APPENDIX A:

When to Consider Special Education Services for Children Who Sustain mTBI It is undeniable that the needs of students who have suffered a mild traumatic brain injury (mTBI) are not yet fully addressed in the public school system. (Gioia, Glang, & Hooper, 2015; Halstead et al., 2013; Yeates et al., 2009). Research about the trajectories of students experiencing mTBI should steer state-wide concussion management policy development. These outcomes remain somewhat controversial due to the variability in longitudinal clinical and epidemiological evidence (McKinlay, 2010; Yeates, 2010). As of yet, there is "strikingly little evidence to guide overall management of mTBI in children" (Gioia et al., 2015, p. 3). Furthermore, Carroll et al. (2004) suggested that further study is necessary to determine the optimal educational models for recovery.

Although TBI is an eligibility category under IDEA legislation, its utilization remains strikingly low considering the high levels of clinical reports of TBIs in children. According to some estimates, 90% of TBI cases are mild and one in five children experience mTBI before age 16 (McKinlay, 2010). By contrast, in 2013 on .04% of IDEA children were determined eligible under the TBI category (www.disabilitycompendium.org/statistics/special-education). In the general population the rate of long term disability varies with the severity of the TBI (Whiteneck, Cuthbert, Corrigan, & Bogner, 2014). The rate of long term disability after TBI that does NOT require hospitalization is as of yet unknown. However, evidence from across multiple studies suggests that up to 36% of people who have sustained mTBI continue to report symptoms beyond three months, post-injury (Jantz, 2015). These symptoms fall into cognitive, behavioral, and physiological deficits, but symptoms reported have a tendency to be "vague" (Jantz, 2015, p. 238). Importantly, there is no research specific to the school age population with regard to these symptoms or the rate of children whose educational impact is such to require special education services (Jantz, 2015).

This may be partially explained by the complexity of recovery in mTBI (Gioia et al., 2015). It is widely agreed upon that most symptoms are transient in nature and resolve within 3 months of injury (Carroll et al., 2004; Jantz, 2015; McKinlay, 2010; Yeates et al., 2009). Gioia, Gland, and Hooper (2015) point out that most students will need academic supports for three or fewer weeks. By contrast, there exists evidence documenting instances where symptoms do not resolve, such that this may even constitute a coherent syndrome, post-concussive syndrome (PCS) (Yeates, 2010). Research on the prevalence of post-concussive symptomology in children is limited at the current time and more longitudinal research is needed (McKinlay, 2010).

The question remains, how many students who have experienced an mTBI have subsequently been found eligible for special education? No research could be found during this brief review that fully answered this question. Some guidance documents mention timelines for referral for IEP, however. Broad consensus indicates that an IEP is reserved for issues that are considered chronic, long term, and persistent (Halstead et al., 2013; Jantz, 2015). In the context of mTBI, specifically, this would constitute symptoms that persist for 6 months. After this amount of time the initiation of Child Find obligations is necessary (Halstead et al., 2013; Jantz, 2015). Other documents were found that recommend shorter periods, however. The BrainSteps program of Pennsylvania recommends a BrainSteps team referral after 8 weeks, which may result in the recommendation of a full evaluation for an IEP. Guidance published by Georgia Department of Public Health (choa.org/concussion) recommends an IEP evaluation after 28 days (p. 23).

Due to a lack of research, it is unclear how many children who sustain mTBI are subsequently referred for IDEA eligibility. Guidance documents appear to recommend variable timelines for referral ranging from 28 days to six months. The consensus based on this limited review of the literature, that symptoms that persist longer than 6 months should be considered for IDEA eligibility. This may help to address what may be a significant under-identification of IDEA eligible people with TBI. The continued implementation of effective monitoring and school based infrastructure may potentially help our understanding and will contribute to more accurate surveillance of this critical situation in the future.

APPENDIX A REFERENCES:

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North Carolina Emergency Guidelines for Schools https://www2.ncdhhs.gov/dhsr/EMS/pdf/kids/guidelines.pdf BrainSteps Recommended Protocol http://brainsteps.net/_orbs/about/2_BrainSTEPS_Protocol.pdf BrainSteps Notification Flow Chart Gfeller-Waller Concussion Awareness Act http://gfellerwallerlaw.unc.edu/GfellerWallerLaw/gwlaw.html Center for Disease Control - Heads-up Program: http://www.cdc.gov/headsup/schools/index.html Dr. Mike Evans - Concussion management and return to learn: https://www.youtube.com/watch?v=_55YmblG9YM American Academy of Neurology https://www.aan.com/concussion

Resources: *Resources from other school districts:*

Cabarrus County Schools: http://www.cabarrus.k12.nc.us/Page/1044 http://www.cabarrus.k12.nc.us/Page/1044Flow Chart CCS Return To Learn **CCS Modifications Form Concussion Protocol Charlotte-Mecklenburg Schools:** Management of the Student Post-Concussion Management of the Student Post-Concussion-CMS Wake County Public School System: WCPSS Management of Suspected Severe Injuries https://drive.google.com/open?id=0B4ilaeAe6nJ-RmtXcGRYRTRkR2c WCPSS Assisting Students with a Concussion WCPSS Academic Plans of Care WCHS Medical Care Plan WCPSS Academic Plan of Care How To PPT WCPSS Concussion FAQ **Concussion Presentation** Signs and Symptoms **Concussion FAQs Cabarrus County Schools:** CCS Return to Learn: Academic Accommodation Plan Following Concussion **CCS Modifications Form**

Resources: Resources from other states:

BrainSteps flowchart Oregon http://cbirt.org/ocamp/resources/ Concussion Management Team Return to Academics http://media.cbirt.org/uploads/files/return_to_academics.pdf Plan of Accommodations http://media.cbirt.org/uploads/files/504_plan_ocamp.pdf *Resources from other states:* Nebraska http://biane.org/audience/concussion/concussiontraining/concussion-managementtraining. html

Colorado

https://www.colorado.gov/pacific/cssrc/concussion-traumatic-brain-injury http://www.cde.state.co.us/sites/default/files/documents/healthandwellness/download /brain injury/finalconcussionguidelines8.22.12.pdf

BrainSteps

http://brainsteps.net/#resources

Health History Form W/ Concussion Included

http://www.rockbridge.k12.va.us/documents/health/student_health_history_form.pdf http://www.manhassetschools.org/site/handlers/filedownload.ashx?moduleinstanceid=28 5&dataid=282&FileName=Health Appraisal Health History Code of Conduct 7-15.pdfh