Concussion 101:
A Review for School Nurses

November 29th, 2016
Presented by...
Why Are We Here?

85% of school nurses responding to a Minnesota Department of Health survey said they would like further training about concussions.

70% or more said they would like more information about concussion identification, concussion care and return to school protocols.

Over 50% requested resources and tools for practice.
Objectives

Increase the school nurse’s knowledge of concussion in school-age children, including:

- Identifying & caring for concussion
- Developing a concussion plan
- What to do if accommodations aren’t enough
- Tools and resources
School Nurse Role for Students with Concussion

• Educator
• Initial Assessment
• Collaboration/Communication
• Planning and Intervention
• Ongoing Monitoring & Assessment
Defining Concussion, Symptoms & Recovery
What is a Concussion?

- Often considered medically equivalent to a mild traumatic brain injury (mTBI)
- Can occur when a bump or blow to the head or hit to the body causes movement of the brain inside the skull
- The brain can move back and forth or twist within the skull
What is a Concussion, continued

• Movement may stretch and damage brain cells, creating chemical changes in the brain

• Chemical changes can result in slowing of brain activity

• Many factors can impact outcome, such as gender, age, location of impact & force, level & type of sport/competition, prior concussion history
Recovery can be delayed in those with…

- Premorbid histories of concussion
- Lower cognitive ability
- Neurological or psychiatric disorder
- Learning difficulties
- Increased pre-injury symptoms
- Family and social stressors
Concussion Signs & Symptoms

- Loss of consciousness (usually does not occur)
- Dazed or stunned
- Confused or disoriented; forgets instructions or is unsure of what is happening
- Memory loss of events surrounding the injury
- Slow to respond to questions
Concussion Signs & Symptoms, continued

- Headache, pressure in the head
- Sleep disturbances (too much or too little)
- Fatigued, sluggish, groggy
- Nausea/Vomiting
- Dizziness
- Balance difficulties
Concussion Signs & Symptoms, continued

- Sensitivity to light/noise
- Visual changes (difficulty focusing or double vision)
- Tinnitus (ringing in the ears)
- Difficulty remembering or concentrating
- May feel irritable, anxious or depressed
Concussion Signs & Symptoms, continued

• Symptoms can be immediate or delayed (up to 24 to 48 hours after injury)

• Some symptoms may go unnoticed until certain demands are made (e.g., reading, increased activity)

• Delay in recognizing or experiencing symptoms can result in child returning to play or school immediately after injury... followed by abrupt increase in symptoms
Prognosis

Severity of the impact doesn’t always correlate with the severity of symptoms.

CDC Draft Guidelines: Large majority (70-80%) do not show significant difficulties for more than 1-3 months…however, recovery can be prolonged for some.

(Taken from: 2016 Draft Report from Pediatric Mild TBI Guideline Workgroup, CDC)
For children whose symptoms do not resolve as expected (4-6 weeks), healthcare providers should provide or refer for appropriate assessments and/or interventions.

(Taken from: 2016 Draft Report from Pediatric Mild TBI Guideline Workgroup, CDC)
Second Impact Syndrome

- Second concussion sustained prior to complete healing of the initial concussion
- The healing brain is more vulnerable
- Outcomes are typically more severe than the initial injury
- Can result in coma or death
Acute Identification & Care Following Injury
Injury at School? First Steps

- Health services staff notified of possible injury

- Health staff observe for symptoms of a concussion; determine if emergency care is needed

(CDC Signs and Symptoms Checklist: See Resources section)
Initial Concussion Care

• Remove immediately from physical & cognitive activity
• Assess for concussion symptoms & other injuries
• Gather information and document injury
• Contact parent/guardian
• Re-evaluate after a period of rest and determine next steps… WHEN IN DOUBT - SIT THEM OUT!
Is Emergency Care Needed?

If student shows symptoms or condition worsens, call 911 and follow school protocol for notifying parent/guardian and school administrator

- loss of consciousness (even brief)
- slurred speech
- Vomiting or seizures
- Doesn’t recognize familiar people or places
Need for Emergency Care, continued

- Excessive drowsiness
- Weakness or numbness in arms and legs
- One pupil larger than the other
- Increasing agitation, confusion
- Severe, worsening headache that does not resolve with rest
Non-Urgent Concussion Care

- Period of rest in health office
- Check on student every 15 min or more often as needed
- Ice pack to head
- Elevate head if able
- Limit brain stimulation
  - No electronics or cell phone
  - Darkened room if possible
  - Quiet area
Non-Urgent Concussion Care, continued

- Give acetaminophen if needed as per school guidelines
- Keep hydrated
- Do not return to class if symptomatic after period of rest
- May need to leave school if symptoms do not improve
- Continue documentation
- Inform parent/guardian of potential need for medical evaluation and clearance to resume physical activities at school
Back to Class When Symptom-Free

- Communicate with teacher(s)
- Tell student to return to health office if symptoms return
- Reminder to sit out of Phy. Ed. class, recess and any sports activities for the remainder of the day
- Recommend nurse/teacher check in with student the next day and as needed
Return to Learn After Concussion
Return to Learn: An Overview

1. Rest & Planning
2. Return gradually with support
3. Slowly work up to full time and full workload
4. Return to physical activities
After a Concussion has occurred…

- Gather information from family (medical documentation if available)
- Notify school personnel (Concussion Care Team)
- Identify a plan for return to school
- Disseminate information to teachers and staff
Roles of Concussion Care Team

- Identify points of contact within your school for:
  - Communicating with family, external providers and school team
  - Monitoring and documenting symptoms
  - Implementing and monitoring academic supports

- Identify student’s contact person in school

- Don’t forget to involve student & discuss their role
A Concussion Plan

Goal: To get student back to previous activities, supported with proper accommodations to manage symptoms

• When to return
• School contacts
• Specific accommodations
• Timelines
# Sample Concussion Plan

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activity</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>No activity</td>
<td>Complete cognitive rest — no school, no homework, no reading, no texting, no video games, no computer work.</td>
<td>Recovery</td>
</tr>
<tr>
<td>Gradual reintroduction of cognitive activity</td>
<td>Relax previous restrictions on activities and add back for short periods of time (5-15 minutes at a time).</td>
<td>Gradual controlled increase in subsympptom threshold cognitive activities.</td>
</tr>
<tr>
<td>Homework at home before school work at school</td>
<td>Homework in longer increments (20-30 minutes at a time).</td>
<td>Increase cognitive stamina by repetition of short periods of self-paced cognitive activity.</td>
</tr>
<tr>
<td>School re-entry</td>
<td>Part day of school after tolerating 1-2 cumulative hours of homework at home.</td>
<td>Re-entry into school with accommodations to permit controlled subsympptom threshold increase in cognitive load.</td>
</tr>
<tr>
<td>Gradual reintegration into school</td>
<td>Increase to full day of school.</td>
<td>Accommodations decrease as cognitive stamina improves.</td>
</tr>
<tr>
<td>Resumption of full cognitive workload</td>
<td>Introduce testing, catch up with essential work.</td>
<td>Full return to school; may commence Return-to-Play protocol (see Step 2 in Table 2).</td>
</tr>
</tbody>
</table>

Source: Master CL, Gioia GA, Leddy JJ, Grady MF
When to Return to School

• Extended time away from school after a concussion is rarely recommended

• Return to school may include partial days as tolerated
When to Return to School, continued

Factors to consider for return timeline:

- Symptom severity
- Other injuries
- How much school has already been missed
- Home environment
Examples of Accommodations for Concussion

- Shorter school days
- Frequent breaks in quiet area – scheduled/as needed
- Open hours/study halls
- Avoid over-stimulating environments
- Alternative passing times
- Modify test format or setting
- Sensory accommodations - visual, vestibular, auditory
Examples of Accommodations for Concussion, continued

- Drop or delay some classes
- Adjust assignment length/homework
- Consider pass/fail or alternate grading system
- No physical education classes or recess
- Consider no music class/band
- No/reduced extra-curricular activities
- Consider alternate transportation to/from school
Communication

• Communicate concussion plan with team members:
  • Student/Family
  • Academic Team (teachers, school nurse, guidance counselor, administrator, social worker, Phy. Ed. teacher)
  • Athletic Team (coach, athletic trainer)
  • Medical Team (primary care provider or concussion specialist, athletic trainer, rehab team, psychology)
Emotional Toll

Consider emotional and social impact of injury and recovery…

• Isolation from peers
• Impact on identity
  ✓ Restricted from preferred activities
  ✓ Academic stressors
Emotional Toll, continued

- Being singled out, treated differently due to accommodations
- May cause emotional/behavioral symptoms not typical for student
Challenges

- “But they look fine…”
- Symptoms - variable & individual
- Information from medical providers
- Communication with family
- Pre-injury factors
- No one plan fits all; if you have seen one concussion, you have only seen one concussion!
Keep in Mind…

- Accommodations may be needed for days to months
- Should be agreed upon by parents, school staff, medical providers, and student
- Monitor progress and document
- As symptoms decrease, supports can be removed gradually
- No return to activity until cleared
Spectrum of School Supports: General Accommodations, Section 504, and IDEA
School Team

In addition to the student and family, the concussion care team in the school can consist of many multidisciplinary members...
<table>
<thead>
<tr>
<th>School nurse</th>
<th>Athletic trainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>504 coordinator/</td>
<td>Coaches</td>
</tr>
<tr>
<td>counselor</td>
<td>Physical or</td>
</tr>
<tr>
<td>School psychologist</td>
<td>occupational therapist</td>
</tr>
<tr>
<td>Classroom teacher</td>
<td>Administrator</td>
</tr>
<tr>
<td>Special educ. Teacher</td>
<td>Social worker</td>
</tr>
<tr>
<td>School TBI specialist</td>
<td>Speech therapist</td>
</tr>
</tbody>
</table>
Spectrum of Supports:
Overlapping Domains In the School Setting

Diagram:
- General Education

- §504 Eligible

- §504 Plan

- IDEA
Section 504

• Federal anti-discrimination law
• Protects rights of individuals with disabilities in programs/activities that receive federal financial assistance from US Dept. of Education (schools)
• Is a LEGAL document
When to Consider an Evaluation & 504 Plan

- When symptoms don’t resolve after 4-6 weeks, or worsen with increased activity
- When new symptoms occur over time
- When a concussion plan doesn’t provide enough support
Requirements of a Section 504 Plan

Legally binding Document which identifies:

• Designated 504 coordinator and all involved individuals, including student & parent
• Accommodations
• Services
• Placement
• Signatures of all participants
IDEA: Individuals with Disabilities Education Act

- Special education services should be considered when educational needs are chronic, long term
- Evaluation can be requested by educator or parent
- Must have documentation of medical diagnosis and meet state TBI criteria
- TBI must have a specific impact on education
MN TBI School Criteria for Special Ed Services

- Documentation of a medical diagnosis of a brain injury caused by an ‘external physical force’...
- Causing a functional impairment that adversely affects educational performance, and...
- Is not primarily the result of a previously existing condition
IEP Services & Supports

• Student goals and objectives

• Accommodations AND Modifications

• List of team members, including TBI specialist*

• Special education services and providers
Return to Play
RETURN TO PLAY

• Returning to prior level of physical activity including gym, recess, recreational activities, and athletics

• A provider-directed, stepwise increase in physical activity designed to ensure a safe, symptom-free return to sports or recreational activities

Return To Play Procedures

- Clearance must be in writing from physician
- A parent cannot authorize return to play for his or her child
- Activity should be stopped if symptoms return
- Student must be symptom free for 24 hours before restarting return to play protocol
Collaboration

• Communication is key
• Assure that everyone understands school protocol
• Identify specific roles of staff when identifying and providing support to students with concussion

Note: Not all members need to be involved
Tools & Resources
CDC Concussion Signs & Symptoms Checklist

Evaluates:
- Observed signs
- Physical Symptoms
- Cognitive Symptoms
- Emotional Symptoms

https://stacks.cdc.gov/view/cdc/12353/
Acute Concussion Evaluation (ACE): School Version

Returning to School

- ADL’s
- Academic accommodations
- Return to sports and activities

http://www.cdc.gov/headsup/providers/discharge-materials.html
Heads Up to Schools:  
Know Your Concussion ABCs

A—Assess the situation
B—Be alert for signs and symptoms
C—Contact a healthcare professional

www.cdc.gov/concussion
State & Local Resources  (alpha order)

Children’s Hospitals & Clinics of Minnesota
www.childrensmn.org/services/care-specialties-departments/concussion-program

Gillette Children’s Specialty Healthcare
www.gillettechildrens.com

Hennepin County Medical Center: Pediatric Brain Injury Program
www.hcmc.org/depts/PediatricBrainInjuryProgram.html
State & Local Resources, continued

MN Brain Injury Alliance:  [www.braininjurymn.org](http://www.braininjurymn.org)

Mayo Clinic:  [www.mayoclinic.org](http://www.mayoclinic.org)  (search ‘concussion’)

MN Low Incidence Projects:  

Minnesota Athletic Trainers Association:  [www.mnata.com](http://www.mnata.com)

Minnesota State High School League:  [www.mshsl.org](http://www.mshsl.org)
Electronic Resources

National Athletic Trainers Association  www.nata.org

REAP program (Remove/Reduce, Educate, Adjust/Accommodate,Pace)  
http://rockymountainorthope-px.rtrk.com/util/forms/REAP.pdf

NASN Concussion Position Statement  
https://www.nasn.org/PolicyAdvocacy/PositionPapersandReports/NA
SNPositionStatementsFullView/tabid/462/smid/824/ArticleID/218/Def
ault.aspx

ImPACT Neurocognitive Testing  www.impacttest.com
Electronic Resources, continued

The Center on Brain Injury Research & Training:
http://cbirt.org/  (‘In the Classroom’ module coming soon!)

Infinitec TBI Module for Educators:
https://ucpnet.adobeconnect.com/p7rr7fjgirh/

Infinitec TBI Module for Paraprofessionals:
https://ucpnet.adobeconnect.com/p96376nc2qi/
Electronic Resources, continued

Brainline: www.brainline.org

Get Schooled on Concussions:
www.getschooledonconcussions.com

An Educator’s Guide to Concussions in the Classroom; 2nd edition, Nationwide Children’s Hospital:
http://www.nationwidechildrens.org/concussions-in-the-classroom
This presentation was developed by the following agency partners (alpha order):

Children’s Hospitals and Clinics of Minnesota
Gillette Children’s Specialty Healthcare
Hennepin County Medical Center
Minnesota Athletic Trainer’s Association
Minnesota Department of Health
Minnesota Low Incidence Projects