based neuropsychological evaluations. The school-based evaluation also focuses on academic skills and context-specific information, such as ecological assessment of classroom variables.

If a disability under IDEIA is not suspected, the *TBI Project* includes development of a 504 plan, if appropriate. In such cases, the TBI school psychologist might serve as a consultant or provide suggestions on goals and strategies, and the building-based team then writes and oversees the 504 plan. Figure 1 illustrates the process Columbus City School District uses for initial TBI referrals.

Insert Figure 3: Flowchart for Initial TBI Referrals

About here

Team leadership. An educational team, ideally comprised of a school psychologist, parents, teachers, administrators, the school nurse, and such support personnel as an occupational therapist, physical therapist, and speech therapist, meets with the hospital or rehabilitation team to collaboratively determine a return-to-school plan and to ensure an overall educational plan, one that takes into account the student's current medical status and present levels of performance, and one that makes recommendations for school-based adjustments and accommodations. The TBI school psychologist serves as the team leader in Columbus City school district.

Collaboration with families. The family's experience after a child has sustained a TBI is unique among disabilities. In most other disability situations, parents gradually realize their child might have special needs. With a TBI, a single moment of impact can abruptly change the course of their child's life. If the injuries are severe enough to require special education services, this may likely be the parents' first introduction to special education policies and procedures. Because the TBI school psychologist in this district is aware of the ensuing mix of emotions—a mix that might include relief, grief, guilt, denial, and confusion—one of her roles is to provide support to the parents and other siblings during the process of a student's transition back to school and beyond.

Consultation with medical providers. The TBI school psychologist in this district has also established relationships with medical providers, both at the local hospitals and at sports concussion clinics. She thus goes to the hospital, rehabilitation facility, or sports medicine clinic to help transition children back to school and, because she has served in the role for several years, key medical personnel know to ask for her by name. This development of relationships seems to be one of the most important parts of this model. Focusing exclusively on TBIs has also

given her the opportunity to become familiar with unique policies and procedures at different medical facilities. For example, she has learned which hospitals accept the district-based medical record release forms and which require their own forms. She has also learned that rather than sending a general release to a hospital or doctor for medical records—which can yield 15 years of well-child visit documents—it is better not only to direct requests to the specific department or doctor the parents have indicated (e.g., neurology department or a specific neurologist), but also to clarify that she is seeking records about this specific injury occurring on a specific date and about subsequent related visits.

A strong collaborative relationship with school nurses is also a key part of this model. In Columbus City School District, the nurses are the TBI school psychologist's key liaisons at the building level. They alert her about injuries or changes in symptoms, collect paperwork, and help coordinate meetings. Teachers often go to the nurses with concerns related to their students with TBIs, and the nurse then passes on the information to the TBI school psychologist. For concussions sustained in athletics, the athletic trainers serve in much of the same capacity, contacting the TBI school psychologist directly for coordination of services and communication of symptoms.

Consultation with teachers and administrators. The TBI school psychologist provides a great deal of consultative support to teachers, largely in a team meeting setting. This can occur in the early stages of intervention assistance teams, in evaluation team meetings, and in periodic reviews for students who sustained TBIs many years ago. Because these relationships have developed over time, administrators will contact the TBI school psychologist directly to invite her to meetings. For example, one principal recently called her and said, "We have a student with

water on the brain (hydrocephalus) and we need help. Would that be you? We've worked together before..." (S. Timms, personal communication, April 23, 2015).

Transitions. Transition points can be particularly difficult for students who have sustained TBIs. This includes the transition from hospital or rehabilitation back to school, the transition between grades, and the transition from high school to post-secondary work or college, just to name a few. Having one specialized school psychologist follow the family throughout a student's educational career can be a source of great comfort for a family. The TBI school psychologist can help minimize potential problems related to transitions by anticipating difficulties with adjustments in routines and expectations and thus setting up meetings with the student, parents, and educational team in advance to facilitate such transitions.

Interventions and progress monitoring. Multi-tiered systems of support involve interventions that increase or decrease in intensity based upon student need. Because the skills and abilities of students with TBI may rapidly fluctuate, the TBI school psychologist assists school teams with progress-monitoring techniques. She is also particularly skilled at ascertaining issues that can affect risk, resilience, and recovery. The TBI school psychologist helps determine which interventions will best address particular areas of deficit. Because there are few empirically-validated interventions specifically for students with TBI, the TBI school psychologist can help review research-based interventions that are effective for specific areas of deficit, such as attention, memory, executive functions, and academics.

Based on frequent collection and review of progress monitoring data, the team determines how and when to decrease services. Curriculum-based measures, which are sensitive to uneven progress patterns, can be useful progress monitoring measures. Re-teaching, development of compensatory strategies, environmental modifications, and modified teaching

approaches are broad techniques which can improve functioning in the short-term and in the long-term.

Because students with newly acquired TBIs may make rapid changes, intervention strategies may need to be revisited and revised every 4-6 weeks rather than annually. The TBI school psychologist ensures that these periodic reviews are held frequently and that regular communication among school personnel, families, medical personnel, and therapists is maintained.

Record keeping. The TBI school psychologist maintains all records of the injury and accommodations. Depending on an injury's severity, there may be a number of medical records, which can be difficult to track down after a lapse of time. Thus it is important that the team leader—and parents—keep in an organized manner all relevant documents that track progress and symptoms across time. This helps ensure effective, consistent follow-up with all TBI cases in the district.

## **Outcomes**

The *TBI Project* at Columbus City School District has helped remedy the underidentification problem by systematically screening for TBI as part of enrollment and special education evaluations. During the first year of the project, the TBI school psychologist consulted on 11 TBI cases in the district, arguably far more than the typical school psychologist deals with during any given school year. Last year, she consulted on 201 TBI cases. Table 1 illustrates the number of TBI referrals seen in the district across the seven years of program implementation.

## Insert Table 1 about here

The process is also associated with increases in students identified with TBI. There are no known extraneous variables that would account for this increase (e.g., no reason there would be more actual cases of TBI). As shown in Figure 4, there has also been an increase in number of students identified with TBI across the years of the *TBI Project's* implementation.

18

## Insert Figure 4 about here

When the *School-Based Concussion Management Program* was added in 2009, three years after the *TBI Project* began, the TBI school psychologist was called to consult on seven sports concussion cases—again, arguably more than the typical school psychologist deals with during any given school year. Last year, she received 112 sports concussion referrals, as well as 50 non-sport concussion cases.

## Insert Table 2 about here

## **Conclusion and Implications for School Psychology**

The *TBI Project* and the *School-Based Concussion Management Program* involved designating a school psychologist at the district level to serve as a point person for TBI cases. The programs addressed the problem of schools' failing to "find" and identify the needs of students with TBI. Having a systematic screening process, as well as a procedure for notifying the school that an injury has occurred, significantly increased the numbers of students referred for consultation, evaluation, and ultimately receiving services. The TBI school psychologist facilitated evaluation, intervention, and transition planning for this population of students. She ensured that problems affecting learning and social/emotional/behavioral functioning were

recognized, and she coordinated data-based decision making and progress monitoring. The programs also included prevention and education efforts in the district as a whole.

The building-level support teams were important for the *TBI Project* and the *School-Based Concussion Management Program's* success. One suggestion for further strengthening the model is to develop a core district-level team of related services personnel, including an occupational therapist, physical therapist, and speech-language pathologist. It would also be helpful to have one of the special education coordinators in the district be designated for these cases. Currently the TBI school psychologist attends the IEP meetings for students with TBI, but having a special education coordinator serve in that role would likely ensure that IEPs are TBI-specific. Further, it would be helpful to have the progress of students with TBI within the district continue to be tracked, using documentation of meaningful measures, attendance, parent/child satisfaction, dropout rates, graduation rates, and so forth.

Clearly this is an area of need—and opportunity—for school psychologists. It is suggested that other districts consider adopting such a model and prioritize this when making funding decisions. Smaller school districts or districts lacking the resources to implement a program similar to Columbus City School District might consider a few of the following options: They might train all of their school psychologists to better recognize and respond to TBIs and then designate one school psychologist to take the lead on the more complex TBI cases, perhaps beginning with a half-day assignment specifically for this role. Smaller school districts might also collaborate with neighboring districts to support such a position or seek services from regional support teams or educational service centers. In creating this position, it is important that personnel consider unique characteristics within their community that might affect incidence of TBIs and levels of injury reporting. For example, some communities may have high numbers

of farming accidents; others may have higher instances of TBIs from abuse and violence or from winter sports. Regardless of a district's demographics, it seems that two essential elements to consider when replicating this model are being *proactive*, involving engagement in education and awareness activities, and being *reactive*, attending to actual plans and services, such as return-to-play and return-to-learn policies and procedures.

#### References

- Asemota, A., George, B., Bowman, S., Haider, A., & Schneider, E. (2013). Causes and trends in traumatic brain injury for United States adolescents. *Journal of Neurotrauma*, *30*, 67-75. doi: 10.1089/neu.2012.2605
- Bakhos, L. L., Lockhart, G. R., Myers, R., & Linakis, J. G. (2010). Emergency department visits for concussion in young child athletes. *Pediatrics*, 126(3), 550-556.
- Centers for Disease Control and Prevention. (2010). *Traumatic brain injury in the United States:*\*Emergency department visits, hospitalizations, and deaths, 2002-2006. Retrieved from http://www.cdc.gov/traumaticbraininjury/tbi\_ed.html
- Centers for Disease Control and Prevention. (2015). *Injury prevention and control:*\*Traumatic brain injury. Retrieved from 
  http://www.cdc.gov/TraumaticBrainInjury/get\_the\_facts.html
- Davies, S. C. (in press). Ohio school psychologists' involvement with concussion cases. *The Ohio School Psychologist*.
- Davies, S. C. (2013). School psychology programs: Graduate preparation in traumatic brain injury.

  \*Trainers' Forum: Journal of the Trainers of School Psychologists, 31(2), 5-16.

- Fagan, T. K. (2002). School psychology: Recent descriptions, continued expansion, and an ongoing paradox. *School Psychology Review*, *31*(1), 5-10.
- Faul, M., Xu, L., Wald, M. M., & Coronado, V. G. (2010). *Traumatic brain injury in the United States: Emergency department visits, hospitalizations, and deaths*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.
- Gfroerer, S., Wade, S., & Wu, M. (2008). Parent perceptions of school-based support for students with traumatic brain injuries. *Brain Injury*, 22(9), 649-656.
- Glang, A., Todis, B., Thomas, C. W., Hood, D., Bedell, G., & Cockrell, J. (2008). Return to school following childhood TBI: Who gets services? *NeuroRehabilitation* 23, 477–486.
- Glang, A., Tyler, J., Pearson, S., Todis, B., & Morvant, M. (2004). Improving educational services for students with TBI through statewide consulting teams. *NeuroRehabilitation*, 19, 219-231.
- Gordon, W. A., Oswald, J. M., Vaughn, S. L., Connors, S. H., & Brown, M. (2013) State of the states: Meeting the educational needs of children with traumatic brain injury. Retrieved from www.biause.org/biaa-position-papers.htm
- Individuals with Disabilities Education Improvement Act of 2004, P.L. 108- 446, 20 U.S.C. §1400 et seq.
- Keenan, H. T., & Bratton, S. L. (2006). Epidemiology and outcomes of pediatric traumatic brain injury. *Developmental Neuroscience*, 28, 256-263.
- Kirk, S., Fallon, D., Fraser, C., Robinson, G., & Vassallo, G. (2014). Supporting parents following traumatic brain injury; A qualitative study to examine information and emotional support needs across key care transitions. *Child: Care, Health, and Development, 41*(2), 303-313. doi: 10.1111/cch.12173

- Langlois, J. A., Rutland-Brown, W., & Wald, M. M. (2006). The epidemiology and impact of traumatic brain injury: A brief overview. *Journal of Head Trauma Rehabilitation*, 21, 375–378.
- McGrath, N. (2010). Supporting the student-athlete's return to the classroom after a sport-related concussion. *Journal of Athletic Training*, 45, 492–498. doi:10.4085/1062-6050-45.5.492
- Miller. D. C., DeOrnellas, K., & Maricle, D. (2009). What is so special about the specialist degree? In E. Garcia-Vasquez, T. Crespi, and C. Riccio (Eds.). *Handbook of education, training, and supervision of school psychologists in school and community Volume I: Foundations of professional practice.* United Kingdom: Routledge.
- Miller, D. C., Maricle, D., & DeOrnellas, K. (2009). Survey: Is it time for our organization to recognize subspecialties within school psychology? *Communique*, *37*(5), 23-24.
- Ohio's Return-to-Play law; ORC 3707.511 (2013). Retrieved from http://www.healthy.ohio.gov/en/vipp/Concussion on April 25, 2015.
- Reynolds, C. (2011). Perspectives on specialization in school psychology training and practice.

  \*Psychology in the Schools, 48(9), 922-930.
- Taub, G., & Valentine, J. (2014). A critical analysis of time allocation in psychoeducational evaluations. *Contemporary Issues in Education Research*, 7(4). 285-289.
- U.S. Department of Education, National Center for Education Statistics. (2013). *Digest of education statistics*. Retrieved from <a href="https://nces.ed.gov/programs/digest/d13/tables/dt13\_204.30.asp">https://nces.ed.gov/programs/digest/d13/tables/dt13\_204.30.asp</a>

Table 1

TBI Referrals

| School Year | Initials | Reevaluations | Consultations | Periodic Reviews |
|-------------|----------|---------------|---------------|------------------|
| 2006-2007   | 10       | 5             | 11            |                  |
| 2007-2008   | 14       | 23            | 49            | 6                |
| 2008-2009   | 18       | 14            | 41            | 10               |
| 2009-2010   | 16       | 22            | 47            | 6                |
| 2010-2011   | 17       | 23            | 51            | 7                |
| 2011-2012   | 11       | 27            | 133           | 12               |
| 2012-2013   | 17       | 27            | 132           | 5                |
| 2013-2014   | 15       | 38            | 201           | 6                |
| 2014-2015   | 11       | 33            | 198           | 6                |
|             |          |               |               |                  |

Table 2

Concussion Data

| School Year | Sports Concussion Referrals | Non-Sports Concussion<br>Referrals |
|-------------|-----------------------------|------------------------------------|
| 2009-2010   | 7                           |                                    |
| 2010-2011   | 9                           |                                    |
| 2011-2012   | 60                          | 21                                 |
| 2012-2013   | 75                          | 34                                 |
| 2013-2014   | 112                         | 50                                 |
| 2014-2015   | 91                          | 53                                 |

Figure 4
Count of Students Identified with TBI

