

**SUMMARY REPORT**

**MICHIGAN HIGH SCHOOL ATHLETIC ASSOCIATION  
HEAD INJURY REPORTING SYSTEM**

**2016-2017 School Year**

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# **I. Introduction & Methodology**

## **1.1 Overview**

Promotion of student-athlete health and safety is a core value of interscholastic athletics, and one of the guiding principles of the Michigan High School Athletic Association in its mission to increase participation and raise the quality of that experience for all involved in school sports in the state of Michigan. Over the past decade, few issues regarding the health of young student-athletes and the safety of school sports have generated as much concern as head trauma and concussions. Although equipment advancements, increases in coaches education, and safety-oriented changes to practice policies and game rules have made school sports safer than they have ever been, precise data on the frequency and severity of head injuries incurred during interscholastic athletic events is limited. Beginning in the 2015-16 school year, the MHSAA required all head injuries sustained during MHSAA sponsored activities be reported to the MHSAA through an online reporting system designed to record and track these events in an effort to address the issue. The data generated from the MHSAA Head Injury Reporting System will establish a baseline, and eventually allow the MHSAA to determine progress year-to-year in Michigan school sports in this critical area of health and safety.

## **1.2 Aims**

The specific objectives of the MHSAA Head Injury Reporting System are:

- A. Determine the incidence (total number) of head injuries sustained by athletes participating in MHSAA sponsored activities.
- B. Calculate and compare head injury prevalence rates using head injury report counts and participation data for MHSAA sponsored activities.
- C. Provide detailed information regarding head injuries sustained during MHSAA sponsored activities including athlete demographics, the circumstances of the injury event (date, practice or game, time during practice or game of injury, protective equipment worn, cause of injury event, initial examiner, etc.) as well as subsequent clearance/return to activity after the injury.
- D. Use the collected data to identify any patterns across variables.

## 1.3 Design

Beginning with the 2015-16 school year, head injury reporting became mandatory for MHSAA member schools. Under the MHSAA Concussion Protocol, **member schools are required to complete and submit an online report designated by the MHSAA to record and track head injury events when they occur in all levels of all sports during the season in practices and competitions.** The reporting mechanism developed by the MHSAA is identified in this report as the MHSAA Head Injury Reporting System. Reporting by member schools required completion of two basic online report forms; the first report completed after the initial head injury event, and the second completed after the student has received clearance to return to activity after the head injury or the season in which the injury occurred has ended.

### Definitions

The MHSAA Concussion Protocol and Head Injury Reporting System defined a head injury as:

An injury that occurred as a result of participation during an in-season practice, scrimmage, or game in one of the 28 sports for which the MHSAA provides a post season tournament – namely baseball, boys and girls basketball, boys and girls bowling, girls competitive cheer, boys and girls cross country, football (11-player and 8-player), boys and girls golf, girls gymnastics, ice hockey, boys and girls alpine skiing, boys and girls lacrosse, boys and girls soccer, softball, boys and girls swimming & diving, boys and girls tennis, boys and girls track & field, volleyball, and wrestling – **and** – required the athlete be withheld from activity after exhibiting signs, symptoms, or behaviors consistent with a concussion (such as loss of consciousness, headache, dizziness, confusion or balance problems).

The MHSAA Concussion Protocol and Head Injury Reporting System defined clearance as:

Written authorization from an M.D., D.O., Nurse Practitioner, or Physician's Assistant to return to unrestricted activity.



## Population

All male and female students grades 9-12 of MHSAA member schools participating in MHSAA sponsored activities during the 2016-17 school year.

The MHSAA is an association of approximately 1500 individual public, private and parochial high schools and junior high/middle schools. For the 2016-17 school year, member schools include 751 high schools of various enrollments and resources (187 schools with an enrollment greater than 881 students, 188 schools with an enrollment between 880-412 students, 188 schools with an enrollment between 411-207 students, and 187 schools with an enrollment less than 206 students) and 750+ member junior/middle schools\*.

\*Junior high/middle school head injury data is not part of this report. Injuries to 7<sup>th</sup> and 8<sup>th</sup> graders participating on high school teams (allowable under specific circumstance for schools and cooperative programs with fewer than 100 students) were included.

## 1.4 Data Collection

As MHSAA member schools vary widely with respect to school personnel and resources (not all schools employ an athletic trainer, or even a full-time athletic administrator), the MHSAA Head Injury Reporting System was designed for use by athletic trainers, school administrators, and coaches. The system was accessed through login to MHSAA.com. Only users identified within the system as athletic trainer, school administrator (i.e. athletic director, athletic department secretary, principal, or superintendent), or coach had the ability to access to the online system, and submit and review reports for the school(s) with which they are associated. The MHSAA Concussion Protocol does not specifically legislate who at the school must complete and submit the report, nor does it specify a time frame to submit the report after a head injury event – local schools were left to make those decisions and create their own reporting protocol based on their personnel and resources. However, reports were procured by the end of each season.

The MHSAA Head Injury Reporting System process consisted of two parts: 1) an initial head injury report, and 2) subsequent follow-up report. After a head injury event, the school was required to complete and submit an initial head injury report. This initial report was an online form designed to collect general information about the student (i.e., grade, gender, level, sport) and the injury event, including event date, whether injury

event occurred in practice or game, time of injury event during practice or game, protective equipment worn on the head at the time of the event, cause of the event (i.e., person to person contact, person to object contact, person to ground contact, or unknown), surface type, initial examiner, and removal from play decision.)

After the initial head injury report was submitted, the report was assigned a unique seven digit ID code and was saved in a report listing. This served as an electronic record of the head injury reports submitted by the school into the system and where the school accessed and completed a follow up report (details forthcoming). In addition to being saved in the report list, a PDF file of the report containing the ID code was generated and sent via email to the school. No personally identifiable information was included on the report in order to protect student privacy. Schools were instructed to print the PDF copy and record the injured student's name or student ID number as a means to link the report with the specific student so that report could be referenced for completion of the second part of the reporting process: the follow-up report.

The final part of the reporting process required completion of a follow-up report. The follow-up is a second online report form linked to the initial head injury report designed to collect general information regarding the student's return to activity after the head injury, including the official diagnosis of the head injury event, the date the student was authorized to return to activity, medical examiner authorizing return to activity, facility in which the student was seen by the authorizing medical examiner, conditions to return, and missed school as a result of injury event. The follow-up report was to be completed once the student received authorization to return to activity or the season ended.

## **1.5 Data Management**

Initial head injury reports were reviewed by members of the MHSAA staff on a daily basis. The school was contacted if a clear reporting error or anomaly was identified during review. As schools were not given the ability to edit reports once submitted, all changes or removal of reports were handled by the MHSAA staff.

Follow-up reports were also reviewed on a weekly basis. Schools were contacted approximately three weeks after the reported injury date and then each week in the two to three weeks prior to the end of the season. If the head injury report remained unresolved, reminders were sent for completion of the follow-up report once the student received appropriate clearance or the season in which the injury occurred ended.

Head injury reports not diagnosed as concussions, and confirmed as no concussion in the follow-up report were marked and excluded from this report. Head injury reports with no follow-up report completed were included, however.

Schools with no head injury reports for a season (fall, winter, and spring) were required to report this at the conclusion of each season by attesting to this information in the Head Injury Reporting System. Follow-up continued each season with all schools who had not reported concussion or zero concussion until data was received by no less than 99% of MHSAA member high schools.

## 1.6 Data Analysis

The data contained in this report is largely a summary of the data gather by the MHSAA Head Injury Reporting System by sport.

Head injury prevalence rates were calculated by dividing head injury reports count by participation. For instance:

$$\text{Girls Soccer Head Injury Prevalence Rate} = \frac{\text{\# girls soccer head injury reports}}{\text{girls soccer participation \#}}$$

In order to more easily compare head injury prevalence rates between sports, the head injury prevalence rate was also expressed per 1,000 participants. Head injury prevalence rate per 1,000 participants was found by placing the head injury prevalence ratio (injury reports/participation) on one side of an equation and placing the ratio (X / 1,000 participants) on the other side of the equation and solving algebraically for X. Essentially, the head injury prevalence rate per 1,000 participants for each sport was found by multiplying the head injury prevalence rates by 1,000 and then rounding to the nearest whole number.

## **II. Overall Head Injury Reports**

**Table 2.1 Reported Head Injuries by Sport, MHSAA Head Injury Reporting System, 2016-17 School Year**

Baseball			Boys Golf			Softball		
Varsity	30		Varsity	1		Varsity	85	
Junior Varsity	29		Junior Varsity	0		Junior Varsity	57	
Freshman	11		Freshman	0		Freshman	4	
<b>TOTAL</b>	<b>70</b>		<b>TOTAL</b>	<b>1</b>		<b>TOTAL</b>	<b>146</b>	
Boys Basketball			Girls Golf			Boys Swimming & Diving		
Varsity	81		Varsity	0		Varsity	10	
Junior Varsity	52		Junior Varsity	1		Junior Varsity	1	
Freshman	35		Freshman	0		Freshman	0	
<b>TOTAL</b>	<b>168</b>		<b>TOTAL</b>	<b>1</b>		<b>TOTAL</b>	<b>11</b>	
Girls Basketball			Girls Gymnastics			Girls Swimming & Diving		
Varsity	164		Varsity	8		Varsity	33	
Junior Varsity	137		Junior Varsity	0		Junior Varsity	0	
Freshman	70		Freshman	0		Freshman	0	
<b>TOTAL</b>	<b>371</b>		<b>TOTAL</b>	<b>8</b>		<b>TOTAL</b>	<b>33</b>	
Boys Bowling			Ice Hockey			Boys Tennis		
Varsity	0		Varsity	110		Varsity	3	
Junior Varsity	0		Junior Varsity	13		Junior Varsity	1	
Freshman	0		Freshman	1		Freshman	0	
<b>TOTAL</b>	<b>0</b>		<b>TOTAL</b>	<b>124</b>		<b>TOTAL</b>	<b>4</b>	
Girls Bowling			Boys Lacrosse			Girls Tennis		
Varsity	0		Varsity	62		Varsity	5	
Junior Varsity	0		Junior Varsity	27		Junior Varsity	1	
Freshman	0		Freshman	3		Freshman	0	
<b>TOTAL</b>	<b>0</b>		<b>TOTAL</b>	<b>92</b>		<b>TOTAL</b>	<b>6</b>	
Competitive Cheer			Girls Lacrosse			Boys Track & Field		
Varsity	106		Varsity	47		Varsity	9	
Junior Varsity	37		Junior Varsity	8		Junior Varsity	2	
Freshman	7		Freshman	0		Freshman	0	
<b>TOTAL</b>	<b>150</b>		<b>TOTAL</b>	<b>55</b>		<b>TOTAL</b>	<b>11</b>	
Boys Cross Country			Boys Skiing			Girls Track & Field		
Varsity	1		Varsity	3		Varsity	12	
Junior Varsity	0		Junior Varsity	0		Junior Varsity	3	
Freshman	0		Freshman	0		Freshman	0	
<b>TOTAL</b>	<b>1</b>		<b>TOTAL</b>	<b>3</b>		<b>TOTAL</b>	<b>15</b>	
Girls Cross Country			Girls Skiing			Volleyball		
Varsity	5		Varsity	2		Varsity	76	
Junior Varsity	1		Junior Varsity	0		Junior Varsity	54	
Freshman	0		Freshman	0		Freshman	44	
<b>TOTAL</b>	<b>6</b>		<b>TOTAL</b>	<b>2</b>		<b>TOTAL</b>	<b>174</b>	
11-Player Football			Boys Soccer			Wrestling		
Varsity	736		Varsity	136		Varsity	198	
Junior Varsity	613		Junior Varsity	62		Junior Varsity	46	
Freshman	298		Freshman	9		Freshman	7	
<b>TOTAL</b>	<b>1647</b>		<b>TOTAL</b>	<b>207</b>		<b>TOTAL</b>	<b>251</b>	
8-Player Football			Girls Soccer					
Varsity	28		Varsity	234				
Junior Varsity	9		Junior Varsity	125				
Freshman	0		Freshman	5				
<b>TOTAL</b>	<b>37</b>		<b>TOTAL</b>	<b>364</b>				
						<b>TOTAL</b>		
						<b>REPORTS</b>	<b>3958</b>	

**Table 2.2 Head Injury Prevalence Rates by Sport, MHSAA Head Injury Reporting System, 2016-17 School Year**

SPORT	Boys*				Girls			
	PARTICIPANTS	HEAD INJURY REPORTS	HEAD INJURY REPORT PREVALENCE RATE	HEAD INJURY REPORTS PER THOUSAND PARTICIPANTS	PARTICIPANTS	HEAD INJURY REPORTS	HEAD INJURY REPORT PREVALENCE RATE	HEAD INJURY REPORTS PER THOUSAND PARTICIPANTS
Baseball	17,998	70	0.39%	4	-	-	-	-
Basketball	21,267	168	0.79%	8	15,896	371	2.33%	23
Bowling	3,816	0	0.00%	0	2,926	0	0.00%	0
Competitive Cheer	-	-	-	-	6,720	150	2.23%	22
Cross Country	9,415	1	0.01%	0	8,489	6	0.07%	1
Football - 11-player	36,571	1,647	4.50%	45	-	-	-	-
8-player	1,144	37	3.23%	32	-	-	-	-
Golf	6,270	1	0.02%	0	3,561	1	0.03%	0
Gymnastics	-	-	-	-	636	8	1.26%	13
Ice Hockey	3,411	124	3.64%	36	-	-	-	-
Lacrosse	5,114	92	1.80%	18	2,814	55	1.95%	20
Skiing	837	3	0.36%	4	746	2	0.27%	3
Soccer	14,630	207	1.41%	14	13,212	364	2.76%	28
Softball	-	-	-	-	13,641	146	1.07%	11
Swimming & Diving	4,979	11	0.22%	2	5,600	33	0.59%	6
Tennis	6,106	4	0.07%	1	8,920	6	0.07%	1
Track & Field	23,232	11	0.05%	0	17,009	15	0.09%	1
Volleyball	-	-	-	-	19,067	174	0.91%	9
Wrestling	9,598	251	2.62%	26	-	-	-	-

\*Boys participation and head injury data includes both males AND females playing on primarily male teams

**Table 2.3 Head Injuries by Grade - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
7th	0	0.0%	0	0.0%	0	0.0%
8th	2	0.1%	3	0.2%	5	0.1%
9th	760	29.2%	444	32.9%	1204	30.4%
10th	736	28.2%	393	29.1%	1129	28.5%
11th	558	21.4%	295	21.8%	853	21.6%
12th	551	21.1%	216	16.0%	767	19.4%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

**Table 2.4 Head Injuries by Level of Competition - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Freshman	363	13.9%	131	9.7%	494	12.5%
Junior Varsity	851	32.6%	428	31.7%	1279	32.3%
Varsity	1393	53.4%	792	58.6%	2185	55.2%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

**Table 2.5 Head Injuries by Type of Exposure - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Practice	912	35.0%	477	35.3%	1389	35.1%
Competition	1695	65.0%	874	64.7%	2569	64.9%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

**Table 2.6 Head Injuries by Time during Practice or Competition of Injury Event - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Start of practice	109	12.0%	69	14.5%	178	12.8%
Middle of practice	499	54.7%	261	54.7%	760	54.7%
End of practice	304	33.3%	147	30.8%	451	32.5%
<b>PRACTICE TOTAL</b>	<b>912</b>	<b>100.0%</b>	<b>477</b>	<b>100.0%</b>	<b>1389</b>	<b>100.0%</b>
Start of competition	181	10.7%	96	11.0%	277	10.8%
Middle of competition	844	49.8%	482	55.1%	1326	51.6%
End of competition	670	39.5%	296	33.9%	966	37.6%
<b>COMPETITION TOTAL</b>	<b>1695</b>	<b>100.0%</b>	<b>874</b>	<b>100.0%</b>	<b>2569</b>	<b>100.0%</b>

**Table 2.7 Activity Type for All Head Injury Events during Practice – All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
During a drill	659	72.3%	349	73.2%	1008	72.6%
During simulated competition-scrimmage	222	24.3%	107	22.4%	329	23.7%
Not specified	31	3.4%	21	4.4%	52	3.7%
<b>TOTAL</b>	<b>912</b>	<b>100.0%</b>	<b>477</b>	<b>100.0%</b>	<b>1389</b>	<b>100.0%</b>

**Table 2.8 Head Injuries by Cause of Injury Event - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Person to person contact	1604	61.5%	457	33.8%	2061	52.1%
Person to object contact (e.g. wall, equipment)	297	11.4%	470	34.8%	767	19.4%
Person to playing surface contact	384	14.7%	347	25.7%	731	18.5%
Uncertain as to the cause of the event	322	12.4%	77	5.7%	399	10.1%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>



**Table 2.9 Head Injuries by Initial Examiner - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Athletic trainer	1516	58.2%	709	52.5%	2225	56.2%
Coach	407	15.6%	340	25.2%	747	18.9%
Sideline emergency personnel	14	0.5%	2	0.1%	16	0.4%
Other appropriate health care professional	66	2.5%	23	1.7%	89	2.2%
DO	6	0.2%	5	0.4%	11	0.3%
MD	90	3.5%	32	2.4%	122	3.1%
PA	7	0.3%	4	0.3%	11	0.3%
NP	5	0.2%	0	0.0%	5	0.1%
Athletic director	23	0.9%	8	0.6%	31	0.8%
Multiple examiners	473	18.1%	228	16.9%	701	17.7%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

**Table 2.10 Athlete Removal from Activity at the Time of Injury Event – All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Removed	2206	84.6%	1101	81.5%	3307	83.6%
Not removed*	401	15.4%	250	18.5%	651	16.4%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 2.11 Athletes Reporting Previous Concussion after Head Injury Event – All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Reported at least one previous concussion	413	15.8%	225	16.7%	638	16.1%
No reported previous concussions	2194	84.2%	1126	83.3%	3320	83.9%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

**Table 2.12 Most Recent Concussion for Athletes Reporting Previous Concussion after Head Injury Event – All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Within last month	22	5.4%	4	1.9%	26	4.2%
Within one to six months	34	8.3%	23	11.0%	57	9.2%
Within six months to one year	91	22.1%	68	32.5%	159	25.6%
Over one year	264	64.2%	114	54.5%	378	61.0%
<b>TOTAL</b>	<b>411</b>	<b>100.0%</b>	<b>209</b>	<b>100.0%</b>	<b>620</b>	<b>100.0%</b>

**Table 2.13 Number of Previous Concussions for Athletes Reporting Previous Concussion after Head Injury Event – All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
1 concussion	289	70.3%	151	72.2%	440	71.0%
2 concussions	91	22.1%	41	19.6%	132	21.3%
3 concussions	14	3.4%	7	3.3%	21	3.4%
≥4 concussions	10	2.4%	8	3.8%	18	2.9%
Not specified	7	1.7%	2	1.0%	9	1.5%
<b>TOTAL</b>	<b>411</b>	<b>100.0%</b>	<b>209</b>	<b>100.0%</b>	<b>620</b>	<b>100.0%</b>

**Table 2.14 Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Event Occurred - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Received written authorization to return by the end of season	2122	81.4%	1098	81.3%	3220	81.4%
Did not receive written authorization to return by end of season	444	17.0%	212	15.7%	656	16.6%
Follow-up Report not completed	41	1.6%	41	3.0%	82	2.1%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

**Table 2.15 Head Injuries by Medical Examiner Authorizing Return to Activity - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
MD	1347	51.7%	691	51.1%	2038	51.5%
DO	414	15.9%	199	14.7%	613	15.5%
PA	215	8.2%	99	7.3%	314	7.9%
NP	146	5.6%	109	8.1%	255	6.4%
Medical examiner data not available*	485	18.6%	253	18.7%	738	18.6%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

**Table 2.16 Head Injuries by Facility where Medical Examiner Authorized Return to Activity - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Hospital	114	4.4%	43	3.2%	157	4.0%
Urgent or Ready Care business	107	4.1%	67	5.0%	174	4.4%
Primary care physician or pediatrician's office	1522	58.4%	813	60.2%	2335	59.0%
Neurologist's office	156	6.0%	87	6.4%	243	6.1%
Team doctor	223	8.6%	88	6.5%	311	7.9%
Medical facility data not available*	485	18.6%	253	18.7%	738	18.6%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

**Table 2.17 Head Injuries by Clearance Return to Activity Conditions - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
Unconditional return	1675	64.3%	899	66.5%	2574	65.0%
Conditions to return	447	17.1%	199	14.7%	646	16.3%
Return to activity data not available*	485	18.6%	253	18.7%	738	18.6%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

**Table 2.18 Head Injuries by Missed School Days after Injury Event Date - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
0 Days	1450	55.6%	650	48.1%	2100	53.1%
1-2 Days	466	17.9%	314	23.2%	780	19.7%
3-6 Days	142	5.4%	104	7.7%	246	6.2%
7-9 Days	23	0.9%	16	1.2%	39	1.0%
10-20 Days	36	1.4%	12	0.9%	48	1.2%
≥21 Days	5	0.2%	2	0.1%	7	0.2%
Missed school data not available*	485	18.6%	253	18.7%	738	18.6%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

**Table 2.19 Head Injuries by Time between Injury Event Date and Authorization Date to Return - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2016-17 School Year**

	Boys		Girls		Overall	
	n	%	n	%	n	%
1-2 Days	55	2.1%	25	1.9%	80	2.0%
3-5 Days	208	8.0%	78	5.8%	286	7.2%
6-10 Days	678	26.0%	369	27.3%	1047	26.5%
11-15 Days	621	23.8%	306	22.6%	927	23.4%
16-20 Days	241	9.2%	128	9.5%	369	9.3%
≥21 Days	286	11.0%	176	13.0%	462	11.7%
Data not available**	518	19.9%	269	19.9%	787	19.9%
<b>TOTAL</b>	<b>2607</b>	<b>100.0%</b>	<b>1351</b>	<b>100.0%</b>	<b>3958</b>	<b>100.0%</b>

82 Missing Follow-up Reports\*

656 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

49 Data entry errors\*\*

### **III. Baseball Head Injury Reports**

**Table 3.1 Head Injury Prevalence Rate for Baseball, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Baseball Participation</b>	<b>17,998</b>
<b>All Baseball Head Injuries</b>	<b>70</b>
<b>Baseball Head Injury Prevalence Rate</b>	<b>0.39%</b>
<b>Baseball Head Injuries Per 1,000 Participants</b>	<b>4</b>

**Table 3.2 Baseball Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	30	42.9%
Junior Varsity	29	41.4%
Freshman	11	15.7%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

**Table 3.3 Baseball Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	19	27.1%
Competition	51	72.9%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

**Table 3.4 Baseball Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	3	15.8%
Middle of practice	11	57.9%
End of practice	5	26.3%
<b>PRACTICE TOTAL</b>	<b>19</b>	<b>100.0%</b>
Start of competition	4	7.8%
Middle of competition	36	70.6%
End of competition	11	21.6%
<b>COMPETITION TOTAL</b>	<b>51</b>	<b>100.0%</b>

**Table 3.5 Activity Type for All Baseball Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	19	100.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>19</b>	<b>100.0%</b>

**Table 3.6 Baseball Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	20	28.6%
Person to object contact (e.g. wall, equipment)	41	58.6%
Person to playing surface contact	6	8.6%
Uncertain as to the cause of the event	3	4.3%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

**Table 3.7 Person to Playing Surface Contact Baseball Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Natural grass	5	83.3%
Baseball field	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 3.8 Baseball Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	31	44.3%
Coach	15	21.4%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	1	1.4%
DO	0	0.0%
MD	3	4.3%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	20	28.6%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

**Table 3.9 Baseball Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	64	91.4%
Not removed*	6	8.6%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 3.10 Baseball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	11	15.7%
No reported previous concussions	59	84.3%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>



**Table 3.11 Most Recent Concussion for Baseball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	1	10.0%
Within one to six months	0	0.0%
Within six months to one year	4	40.0%
Over one year	5	50.0%
<b>TOTAL</b>	<b>10</b>	<b>100.0%</b>

**Table 3.12 Number of Previous Concussions for Baseball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	8	80.0%
2 concussions	0	0.0%
3 concussions	2	20.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>10</b>	<b>100.0%</b>

**Table 3.13 Baseball Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	58	82.9%
Did not receive written authorization to return by the end of season	9	12.9%
Follow-up Report not completed	3	4.3%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

**Table 3.14 Baseball Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	40	57.1%
DO	11	15.7%
PA	5	7.1%
NP	2	2.9%
Medical examiner data not available*	12	17.1%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

**Table 3.15 Baseball Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	5	7.1%
Urgent or Ready Care business	1	1.4%
Primary care physician or pediatrician's office	47	67.1%
Neurologist's office	2	2.9%
Team doctor	3	4.3%
Medical facility data not available*	12	17.1%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

**Table 3.16 Baseball Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	45	64.3%
Conditions to return	13	18.6%
Return to activity data not available*	12	17.1%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

**Table 3.17 Baseball Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	29	41.4%
1-2 Days	20	28.6%
3-6 Days	8	11.4%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	1	1.4%
Missed school data not available*	12	17.1%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

**Table 3.18 Baseball Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	3	4.3%
3-5 Days	7	10.0%
6-10 Days	24	34.3%
11-15 Days	14	20.0%
16-20 Days	6	8.6%
≥21 Days	4	5.7%
Data not available**	12	17.1%
<b>TOTAL</b>	<b>70</b>	<b>100.0%</b>

3 Missing Follow-up Reports\*

9 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **IV. Boys Basketball Head Injury Reports**

**Table 4.1 Head Injury Prevalence Rate for Boys Basketball, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Boys Basketball Participation</b>	<b>21,267</b>
<b>All Reported Boys Basketball Head Injuries</b>	<b>168</b>
<b>Boys Basketball Head Injury Prevalence Rate</b>	<b>0.79%</b>
<b>Boys Basketball Head Injuries Per 1,000 Participants</b>	<b>8</b>

**Table 4.2 Boys Basketball Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	81	48.2%
Junior Varsity	52	31.0%
Freshman	35	20.8%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

**Table 4.3 Boys Basketball Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	65	38.7%
Competition	103	61.3%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

**Table 4.4 Boys Basketball Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	10	15.4%
Middle of practice	30	46.2%
End of practice	25	38.5%
<b>PRACTICE TOTAL</b>	<b>65</b>	<b>100.0%</b>
Start of competition	8	7.8%
Middle of competition	57	55.3%
End of competition	38	36.9%
<b>COMPETITION TOTAL</b>	<b>103</b>	<b>100.0%</b>

**Table 4.5 Activity Type for Boys Basketball Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	28	43.1%
During simulated competition-scrimmage	35	53.8%
Not specified	2	3.1%
<b>TOTAL</b>	<b>65</b>	<b>100.0%</b>

**Table 4.6 Boys Basketball Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	91	54.2%
Person to object contact (e.g. wall, equipment)	13	7.7%
Person to playing surface contact	57	33.9%
Uncertain as to the cause of the event	7	4.2%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

**Table 4.7 Person to Playing Surface Contact Boys Basketball Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Wooden gym floor	48	84.2%
Basketball court	6	10.5%
Rubberized gym floor	2	3.5%
Indoor tile type floor	1	1.8%
<b>TOTAL</b>	<b>57</b>	<b>100.0%</b>

**Table 4.8 Boys Basketball Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	84	50.0%
Coach	38	22.6%
Sideline emergency personnel	1	0.6%
Other appropriate health care professional	4	2.4%
DO	1	0.6%
MD	3	1.8%
PA	0	0.0%
NP	0	0.0%
Athletic director	4	2.4%
Multiple examiners	33	19.6%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

**Table 4.9 Athlete Removal from Activity at the Time of Injury Event – Boys Basketball Head Injuries, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	139	82.7%
Not removed*	29	17.3%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 4.10 Boys Basketball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	28	16.7%
No reported previous concussions	140	83.3%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

**Table 4.11 Most Recent Concussion for Boys Basketball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	2	7.1%
Within six months to one year	6	21.4%
Over one year	20	71.4%
<b>TOTAL</b>	<b>28</b>	<b>100.0%</b>

**Table 4.12 Number of Previous Concussions for Boys Basketball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	19	67.9%
2 concussions	8	28.6%
3 concussions	0	0.0%
≥4 concussions	1	3.6%
Not specified	0	0.0%
<b>TOTAL</b>	<b>28</b>	<b>100.0%</b>



**Table 4.13 Boys Basketball Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	153	91.1%
Did not receive written authorization to return by the end of season	13	7.7%
Follow-up Report not completed	2	1.2%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

**Table 4.14 Boys Basketball Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	99	58.9%
DO	22	13.1%
PA	17	10.1%
NP	15	8.9%
Medical examiner data not available*	15	8.9%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

**Table 4.15 Boys Basketball Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	11	6.5%
Urgent or Ready Care business	8	4.8%
Primary care physician or pediatrician's office	107	63.7%
Neurologist's office	10	6.0%
Team doctor	17	10.1%
Medical facility data not available*	15	8.9%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

**Table 4.16 Boys Basketball Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	122	72.6%
Conditions to return	31	18.5%
Return to activity data not available*	15	8.9%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

**Table 4.17 Boys Basketball Head Injuries by Missed School Days After Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	85	50.6%
1-2 Days	52	31.0%
3-6 Days	12	7.1%
7-9 Days	3	1.8%
10-20 Days	1	0.6%
≥21 Days	0	0.0%
Missed school data not available*	15	8.9%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

**Table 4.18 Boys Basketball Head Injuries by Time Between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	5	3.0%
3-5 Days	10	6.0%
6-10 Days	68	40.5%
11-15 Days	33	19.6%
16-20 Days	16	9.5%
≥21 Days	20	11.9%
Data not available**	16	9.5%
<b>TOTAL</b>	<b>168</b>	<b>100.0%</b>

2 Missing Follow-up Reports\*

13 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

1 Data entry errors\*\*

## **V. Girls Basketball Head Injury Reports**

**Table 5.1 Head Injury Prevalence Rate for Girls Basketball, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Girls Basketball Participation</b>	<b>15,896</b>
<b>All Reported Girls Basketball Head Injuries</b>	<b>371</b>
<b>Girls Basketball Head Injury Prevalence Rate</b>	<b>2.33%</b>
<b>Girls Basketball Head Injuries Per 1,000 Participants</b>	<b>23</b>

**Table 5.2 Girls Basketball Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	164	44.2%
Junior Varsity	137	36.9%
Freshman	70	18.9%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

**Table 5.3 Girls Basketball Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	98	26.4%
Competition	273	73.6%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

**Table 5.4 Girls Basketball Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	13	13.3%
Middle of practice	51	52.0%
End of practice	34	34.7%
<b>PRACTICE TOTAL</b>	<b>98</b>	<b>100.0%</b>
Start of competition	24	8.8%
Middle of competition	145	53.1%
End of competition	104	38.1%
<b>COMPETITION TOTAL</b>	<b>273</b>	<b>100.0%</b>

**Table 5.5 Activity Type for Girls Basketball Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	54	55.1%
During simulated competition-scrimmage	40	40.8%
Not specified	4	4.1%
<b>TOTAL</b>	<b>98</b>	<b>100.0%</b>

**Table 5.6 Girls Basketball Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	167	45.0%
Person to object contact (e.g. wall, equipment)	54	14.6%
Person to playing surface contact	136	36.7%
Uncertain as to the cause of the event	14	3.8%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

**Table 5.7 Person to Playing Surface Contact Girls Basketball Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Wooden gym floor	99	72.8%
Basketball court	31	22.8%
Gymnasium floor	5	3.7%
Rubberized gym floor	1	0.7%
<b>TOTAL</b>	<b>136</b>	<b>100.0%</b>

**Table 5.8 Girls Basketball Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	225	60.6%
Coach	67	18.1%
Sideline emergency personnel	1	0.3%
Other appropriate health care professional	5	1.3%
DO	1	0.3%
MD	4	1.1%
PA	0	0.0%
NP	0	0.0%
Athletic director	5	1.3%
Multiple examiners	63	17.0%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

**Table 5.9 Girls Basketball Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	304	81.9%
Not removed*	67	18.1%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 5.10 Girls Basketball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	60	16.2%
No reported previous concussions	311	83.8%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

**Table 5.11 Most Recent Concussion for Girls Basketball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	2	3.3%
Within one to six months	8	13.3%
Within six months to one year	22	36.7%
Over one year	28	46.7%
<b>TOTAL</b>	<b>60</b>	<b>100.0%</b>

**Table 5.12 Number of Previous Concussions for Girls Basketball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	43	71.7%
2 concussions	15	25.0%
3 concussions	1	1.7%
≥4 concussions	1	1.7%
Not specified	0	0.0%
<b>TOTAL</b>	<b>60</b>	<b>100.0%</b>

**Table 5.13 Girls Basketball Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	329	88.7%
Did not receive written authorization to return by the end of season	39	10.5%
Follow-up Report not completed	3	0.8%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

**Table 5.14 Girls Basketball Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	202	54.4%
DO	63	17.0%
PA	28	7.5%
NP	36	9.7%
Medical examiner data not available*	42	11.3%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

**Table 5.15 Girls Basketball Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	21	5.7%
Urgent or Ready Care business	28	7.5%
Primary care physician or pediatrician's office	227	61.2%
Neurologist's office	31	8.4%
Team doctor	22	5.9%
Medical facility data not available*	42	11.3%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>



**Table 5.16 Girls Basketball Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	265	71.4%
Conditions to return	64	17.3%
Return to activity data not available*	42	11.3%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

**Table 5.17 Girls Basketball Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	185	49.9%
1-2 Days	101	27.2%
3-6 Days	33	8.9%
7-9 Days	5	1.3%
10-20 Days	4	1.1%
≥21 Days	1	0.3%
Missed school data not available*	42	11.3%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

**Table 5.18 Girls Basketball Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	8	2.2%
3-5 Days	21	5.7%
6-10 Days	95	25.6%
11-15 Days	97	26.1%
16-20 Days	37	10.0%
≥21 Days	66	17.8%
Data not available**	47	12.7%
<b>TOTAL</b>	<b>371</b>	<b>100.0%</b>

3 Missing Follow-up Reports\*

39 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

5 Data entry errors\*\*

## **VI. Boys Bowling Head Injury Reports**

**Table 6.1 Head Injury Prevalence Rate for Boys Bowling, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Boys Bowling Participation</b>	<b>3,816</b>
<b>All Reported Boys Bowling Head Injuries</b>	<b>0</b>
<b>Boys Bowling Head Injury Prevalence Rate</b>	<b>0.00%</b>
<b>Boys Bowling Head Injuries Per 1,000 Participants</b>	<b>0</b>

**Table 6.2 Boys Bowling Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	0	0.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.3 Boys Bowling Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	0	0.0%
Competition	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.4 Boys Bowling Head Injuries by Time During Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	0	0.0%
End of practice	0	0.0%
<b>PRACTICE TOTAL</b>	<b>0</b>	<b>0.0%</b>
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
<b>COMPETITION TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.5 Activity Type for Boys Bowling Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	0	0.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.6 Boys Bowling Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	0	0.0%
Person to playing surface contact	0	0.0%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.7 Person to Playing Surface Contact Boys Bowling Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Wooden floor	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.8 Boys Bowling Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	0	0.0%
Coach	0	0.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.9 Boys Bowling Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	0	0.0%
Not removed*	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 6.10 Boys Bowling Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.11 Most Recent Concussion for Boys Bowling Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.12 Number of Previous Concussions for Boys Bowling Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	0	0.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.13 Boys Bowling Head Injuries by Athlete Clearance to Return to Activity Before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	0	0.0%
Did not receive written authorization to return by the end of season	0	0.0%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.14 Boys Bowling Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	0	0.0%
DO	0	0.0%
PA	0	0.0%
NP	0	0.0%
Medical examiner data not available*	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.15 Boys Bowling Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	0	0.0%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.16 Boys Bowling Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	0	0.0%
Conditions to return	0	0.0%
Return to activity data not available*	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.17 Boys Bowling Head Injuries by Missed School Days After Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	0	0.0%
1-2 Days	0	0.0%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 6.18 Boys Bowling Head Injuries by Time Between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	0	0.0%
11-15 Days	0	0.0%
16-20 Days	0	0.0%
≥21 Days	0	0.0%
Data not available**	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

0 Missing Follow-up Reports\*

0 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*



## **VII. Girls Bowling Head Injury Reports**

**Table 7.1 Head Injury Prevalence Rate for Girls Bowling, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Girls Bowling Participation</b>	<b>2,926</b>
<b>All Reported Girls Bowling Head Injuries</b>	<b>0</b>
<b>Girls Bowling Head Injury Prevalence Rate</b>	<b>0.00%</b>
<b>Girls Bowling Head Injuries Per 1,000 Participants</b>	<b>0</b>

**Table 7.2 Girls Bowling Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	0	0.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.3 Girls Bowling Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	0	0.0%
Competition	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.4 Girls Bowling Head Injuries by Time During Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	0	0.0%
End of practice	0	0.0%
<b>PRACTICE TOTAL</b>	<b>0</b>	<b>0.0%</b>
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
<b>COMPETITION TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.5 Activity Type for Girls Bowling Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	0	<b>0.0%</b>
During simulated competition-scrimmage	0	<b>0.0%</b>
Not specified	0	<b>0.0%</b>
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.6 Girls Bowling Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	0	0.0%
Person to playing surface contact	0	0.0%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.7 Person to Playing Surface Contact Girls Bowling Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Wooden floor	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.8 Girls Bowling Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	0	0.0%
Coach	0	0.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.9 Girls Bowling Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	0	0.0%
Not removed*	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 7.10 Girls Bowling Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.11 Most Recent Concussion for Girls Bowling Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.12 Number of Previous Concussions for Girls Bowling Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	0	0.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.13 Girls Bowling Head Injuries by Athlete Clearance to Return to Activity Before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	0	0.0%
Did not receive written authorization to return by the end of season	0	0.0%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.14 Girls Bowling Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	0	0.0%
DO	0	0.0%
PA	0	0.0%
NP	0	0.0%
Medical examiner data not available*	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.15 Girls Bowling Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	0	0.0%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.16 Girls Bowling Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	0	0.0%
Conditions to return	0	0.0%
Return to activity data not available*	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.17 Girls Bowling Head Injuries by Missed School Days After Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	0	0.0%
1-2 Days	0	0.0%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 7.18 Girls Bowling Head Injuries by Time Between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	0	0.0%
11-15 Days	0	0.0%
16-20 Days	0	0.0%
≥21 Days	0	0.0%
Data not available**	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

0 Missing Follow-up Reports\*

0 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **VIII. Competitive Cheer Head Injury Reports**



**Table 8.1 Head Injury Prevalence Rate for Competitive Cheer, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Competitive Cheer Participation</b>	<b>6,720</b>
<b>All Reported Competitive Cheer Head Injuries</b>	<b>150</b>
<b>Competitive Cheer Head Injury Prevalence Rate</b>	<b>2.23%</b>
<b>Competitive Cheer Head Injuries Per 1,000 Participants</b>	<b>22</b>

**Table 8.2 Competitive Cheer Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	106	70.7%
Junior Varsity	37	24.7%
Freshman	7	4.7%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

**Table 8.3 Competitive Cheer Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	125	83.3%
Competition	25	16.7%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

**Table 8.4 Competitive Cheer Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	8	6.4%
Middle of practice	78	62.4%
End of practice	39	31.2%
<b>PRACTICE TOTAL</b>	<b>125</b>	<b>100.0%</b>
Start of competition	7	28.0%
Middle of competition	12	48.0%
End of competition	6	24.0%
<b>COMPETITION TOTAL</b>	<b>25</b>	<b>100.0%</b>

**Table 8.5 Activity Type for Competitive Cheer Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	102	<b>81.6%</b>
During simulated competition-scrimmage	21	<b>16.8%</b>
Not specified	2	<b>1.6%</b>
<b>TOTAL</b>	<b>125</b>	<b>100.0%</b>

**Table 8.6 Competitive Cheer Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	88	58.7%
Person to object contact (e.g. wall, equipment)	2	1.3%
Person to playing surface contact	52	34.7%
Uncertain as to the cause of the event	8	5.3%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

**Table 8.7 Person to Playing Surface Contact Competitive Cheer Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Cheer mat	28	53.8%
Wrestling-type mat	19	36.5%
Athletic mat	2	3.8%
Wooden gym floor	2	3.8%
Indoor tile type floor	1	1.9%
<b>TOTAL</b>	<b>52</b>	<b>100.0%</b>

**Table 8.8 Competitive Cheer Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	72	48.0%
Coach	41	27.3%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	6	4.0%
DO	4	2.7%
MD	4	2.7%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	23	15.3%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

**Table 8.9 Competitive Cheer Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	114	76.0%
Not removed*	36	24.0%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 8.10 Competitive Cheer Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	11	7.3%
No reported previous concussions	139	92.7%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

**Table 8.11 Most Recent Concussion for Competitive Cheer Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	3	27.3%
Over one year	8	72.7%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 8.12 Number of Previous Concussions for Competitive Cheer Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	9	81.8%
2 concussions	2	18.2%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 8.13 Competitive Cheer Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	118	78.7%
Did not receive written authorization to return by the end of season	27	18.0%
Follow-up Report not completed	5	3.3%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

**Table 8.14 Competitive Cheer Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	75	50.0%
DO	18	12.0%
PA	12	8.0%
NP	13	8.7%
Medical examiner data not available*	32	21.3%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

**Table 8.15 Competitive Cheer Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	5	3.3%
Urgent or Ready Care business	10	6.7%
Primary care physician or pediatrician's office	88	58.7%
Neurologist's office	7	4.7%
Team doctor	8	5.3%
Medical facility data not available*	32	21.3%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

**Table 8.16 Competitive Cheer Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	96	64.0%
Conditions to return	22	14.7%
Return to activity data not available*	32	21.3%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

**Table 8.17 Competitive Cheer Head Injuries by Missed School Days After Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	77	51.3%
1-2 Days	33	22.0%
3-6 Days	8	5.3%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	32	21.3%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

**Table 8.18 Competitive Cheer Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	2	1.3%
3-5 Days	6	4.0%
6-10 Days	37	24.7%
11-15 Days	24	16.0%
16-20 Days	13	8.7%
≥21 Days	34	22.7%
Data not available**	34	22.7%
<b>TOTAL</b>	<b>150</b>	<b>100.0%</b>

5 Missing Follow-up Reports\*

27 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

2 Data entry errors\*\*

## **IX. Boys Cross Country Head Injury Reports**

**Table 9.1 Head Injury Prevalence Rate for Boys Cross Country, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Boys Cross Country Participation</b>	<b>9,415</b>
<b>All Reported Boys Cross Country Head Injuries</b>	<b>1</b>
<b>Boys Cross Country Head Injury Prevalence Rate</b>	<b>0.01%</b>
<b>Boys Cross Country Head Injuries Per 1,000 Participants</b>	<b>0</b>

**Table 9.2 Boys Cross Country Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	1	100.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 9.3 Boys Cross Country Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	1	100.0%
Competition	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>



**Table 9.4 Boys Cross Country Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	1	100.0%
End of practice	0	0.0%
<b>PRACTICE TOTAL</b>	<b>1</b>	<b>100.0%</b>
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
<b>COMPETITION TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 9.5 Activity Type for Boys Cross Country Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	1	100.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 9.6 Boys Cross Country Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, ground, equipment)*	1	100.0%
Person to playing surface contact	0	0.0%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

\*Injury reported prior to "Person to playing surface contact" being available to select as the mechanism of injury in the report

**Table 9.7 Person to Playing Surface Contact Boys Cross Country Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Cement & wet grass	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 9.8 Boys Cross Country Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	0	0.0%
Coach	0	0.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 9.9 Boys Cross Country Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	1	100.0%
Not removed*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 9.10 Boys Cross Country Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 9.11 Most Recent Concussion for Boys Cross Country Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 9.12 Number of Previous Concussions for Boys Cross Country Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	0	0.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 9.13 Boys Cross Country Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	1	100.0%
Did not receive written authorization to return by the end of season	0	0.0%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 9.14 Boys Cross Country Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	0	0.0%
DO	0	0.0%
PA	0	0.0%
NP	1	100.0%
Medical examiner data not available*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 9.15 Boys Cross Country Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	1	100.0%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 9.16 Boys Cross Country Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	1	100.0%
Conditions to return	0	0.0%
Return to activity data not available*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 9.17 Boys Cross Country Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	1	100.0%
1-2 Days	0	0.0%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 9.18 Boys Cross Country Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	1	100.0%
11-15 Days	0	0.0%
16-20 Days	0	0.0%
≥21 Days	0	0.0%
Data not available**	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

0 Missing Follow-up Reports\*

0 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **X. Girls Cross Country Head Injury Reports**

**Table 10.1 Head Injury Prevalence Rate for Girls Cross Country, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Girls Cross Country Participation</b>	<b>8,489</b>
<b>All Reported Girls Cross Country Head Injuries</b>	<b>6</b>
<b>Girls Cross Country Head Injury Prevalence Rate</b>	<b>0.07%</b>
<b>Girls Cross Country Head Injuries Per 1,000 Participants</b>	<b>1</b>

**Table 10.2 Girls Cross Country Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	5	83.3%
Junior Varsity	1	16.7%
Freshman	0	0.0%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 10.3 Girls Cross Country Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	3	50.0%
Competition	3	50.0%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 10.4 Girls Cross Country Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	2	66.7%
Middle of practice	0	0.0%
End of practice	1	33.3%
<b>PRACTICE TOTAL</b>	<b>3</b>	<b>100.0%</b>
Start of competition	1	16.7%
Middle of competition	2	33.3%
End of competition	0	0.0%
<b>COMPETITION TOTAL</b>	<b>3</b>	<b>50.0%</b>

**Table 10.5 Activity Type for Girls Cross Country Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	1	33.3%
During simulated competition-scrimmage	0	0.0%
Not specified	2	66.7%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 10.6 Girls Cross Country Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	1	16.7%
Person to object contact (e.g. wall, equipment)	1	16.7%
Person to playing surface contact	3	50.0%
Uncertain as to the cause of the event	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>



**Table 10.7 Person to Playing Surface Contact Girls Cross Country Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Natural grass	2	66.7%
Asphalt	1	33.3%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 10.8 Girls Cross Country Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	2	33.3%
Coach	3	50.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	1	16.7%
Multiple examiners	0	0.0%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 10.9 Girls Cross Country Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	5	83.3%
Not removed*	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 10.10 Girls Cross Country Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	6	100.0%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 10.11 Most Recent Concussion for Girls Cross Country Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 10.12 Number of Previous Concussions for Girls Cross Country Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	0	0.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 10.13 Girls Cross Country Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	5	83.3%
Did not receive written authorization to return by the end of season	1	16.7%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 10.14 Girls Cross Country Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	3	50.0%
DO	1	16.7%
PA	0	0.0%
NP	1	16.7%
Medical examiner data not available*	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 10.15 Girls Cross Country Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	4	66.7%
Neurologist's office	0	0.0%
Team doctor	1	16.7%
Medical facility data not available*	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 10.16 Girls Cross Country Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	4	66.7%
Conditions to return	1	16.7%
Return to activity data not available*	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 10.17 Girls Cross Country Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	4	66.7%
1-2 Days	1	16.7%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 10.18 Girls Cross Country Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	2	33.3%
11-15 Days	1	16.7%
16-20 Days	1	16.7%
≥21 Days	1	16.7%
Data not available**	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

0 Missing-follow Up Reports\*

0 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

1 Data entry errors\*\*

## **XI. 11-Player Football Head Injury Reports**

**Table 11.1 Head Injury Prevalence Rate for 11-Player Football, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>11-Player Football Participation</b>	<b>36,571</b>
<b>All Reported 11-Player Football Head Injuries</b>	<b>1,647</b>
<b>11-Player Football Head Injury Prevalence Rate</b>	<b>4.50%</b>
<b>11-Player Football Head Injuries Per 1,000 Participants</b>	<b>45</b>

**Table 11.2 11-Player Football Head Injuries by Gender, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Male	1641	99.6%
Female	6	0.4%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.3 11-Player Football Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	736	44.7%
Junior Varsity	613	37.2%
Freshman	298	18.1%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.4 11-Player Football Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	618	37.5%
Competition	1029	62.5%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.5 11-Player Football Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	72	11.7%
Middle of practice	344	55.7%
End of practice	202	32.7%
<b>PRACTICE TOTAL</b>	<b>618</b>	<b>100.0%</b>
Start of competition	106	10.3%
Middle of competition	499	48.5%
End of competition	424	41.2%
<b>COMPETITION TOTAL</b>	<b>1029</b>	<b>100.0%</b>

**Table 11.6 Activity Type for 11-Player Football Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	461	<b>74.6%</b>
During simulated competition-scrimmage	135	<b>21.8%</b>
Not specified	22	<b>3.6%</b>
<b>TOTAL</b>	<b>618</b>	<b>100.0%</b>

**Table 11.7 11-Player Football Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	1179	71.6%
Person to object contact (e.g. wall, equipment)	79	4.8%
Person to playing surface contact	143	8.7%
Uncertain as to the cause of the event	246	14.9%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.8 Person to Playing Surface Contact 11-Player Football Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Natural grass	86	60.1%
Artificial turf	50	35.0%
Football field	2	1.4%
Ground	2	1.4%
Outdoor track	1	0.7%
Wooden gym floor	2	1.4%
<b>TOTAL</b>	<b>143</b>	<b>100.0%</b>

**Table 11.9 11-Player Football Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	1010	61.3%
Coach	196	11.9%
Sideline emergency personnel	12	0.7%
Other appropriate health care professional	46	2.8%
DO	4	0.2%
MD	57	3.5%
PA	6	0.4%
NP	2	0.1%
Athletic director	14	0.9%
Multiple examiners	300	18.2%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.10 11-Player Football Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	1403	85.2%
Not removed*	244	14.8%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.



**Table 11.11 11-Player Football Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	244	14.8%
No reported previous concussions	1403	85.2%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.12 Most Recent Concussion for 11-Player Football Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	19	7.8%
Within one to six months	16	6.6%
Within six months to one year	59	24.2%
Over one year	150	61.5%
<b>TOTAL</b>	<b>244</b>	<b>100.0%</b>

**Table 11.13 Number of Previous Concussions for 11-Player Football Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	179	73.4%
2 concussions	47	19.3%
3 concussions	8	3.3%
≥4 concussions	3	1.2%
Not specified	7	2.9%
<b>TOTAL</b>	<b>244</b>	<b>100.0%</b>

**Table 11.14 11-Player Football Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	1314	79.8%
Did not receive written authorization to return by the end of season	314	19.1%
Follow-up Report not completed	19	1.2%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.15 11-Player Football Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	825	50.1%
DO	260	15.8%
PA	142	8.6%
NP	87	5.3%
Medical examiner data not available*	333	20.2%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.16 11-Player Football Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	72	4.4%
Urgent or Ready Care business	76	4.6%
Primary care physician or pediatrician's office	938	57.0%
Neurologist's office	91	5.5%
Team doctor	137	8.3%
Medical facility data not available*	333	20.2%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.17 11-Player Football Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	1027	62.4%
Conditions to return	287	17.4%
Return to activity data not available*	333	20.2%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.18 11-Player Football Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	940	57.1%
1-2 Days	257	15.6%
3-6 Days	73	4.4%
7-9 Days	14	0.9%
10-20 Days	29	1.8%
≥21 Days	1	0.1%
Missed school data not available*	333	20.2%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

**Table 11.19 11-Player Football Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	29	1.8%
3-5 Days	129	7.8%
6-10 Days	405	24.6%
11-15 Days	433	26.3%
16-20 Days	145	8.8%
≥21 Days	156	9.5%
Data not available**	350	21.3%
<b>TOTAL</b>	<b>1647</b>	<b>100.0%</b>

19 Missing Follow-up Reports\*

314 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

17 Data entry errors\*\*

## **XII. 8-Player Football Head Injuries Reports**

**Table 12.1 Head Injury Prevalence Rate for 8-Player Football, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>8-Player Football Participation</b>	<b>1,144</b>
<b>All Reported 8-Player Football Head Injuries</b>	<b>37</b>
<b>8-Player Football Head Injury Prevalence Rate</b>	<b>3.23%</b>
<b>8-Player Football Head Injuries Per 1,000 Participants</b>	<b>32</b>

**Table 12.2 8-Player Football Head Injuries by Gender, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Male	37	100.0%
Female	0	0.0%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.3 8-Player Football Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	28	75.7%
Junior Varsity	9	24.3%
Freshman	0	0.0%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.4 8-Player Football Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	7	18.9%
Competition	30	81.1%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.5 8-Player Football Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	1	14.3%
Middle of practice	5	71.4%
End of practice	1	14.3%
<b>PRACTICE TOTAL</b>	<b>7</b>	<b>100.0%</b>
Start of competition	4	13.3%
Middle of competition	20	66.7%
End of competition	6	20.0%
<b>COMPETITION TOTAL</b>	<b>30</b>	<b>100.0%</b>

**Table 12.6 Activity Type for 8-Player Football Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	6	85.7%
During simulated competition-scrimmage	1	14.3%
Not specified	0	0.0%
<b>TOTAL</b>	<b>7</b>	<b>100.0%</b>

**Table 12.7 8-Player Football Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	32	86.5%
Person to object contact (e.g. wall, equipment)	0	0.0%
Person to playing surface contact	2	5.4%
Uncertain as to the cause of the event	3	8.1%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.8 Person to Playing Surface Contact 8-Player Football Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Natural grass	2	100.0%
Artificial turf	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 12.9 8-Player Football Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	7	18.9%
Coach	12	32.4%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	1	2.7%
DO	0	0.0%
MD	1	2.7%
PA	0	0.0%
NP	0	0.0%
Athletic director	3	8.1%
Multiple examiners	13	35.1%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.10 8-Player Football Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	36	97.3%
Not removed*	1	2.7%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 12.11 8-Player Football Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	2	5.4%
No reported previous concussions	35	94.6%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.12 Most Recent Concussion for 8-Player Football Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	1	50.0%
Within six months to one year	0	0.0%
Over one year	1	50.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 12.13 Number of Previous Concussions for 8-Player Football Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	2	100.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>



**Table 12.14 8-Player Football Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	26	70.3%
Did not receive written authorization to return by the end of season	4	10.8%
Follow-up Report not completed	7	18.9%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.15 8-Player Football Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	16	43.2%
DO	4	10.8%
PA	4	10.8%
NP	2	5.4%
Medical examiner data not available*	11	29.7%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.16 8-Player Football Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	4	10.8%
Urgent or Ready Care business	2	5.4%
Primary care physician or pediatrician's office	20	54.1%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	11	29.7%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.17 8-Player Football Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	14	37.8%
Conditions to return	12	32.4%
Return to activity data not available*	11	29.7%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.18 8-Player Football Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	20	54.1%
1-2 Days	4	10.8%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	1	2.7%
≥21 Days	1	2.7%
Missed school data not available*	11	29.7%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 12.19 8-Player Football Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	1	2.7%
3-5 Days	7	18.9%
6-10 Days	9	24.3%
11-15 Days	0	0.0%
16-20 Days	1	2.7%
≥21 Days	8	21.6%
Data not available**	11	29.7%
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

7 Missing Follow-up Reports\*

4 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XIII. Boys Golf Head Injury Reports**

**Table 13.1 Head Injury Prevalence Rate for Boys Golf, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Boys Golf Participation</b>	<b>6,270</b>
<b>All Boys Golf Head Injuries</b>	<b>1</b>
<b>Boys Golf Head Injury Prevalence Rate</b>	<b>0.02%</b>
<b>Boys Golf Head Injuries Per 1,000 Participants</b>	<b>0</b>

**Table 13.2 Boys Golf Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	1	100.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.3 Boys Golf Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	1	100.0%
Competition	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.4 Boys Golf Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	1	100.0%
End of practice	0	0.0%
<b>PRACTICE TOTAL</b>	<b>1</b>	<b>100.0%</b>
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
<b>COMPETITION TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 13.5 Activity Type for Boys Golf Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	1	100.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.6 Boys Golf Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	1	100.0%
Person to playing surface contact	0	0.0%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.7 Person to Playing Surface Contact Boys Golf Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Artificial turf	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.8 Boys Golf Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	0	0.0%
Coach	0	0.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	1	100.0%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.9 Boys Golf Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	1	100.0%
Not removed*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 13.10 Boys Golf Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.11 Most Recent Concussion for Boys Golf Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 13.12 Number of Previous Concussions for Boys Golf Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	0	0.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 13.13 Boys Golf Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	1	100.0%
Did not receive written authorization to return by the end of season	0	0.0%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.14 Boys Golf Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	1	100.0%
DO	0	0.0%
PA	0	0.0%
NP	0	0.0%
Medical examiner data not available*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.15 Boys Golf Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	1	100.0%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>



**Table 13.16 Boys Golf Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	1	100.0%
Conditions to return	0	0.0%
Return to activity data not available*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.17 Boys Golf Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	1	100.0%
1-2 Days	0	0.0%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 13.18 Boys Golf Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	1	100.0%
11-15 Days	0	0.0%
16-20 Days	0	0.0%
≥21 Days	0	0.0%
Data not available**	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

0 Missing Follow-up Reports\*

0 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XIV. Girls Golf Head Injury Reports**

**Table 14.1 Head Injury Prevalence Rate for Girls Golf, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Girls Golf Participation</b>	<b>3,561</b>
<b>All Reported Girls Golf Head Injuries</b>	<b>1</b>
<b>Girls Golf Head Injury Prevalence Rate</b>	<b>0.03%</b>
<b>Girls Golf Head Injuries Per 1,000 Participants</b>	<b>0</b>

**Table 14.2 Girls Golf Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	0	0.0%
Junior Varsity	1	100.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.3 Girls Golf Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	1	100.0%
Competition	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.4 Girls Golf Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	1	100.0%
End of practice	0	0.0%
<b>PRACTICE TOTAL</b>	<b>1</b>	<b>100.0%</b>
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
<b>COMPETITION TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 14.5 Activity Type for Girls Golf Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	1	100.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.6 Girls Golf Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	0	0.0%
Person to playing surface contact	0	0.0%
Uncertain as to the cause of the event	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.7 Person to Playing Surface Contact Girls Golf Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Natural grass	0	0.0%
Unknown	0	0.0%
Other	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 14.8 Girls Golf Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	0	0.0%
Coach	0	0.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.9 Girls Golf Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	1	100.0%
Not removed*	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 14.10 Girls Golf Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.11 Most Recent Concussion for Girls Golf Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 14.12 Number of Previous Concussions for Girls Golf Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	0	0.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 14.13 Girls Golf Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	0	0.0%
Did not receive written authorization to return by the end of season	0	0.0%
Follow-up Report not completed	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.14 Girls Golf Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	0	0.0%
DO	0	0.0%
PA	0	0.0%
NP	0	0.0%
Medical examiner data not available*	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.15 Girls Golf Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	0	0.0%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.16 Girls Golf Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	0	0.0%
Conditions to return	0	0.0%
Return to activity data not available*	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.17 Girls Golf Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	0	0.0%
1-2 Days	0	0.0%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 14.18 Girls Golf Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	0	0.0%
11-15 Days	0	0.0%
16-20 Days	0	0.0%
≥21 Days	0	0.0%
Data not available**	1	100.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

1 Missing Follow-up Reports\*

0 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*



## **XV. Gymnastics Head Injury Reports**

**Table 15.1 Head Injury Prevalence Rate for Gymnastics, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Gymnastics Participation</b>	<b>636</b>
<b>All Reported Gymnastics Head Injuries</b>	<b>8</b>
<b>Gymnastics Head Injury Prevalence Rate</b>	<b>1.26%</b>
<b>Gymnastics Head Injuries Per 1,000 Participants</b>	<b>13</b>

**Table 15.2 Gymnastics Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	8	100.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 15.3 Gymnastics Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	4	50.0%
Competition	4	50.0%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 15.4 Gymnastics Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	3	75.0%
End of practice	1	25.0%
<b>PRACTICE TOTAL</b>	<b>4</b>	<b>100.0%</b>
Start of competition	0	0.0%
Middle of competition	2	50.0%
End of competition	2	50.0%
<b>COMPETITION TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 15.5 Activity Type for Gymnastics Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	4	100.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 15.6 Gymnastics Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	1	12.5%
Person to playing surface contact	7	87.5%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 15.7 Person to Playing Surface Contact Gymnastics Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Wrestling-Type Mat	3	42.9%
Gymnastics Mat	2	28.6%
Gymnastics Floor	2	28.6%
<b>TOTAL</b>	<b>7</b>	<b>57.1%</b>

**Table 15.8 Gymnastics Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	2	25.0%
Coach	4	50.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	1	12.5%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	1	12.5%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 15.9 Gymnastics Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	4	50.0%
Not removed*	4	50.0%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 15.10 Gymnastics Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	2	25.0%
No reported previous concussions	6	75.0%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 15.11 Most Recent Concussion for Gymnastics Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	2	100.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 15.12 Number of Previous Concussions for Gymnastics Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	1	50.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	1	50.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 15.13 Gymnastics Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	7	87.5%
Did not receive written authorization to return by the end of season	1	12.5%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 15.14 Gymnastics Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	4	50.0%
DO	2	25.0%
PA	0	0.0%
NP	1	12.5%
Medical examiner data not available*	1	12.5%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 15.15 Gymnastics Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	6	75.0%
Neurologist's office	0	0.0%
Team doctor	1	12.5%
Medical facility data not available*	1	12.5%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 15.16 Gymnastics Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	7	87.5%
Conditions to return	0	0.0%
Return to activity data not available*	1	12.5%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 15.17 Gymnastics Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	2	25.0%
1-2 Days	4	50.0%
3-6 Days	1	12.5%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	1	12.5%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 15.18 Gymnastics Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	1	12.5%
11-15 Days	2	25.0%
16-20 Days	2	25.0%
≥21 Days	2	25.0%
Data not available**	1	12.5%
<b>TOTAL</b>	<b>8</b>	<b>100.0%</b>

0 Missing Follow-up Reports\*

1 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XVI. Ice Hockey Head Injury Reports**



**Table 16.1 Head Injury Prevalence Rate for Ice Hockey, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Ice Hockey Participation</b>	<b>3,411</b>
<b>All Reported Ice Hockey Head Injuries</b>	<b>124</b>
<b>Ice Hockey Head Injury Prevalence Rate</b>	<b>3.64%</b>
<b>Ice Hockey Head Injuries Per 1,000 Participants</b>	<b>36</b>

**Table 16.2 Ice Hockey Head Injuries by Gender, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Male	122	98.4%
Female	2	1.6%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.3 Ice Hockey Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	110	88.7%
Junior Varsity	13	10.5%
Freshman	1	0.8%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.4 Ice Hockey Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	13	10.5%
Competition	111	89.5%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.5 Ice Hockey Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	8	61.5%
End of practice	5	38.5%
<b>PRACTICE TOTAL</b>	<b>13</b>	<b>100.0%</b>
Start of competition	12	10.8%
Middle of competition	56	50.5%
End of competition	43	38.7%
<b>COMPETITION TOTAL</b>	<b>111</b>	<b>100.0%</b>

**Table 16.6 Activity Type for Ice Hockey Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	8	61.5%
During simulated competition-scrimmage	4	30.8%
Not specified	1	7.7%
<b>TOTAL</b>	<b>13</b>	<b>100.0%</b>

**Table 16.7 Ice Hockey Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	58	46.8%
Person to object contact (e.g. wall, equipment)	47	37.9%
Person to playing surface contact	12	9.7%
Uncertain as to the cause of the event	7	5.6%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.8 Person to Playing Surface Contact Ice Hockey Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Ice	12	100.0%
<b>TOTAL</b>	<b>12</b>	<b>100.0%</b>

**Table 16.9 Ice Hockey Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	72	58.1%
Coach	26	21.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	1	0.8%
MD	4	3.2%
PA	1	0.8%
NP	0	0.0%
Athletic director	1	0.8%
Multiple examiners	19	15.3%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.10 Ice Hockey Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	97	78.2%
Not removed*	27	21.8%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 16.11 Ice Hockey Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	38	30.6%
No reported previous concussions	86	69.4%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.12 Most Recent Concussion for Ice Hockey Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	1	2.6%
Within one to six months	5	13.2%
Within six months to one year	5	13.2%
Over one year	27	71.1%
<b>TOTAL</b>	<b>38</b>	<b>100.0%</b>

**Table 16.13 Number of Previous Concussions for Ice Hockey Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	25	65.8%
2 concussions	10	26.3%
3 concussions	1	2.6%
≥4 concussions	1	2.6%
Not specified	1	2.6%
<b>TOTAL</b>	<b>38</b>	<b>100.0%</b>

**Table 16.14 Ice Hockey Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	109	87.9%
Did not receive written authorization to return by the end of season	11	8.9%
Follow-up Report not completed	4	3.2%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.15 Ice Hockey Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	72	58.1%
DO	26	21.0%
PA	4	3.2%
NP	7	5.6%
Medical examiner data not available*	15	12.1%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.16 Ice Hockey Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	3	2.4%
Urgent or Ready Care business	1	0.8%
Primary care physician or pediatrician's office	72	58.1%
Neurologist's office	14	11.3%
Team doctor	19	15.3%
Medical facility data not available*	15	12.1%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.17 Ice Hockey Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	82	66.1%
Conditions to return	27	21.8%
Return to activity data not available*	15	12.1%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.18 Ice Hockey Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	69	55.6%
1-2 Days	27	21.8%
3-6 Days	11	8.9%
7-9 Days	1	0.8%
10-20 Days	1	0.8%
≥21 Days	0	0.0%
Missed school data not available*	15	12.1%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

**Table 16.19 Ice Hockey Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	3	2.4%
3-5 Days	8	6.5%
6-10 Days	29	23.4%
11-15 Days	28	22.6%
16-20 Days	12	9.7%
≥21 Days	24	19.4%
Data not available**	20	16.1%
<b>TOTAL</b>	<b>124</b>	<b>100.0%</b>

4 Missing Follow-up Reports\*

11 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

5 Data entry errors\*\*

# **XVII. Boys Lacrosse Head Injury Reports**

**Table 17.1 Head Injury Prevalence Rate for Boys Lacrosse, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Boys Lacrosse Participation</b>	<b>5,114</b>
<b>All Boys Lacrosse Head Injuries</b>	<b>92</b>
<b>Boys Lacrosse Head Injury Prevalence Rate</b>	<b>1.80%</b>
<b>Boys Lacrosse Head Injuries Per 1,000 Participants</b>	<b>18</b>

**Table 17.2 Boys Lacrosse Head Injuries by Gender, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Male	90	97.8%
Female	2	2.2%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

**Table 17.3 Boys Lacrosse Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	62	67.4%
Junior Varsity	27	29.3%
Freshman	3	3.3%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

**Table 17.4 Boys Lacrosse Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	18	19.6%
Competition	74	80.4%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>



**Table 17.5 Boys Lacrosse Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	3	16.7%
Middle of practice	10	55.6%
End of practice	5	27.8%
<b>PRACTICE TOTAL</b>	<b>18</b>	<b>100.0%</b>
Start of competition	8	10.8%
Middle of competition	35	47.3%
End of competition	31	41.9%
<b>COMPETITION TOTAL</b>	<b>74</b>	<b>100.0%</b>

**Table 17.6 Activity Type for Boys Lacrosse Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	13	<b>72.2%</b>
During simulated competition-scrimmage	5	<b>27.8%</b>
Not specified	0	<b>0.0%</b>
<b>TOTAL</b>	<b>18</b>	<b>100.0%</b>

**Table 17.7 Boys Lacrosse Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	52	56.5%
Person to object contact (e.g. wall, equipment)	22	23.9%
Person to playing surface contact	9	9.8%
Uncertain as to the cause of the event	9	9.8%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

**Table 17.8 Person to Playing Surface Contact Boys Lacrosse Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Artificial turf	4	44.4%
Natural grass	4	44.4%
Wooden gym floor	1	11.1%
<b>TOTAL</b>	<b>9</b>	<b>55.6%</b>

**Table 17.9 Boys Lacrosse Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	56	60.9%
Coach	19	20.7%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	3	3.3%
DO	0	0.0%
MD	3	3.3%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	11	12.0%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

**Table 17.10 Boys Lacrosse Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	74	80.4%
Not removed*	18	19.6%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 17.11 Boys Lacrosse Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	12	13.0%
No reported previous concussions	80	87.0%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

**Table 17.12 Most Recent Concussion for Boys Lacrosse Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	2	16.7%
Over one year	10	83.3%
<b>TOTAL</b>	<b>12</b>	<b>100.0%</b>

**Table 17.13 Number of Previous Concussions for Boys Lacrosse Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	7	58.3%
2 concussions	4	33.3%
3 concussions	1	8.3%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>12</b>	<b>100.0%</b>

**Table 17.14 Boys Lacrosse Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	66	71.7%
Did not receive written authorization to return by the end of season	21	22.8%
Follow-up Report not completed	5	5.4%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

**Table 17.15 Boys Lacrosse Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	47	51.1%
DO	13	14.1%
PA	3	3.3%
NP	3	3.3%
Medical examiner data not available*	26	28.3%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

**Table 17.16 Boys Lacrosse Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	2	2.2%
Urgent or Ready Care business	2	2.2%
Primary care physician or pediatrician's office	46	50.0%
Neurologist's office	9	9.8%
Team doctor	7	7.6%
Medical facility data not available*	26	28.3%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

**Table 17.17 Boys Lacrosse Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	53	57.6%
Conditions to return	13	14.1%
Return to activity data not available*	26	28.3%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

**Table 17.18 Boys Lacrosse Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	46	50.0%
1-2 Days	18	19.6%
3-6 Days	2	2.2%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	26	28.3%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

**Table 17.19 Boys Lacrosse Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	2	2.2%
3-5 Days	3	3.3%
6-10 Days	23	25.0%
11-15 Days	19	20.7%
16-20 Days	10	10.9%
≥21 Days	7	7.6%
Data not available**	28	30.4%
<b>TOTAL</b>	<b>92</b>	<b>100.0%</b>

5 Missing Follow-up Reports\*

21 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

2 Data entry errors\*\*

## **XVIII. Girls Lacrosse Head Injuries**

**Table 18.1 Head Injury Prevalence Rate for Girls Lacrosse, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Girls Lacrosse Participation</b>	<b>2,814</b>
<b>All Girls Lacrosse Head Injuries</b>	<b>55</b>
<b>Girls Lacrosse Head Injury Prevalence Rate</b>	<b>1.95%</b>
<b>Girls Lacrosse Head Injuries Per 1,000 Participants</b>	<b>20</b>

**Table 18.2 Girls Lacrosse Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	47	85.5%
Junior Varsity	8	14.5%
Freshman	0	0.0%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

**Table 18.3 Girls Lacrosse Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	14	25.5%
Competition	41	74.5%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

**Table 18.4 Girls Lacrosse Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	5	35.7%
Middle of practice	7	50.0%
End of practice	2	14.3%
<b>PRACTICE TOTAL</b>	<b>14</b>	<b>100.0%</b>
Start of competition	1	2.4%
Middle of competition	22	53.7%
End of competition	18	43.9%
<b>COMPETITION TOTAL</b>	<b>41</b>	<b>100.0%</b>

**Table 18.5 Activity Type for Girls Lacrosse Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	11	<b>78.6%</b>
During simulated competition-scrimmage	2	<b>14.3%</b>
Not specified	1	<b>7.1%</b>
<b>TOTAL</b>	<b>14</b>	<b>100.0%</b>

**Table 18.6 Girls Lacrosse Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	7	12.7%
Person to object contact (e.g. wall, equipment)	34	61.8%
Person to playing surface contact	9	16.4%
Uncertain as to the cause of the event	5	9.1%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>



**Table 18.7 Person to Playing Surface Contact Girls Lacrosse Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Artificial turf	6	66.7%
Natural grass	3	33.3%
<b>TOTAL</b>	<b>9</b>	<b>33.3%</b>

**Table 18.8 Girls Lacrosse Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	34	61.8%
Coach	14	25.5%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	1	1.8%
PA	1	1.8%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	5	9.1%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

**Table 18.9 Girls Lacrosse Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	42	76.4%
Not removed*	13	23.6%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 18.10 Girls Lacrosse Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	13	23.6%
No reported previous concussions	42	76.4%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

**Table 18.11 Most Recent Concussion for Girls Lacrosse Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	1	9.1%
Within six months to one year	2	18.2%
Over one year	8	72.7%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 18.12 Number of Previous Concussions for Girls Lacrosse Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	9	81.8%
2 concussions	2	18.2%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 18.13 Girls Lacrosse Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	39	70.9%
Did not receive written authorization to return by the end of season	11	20.0%
Follow-up Report not completed	5	9.1%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

**Table 18.14 Girls Lacrosse Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	26	47.3%
DO	9	16.4%
PA	1	1.8%
NP	3	5.5%
Medical examiner data not available*	16	29.1%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

**Table 18.15 Girls Lacrosse Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	1	1.8%
Urgent or Ready Care business	2	3.6%
Primary care physician or pediatrician's office	29	52.7%
Neurologist's office	3	5.5%
Team doctor	4	7.3%
Medical facility data not available*	16	29.1%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

**Table 18.16 Girls Lacrosse Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	33	60.0%
Conditions to return	6	10.9%
Return to activity data not available*	16	29.1%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

**Table 18.17 Girls Lacrosse Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	24	43.6%
1-2 Days	13	23.6%
3-6 Days	2	3.6%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	16	29.1%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

**Table 18.18 Girls Lacrosse Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	1	1.8%
3-5 Days	3	5.5%
6-10 Days	13	23.6%
11-15 Days	16	29.1%
16-20 Days	3	5.5%
≥21 Days	3	5.5%
Data not available**	16	29.1%
<b>TOTAL</b>	<b>55</b>	<b>100.0%</b>

5 Missing Follow-up Reports\*

11 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XIX. Boys Skiing Head Injury Reports**

**Table 19.1 Head Injury Prevalence Rate for Boys Skiing, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Boys Skiing Participation</b>	<b>837</b>
<b>All Reported Boys Skiing Head Injuries</b>	<b>3</b>
<b>Boys Skiing Head Injury Prevalence Rate</b>	<b>0.36%</b>
<b>Boys Skiing Head Injuries Per 1,000 Participants</b>	<b>4</b>

**Table 19.2 Boys Skiing Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	3	100.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.3 Boys Skiing Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	1	33.3%
Competition	2	66.7%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.4 Boys Skiing Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	0	0.0%
End of practice	1	100.0%
<b>PRACTICE TOTAL</b>	<b>1</b>	<b>100.0%</b>
Start of competition	1	50.0%
Middle of competition	1	50.0%
End of competition	0	0.0%
<b>COMPETITION TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 19.5 Activity Type for Boys Skiing Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	1	100.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 19.6 Boys Skiing Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	0	0.0%
Person to playing surface contact	3	100.0%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.7 Person to Playing Surface Contact Boys Skiing Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Snow/ice covered ground	3	100.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.8 Boys Skiing Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	0	0.0%
Coach	2	66.7%
Sideline emergency personnel	1	33.3%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	0	0.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.9 Boys Skiing Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	2	66.7%
Not removed*	1	33.3%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.



**Table 19.10 Boys Skiing Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	2	66.7%
No reported previous concussions	1	33.3%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.11 Most Recent Concussion for Boys Skiing Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	2	100.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 19.12 Number of Previous Concussions for Boys Skiing Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	1	50.0%
2 concussions	1	50.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 19.13 Boys Skiing Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	3	100.0%
Did not receive written authorization to return by the end of season	0	0.0%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.14 Boys Skiing Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	0	0.0%
DO	2	66.7%
PA	0	0.0%
NP	1	33.3%
Medical examiner data not available*	0	0.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.15 Boys Skiing Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	3	100.0%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	0	0.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.16 Boys Skiing Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	2	66.7%
Conditions to return	1	33.3%
Return to activity data not available*	0	0.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.17 Boys Skiing Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	1	33.3%
1-2 Days	2	66.7%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	0	0.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 19.18 Boys Skiing Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	3	100.0%
11-15 Days	0	0.0%
16-20 Days	0	0.0%
≥21 Days	0	0.0%
Data not available**	0	0.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

0 Missing Follow-up Reports\*

0 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XX. Girls Skiing Head Injury Reports**

**Table 20.1 Head Injury Prevalence Rate for Girls Skiing, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Girls Skiing Participation</b>	<b>746</b>
<b>All Reported Girls Skiing Head Injuries</b>	<b>2</b>
<b>Girls Skiing Head Injury Prevalence Rate</b>	<b>0.27%</b>
<b>Girls Skiing Head Injuries Per 1,000 Participants</b>	<b>3</b>

**Table 20.2 Girls Skiing Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	2	100.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.3 Girls Skiing Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	1	50.0%
Competition	1	50.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.4 Girls Skiing Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	0	0.0%
End of practice	1	100.0%
<b>PRACTICE TOTAL</b>	<b>1</b>	<b>100.0%</b>
Start of competition	0	0.0%
Middle of competition	1	100.0%
End of competition	0	0.0%
<b>COMPETITION TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 20.5 Activity Type for Girls Skiing Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	1	100.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 20.6 Girls Skiing Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	0	0.0%
Person to playing surface contact	2	100.0%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.7 Person to Playing Surface Contact Girls Skiing Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Snow/ice covered ground	2	100.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.8 Girls Skiing Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	0	0.0%
Coach	1	50.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	1	50.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.9 Girls Skiing Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	1	50.0%
Not removed*	1	50.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 20.10 Girls Skiing Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	2	100.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.11 Most Recent Concussion for Girls Skiing Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 20.12 Number of Previous Concussions for Girls Skiing Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	0	0.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>



**Table 20.13 Girls Skiing Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	2	100.0%
Did not receive written authorization to return by the end of season	0	0.0%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.14 Girls Skiing Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	2	100.0%
DO	0	0.0%
PA	0	0.0%
NP	0	0.0%
Medical examiner data not available*	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.15 Girls Skiing Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	2	100.0%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.16 Girls Skiing Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	1	50.0%
Conditions to return	1	50.0%
Return to activity data not available*	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.17 Girls Skiing Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	0	0.0%
1-2 Days	1	50.0%
3-6 Days	1	50.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 20.18 Girls Skiing Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	1	50.0%
11-15 Days	1	50.0%
16-20 Days	0	0.0%
≥21 Days	0	0.0%
Data not available**	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

0 Missing Follow-up Reports\*

0 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XXI. Boys Soccer Head Injury Reports**

**Table 21.1 Head Injury Prevalence Rate for Boys Soccer, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Boys Soccer Participation</b>	<b>14,630</b>
<b>All Reported Boys Soccer Head Injuries</b>	<b>207</b>
<b>Boys Soccer Head Injury Prevalence Rate</b>	<b>1.41%</b>
<b>Boys Soccer Head Injuries Per 1,000 Participants</b>	<b>14</b>

**Table 21.2 Boys Soccer Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	136	65.7%
Junior Varsity	62	30.0%
Freshman	9	4.3%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

**Table 21.3 Boys Soccer Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	37	17.9%
Competition	170	82.1%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

**Table 21.4 Boys Soccer Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	6	16.2%
Middle of practice	19	51.4%
End of practice	12	32.4%
<b>PRACTICE TOTAL</b>	<b>37</b>	<b>100.0%</b>
Start of competition	26	15.3%
Middle of competition	92	54.1%
End of competition	52	30.6%
<b>COMPETITION TOTAL</b>	<b>170</b>	<b>100.0%</b>

**Table 21.5 Activity Type for Boys Soccer Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	27	<b>73.0%</b>
During simulated competition-scrimmage	9	<b>24.3%</b>
Not specified	1	<b>2.7%</b>
<b>TOTAL</b>	<b>37</b>	<b>100.0%</b>

**Table 21.6 Boys Soccer Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	97	46.9%
Person to object contact (e.g. wall, equipment)	70	33.8%
Person to playing surface contact	20	9.7%
Uncertain as to the cause of the event	20	9.7%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

**Table 21.7 Person to Playing Surface Contact Boys Soccer Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Natural grass	14	70.0%
Artificial turf	5	25.0%
Soccer field	1	5.0%
<b>TOTAL</b>	<b>20</b>	<b>100.0%</b>

**Table 21.8 Boys Soccer Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	119	57.5%
Coach	44	21.3%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	4	1.9%
DO	0	0.0%
MD	9	4.3%
PA	0	0.0%
NP	0	0.0%
Athletic director	1	0.5%
Multiple examiners	30	14.5%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

**Table 21.9 Boys Soccer Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	178	86.0%
Not removed*	29	14.0%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 21.10 Boys Soccer Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	26	12.6%
No reported previous concussions	181	87.4%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

**Table 21.11 Most Recent Concussion for Boys Soccer Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	3	11.5%
Within six months to one year	4	15.4%
Over one year	19	73.1%
<b>TOTAL</b>	<b>26</b>	<b>100.0%</b>

**Table 21.12 Number of Previous Concussions for Boys Soccer Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	13	50.0%
2 concussions	10	38.5%
3 concussions	1	3.8%
≥4 concussions	2	7.7%
Not specified	0	0.0%
<b>TOTAL</b>	<b>26</b>	<b>100.0%</b>

**Table 21.13 Boys Soccer Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	176	85.0%
Did not receive written authorization to return by the end of season	31	15.0%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

**Table 21.14 Boys Soccer Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	113	54.6%
DO	36	17.4%
PA	15	7.2%
NP	12	5.8%
Medical examiner data not available*	31	15.0%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

**Table 21.15 Boys Soccer Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	7	3.4%
Urgent or Ready Care business	6	2.9%
Primary care physician or pediatrician's office	127	61.4%
Neurologist's office	17	8.2%
Team doctor	19	9.2%
Medical facility data not available*	31	15.0%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>



**Table 21.16 Boys Soccer Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	150	72.5%
Conditions to return	26	12.6%
Return to activity data not available*	31	15.0%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

**Table 21.17 Boys Soccer Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	105	50.7%
1-2 Days	46	22.2%
3-6 Days	20	9.7%
7-9 Days	2	1.0%
10-20 Days	3	1.4%
≥21 Days	0	0.0%
Missed school data not available*	31	15.0%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

**Table 21.18 Boys Soccer Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	4	1.9%
3-5 Days	23	11.1%
6-10 Days	61	29.5%
11-15 Days	46	22.2%
16-20 Days	21	10.1%
≥21 Days	18	8.7%
Data not available**	34	16.4%
<b>TOTAL</b>	<b>207</b>	<b>100.0%</b>

0 Missing Follow-up Reports\*

31 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

3 Data entry errors\*\*

## **XXII. Girls Soccer Head Injury Reports**

**Table 22.1 Head Injury Prevalence Rate for Girls Soccer, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Girls Soccer Participation</b>	<b>13,212</b>
<b>All Girls Soccer Head Injuries</b>	<b>364</b>
<b>Girls Soccer Head Injury Prevalence Rate</b>	<b>2.76%</b>
<b>Girls Soccer Head Injuries Per 1,000 Participants</b>	<b>28</b>

**Table 22.2 Girls Soccer Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	234	64.3%
Junior Varsity	125	34.3%
Freshman	5	1.4%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

**Table 22.3 Girls Soccer Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	47	12.9%
Competition	317	87.1%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

**Table 22.4 Girls Soccer Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	7	14.9%
Middle of practice	20	42.6%
End of practice	20	42.6%
<b>PRACTICE TOTAL</b>	<b>47</b>	<b>100.0%</b>
Start of competition	20	6.3%
Middle of competition	184	58.0%
End of competition	113	35.6%
<b>COMPETITION TOTAL</b>	<b>317</b>	<b>100.0%</b>

**Table 22.5 Activity Type for Girls Soccer Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	28	59.6%
During simulated competition-scrimmage	17	36.2%
Not specified	2	4.3%
<b>TOTAL</b>	<b>47</b>	<b>100.0%</b>

**Table 22.6 Girls Soccer Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	128	35.2%
Person to object contact (e.g. wall, equipment)	152	41.8%
Person to playing surface contact	60	16.5%
Uncertain as to the cause of the event	24	6.6%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

**Table 22.7 Person to Playing Surface Contact Girls Soccer Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Natural grass	42	70.0%
Artificial turf	14	23.3%
Wooden gym floor	2	3.3%
Other	2	3.3%
<b>TOTAL</b>	<b>60</b>	<b>100.0%</b>

**Table 22.8 Girls Soccer Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	214	58.8%
Coach	81	22.3%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	5	1.4%
DO	0	0.0%
MD	8	2.2%
PA	0	0.0%
NP	0	0.0%
Athletic director	1	0.3%
Multiple examiners	55	15.1%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

**Table 22.9 Girls Soccer Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	304	83.5%
Not removed*	60	16.5%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 22.10 Girls Soccer Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	81	22.3%
No reported previous concussions	283	77.7%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

**Table 22.11 Most Recent Concussion for Girls Soccer Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	1	1.3%
Within one to six months	9	11.8%
Within six months to one year	23	30.3%
Over one year	43	56.6%
<b>TOTAL</b>	<b>76</b>	<b>100.0%</b>

**Table 22.12 Number of Previous Concussions for Girls Soccer Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	53	69.7%
2 concussions	15	19.7%
3 concussions	4	5.3%
≥4 concussions	3	3.9%
Not specified	1	1.3%
<b>TOTAL</b>	<b>76</b>	<b>100.0%</b>

**Table 22.13 Girls Soccer Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	273	75.0%
Did not receive written authorization to return by the end of season	75	20.6%
Follow-up Report not completed	16	4.4%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

**Table 22.14 Girls Soccer Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	183	50.3%
DO	48	13.2%
PA	16	4.4%
NP	26	7.1%
Medical examiner data not available*	91	25.0%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

**Table 22.15 Girls Soccer Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	9	2.5%
Urgent or Ready Care business	19	5.2%
Primary care physician or pediatrician's office	194	53.3%
Neurologist's office	22	6.0%
Team doctor	29	8.0%
Medical facility data not available*	91	25.0%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

**Table 22.16 Girls Soccer Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	227	62.4%
Conditions to return	46	12.6%
Return to activity data not available*	91	25.0%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

**Table 22.17 Girls Soccer Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	160	44.0%
1-2 Days	72	19.8%
3-6 Days	31	8.5%
7-9 Days	6	1.6%
10-20 Days	4	1.1%
≥21 Days	0	0.0%
Missed school data not available*	91	25.0%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

**Table 22.18 Girls Soccer Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	6	1.6%
3-5 Days	25	6.9%
6-10 Days	93	25.5%
11-15 Days	74	20.3%
16-20 Days	34	9.3%
≥21 Days	37	10.2%
Data not available**	95	26.1%
<b>TOTAL</b>	<b>364</b>	<b>100.0%</b>

16 Missing Follow-up Reports\*

75 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

4 Data entry errors\*\*



## **XXIII. Softball Head Injury Reports**

**Table 23.1 Head Injury Prevalence Rate for Softball, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Softball Participation</b>	<b>13,641</b>
<b>All Softball Head Injuries</b>	<b>146</b>
<b>Softball Head Injury Prevalence Rate</b>	<b>1.07%</b>
<b>Softball Head Injuries Per 1,000 Participants</b>	<b>11</b>

**Table 23.2 Softball Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	85	58.2%
Junior Varsity	57	39.0%
Freshman	4	2.7%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

**Table 23.3 Softball Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	48	32.9%
Competition	98	67.1%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

**Table 23.4 Softball Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	14	29.2%
Middle of practice	22	45.8%
End of practice	12	25.0%
<b>PRACTICE TOTAL</b>	<b>48</b>	<b>100.0%</b>
Start of competition	16	16.3%
Middle of competition	61	62.2%
End of competition	21	21.4%
<b>COMPETITION TOTAL</b>	<b>98</b>	<b>100.0%</b>

**Table 23.5 Activity Type for Softball Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	40	<b>83.3%</b>
During simulated competition-scrimmage	4	<b>8.3%</b>
Not specified	4	<b>8.3%</b>
<b>TOTAL</b>	<b>48</b>	<b>100.0%</b>

**Table 23.6 Softball Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	30	20.5%
Person to object contact (e.g. wall, equipment)	94	64.4%
Person to playing surface contact	15	10.3%
Uncertain as to the cause of the event	7	4.8%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

**Table 23.7 Person to Playing Surface Contact Softball Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Natural grass	5	33.3%
Dirt infield	5	33.3%
Wooden gym floor	2	13.3%
Artificial turf	1	6.7%
Concrete	1	6.7%
Softball Diamond	1	6.7%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 23.8 Softball Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	54	37.0%
Coach	45	30.8%
Sideline emergency personnel	1	0.7%
Other appropriate health care professional	2	1.4%
DO	0	0.0%
MD	5	3.4%
PA	1	0.7%
NP	0	0.0%
Athletic director	1	0.7%
Multiple examiners	37	25.3%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

**Table 23.9 Softball Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	132	90.4%
Not removed*	14	9.6%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 23.10 Softball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	23	15.8%
No reported previous concussions	123	84.2%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

**Table 23.11 Most Recent Concussion for Softball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	4	26.7%
Within six months to one year	6	40.0%
Over one year	5	33.3%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 23.12 Number of Previous Concussions for Softball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	12	80.0%
2 concussions	3	20.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 23.13 Softball Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	110	75.3%
Did not receive written authorization to return by the end of season	28	19.2%
Follow-up Report not completed	8	5.5%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

**Table 23.14 Softball Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	67	45.9%
DO	20	13.7%
PA	18	12.3%
NP	5	3.4%
Medical examiner data not available*	36	24.7%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

**Table 23.15 Softball Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	2	1.4%
Urgent or Ready Care business	3	2.1%
Primary care physician or pediatrician's office	85	58.2%
Neurologist's office	12	8.2%
Team doctor	8	5.5%
Medical facility data not available*	36	24.7%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

**Table 23.16 Softball Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	89	61.0%
Conditions to return	21	14.4%
Return to activity data not available*	36	24.7%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

**Table 23.17 Softball Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	60	41.1%
1-2 Days	40	27.4%
3-6 Days	8	5.5%
7-9 Days	0	0.0%
10-20 Days	2	1.4%
≥21 Days	0	0.0%
Missed school data not available*	36	24.7%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

**Table 23.18 Softball Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	2	1.4%
3-5 Days	7	4.8%
6-10 Days	46	31.5%
11-15 Days	33	22.6%
16-20 Days	10	6.8%
≥21 Days	12	8.2%
Data not available**	36	24.7%
<b>TOTAL</b>	<b>146</b>	<b>100.0%</b>

8 Missing Follow-up Reports\*

28 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XXIV. Boys Swimming & Diving Head Injury Reports**



**Table 24.1 Head Injury Prevalence Rate for Boys Swimming & Diving, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Boys Swimming &amp; Diving Participation</b>	<b>4,979</b>
<b>All Reported Boys Swimming &amp; Diving Head Injuries</b>	<b>11</b>
<b>Boys Swimming &amp; Diving Head Injury Prevalence Rate</b>	<b>0.22%</b>
<b>Boys Swimming &amp; Diving Head Injuries Per 1,000 Participants</b>	<b>2</b>

**Table 24.2 Boys Swimming & Diving Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	10	90.9%
Junior Varsity	1	9.1%
Freshman	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 24.3 Boys Swimming & Diving Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	10	90.9%
Competition	1	9.1%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 24.4 Boys Swimming & Diving Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	5	50.0%
Middle of practice	3	30.0%
End of practice	2	20.0%
<b>PRACTICE TOTAL</b>	<b>10</b>	<b>100.0%</b>
Start of competition	0	0.0%
Middle of competition	1	100.0%
End of competition	0	0.0%
<b>COMPETITION TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 24.5 Activity Type for Boys Swimming & Diving Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	5	<b>50.0%</b>
During simulated competition-scrimmage	1	<b>10.0%</b>
Not specified	4	<b>40.0%</b>
<b>TOTAL</b>	<b>10</b>	<b>100.0%</b>

**Table 24.6 Boys Swimming & Diving Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	3	27.3%
Person to object contact (e.g. wall, equipment)	2	18.2%
Person to playing surface contact	5	45.5%
Uncertain as to the cause of the event	1	9.1%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 24.7 Person to Playing Surface Contact Boys Swimming & Diving Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Pool	2	40.0%
Water	2	40.0%
Indoor Tile Type Floor	1	20.0%
<b>TOTAL</b>	<b>5</b>	<b>20.0%</b>

**Table 24.8 Boys Swimming & Diving Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	5	45.5%
Coach	2	18.2%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	1	9.1%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	3	27.3%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 24.9 Boys Swimming & Diving Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	11	100.0%
Not removed*	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 24.10 Boys Swimming & Diving Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	2	18.2%
No reported previous concussions	9	81.8%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 24.11 Most Recent Concussion for Boys Swimming & Diving Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	2	100.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 24.12 Number of Previous Concussions for Boys Swimming & Diving Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	2	100.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 24.13 Boys Swimming & Diving Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	11	100.0%
Did not receive written authorization to return by the end of season	0	0.0%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 24.14 Boys Swimming & Diving Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	9	81.8%
DO	1	9.1%
PA	1	9.1%
NP	0	0.0%
Medical examiner data not available*	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 24.15 Boys Swimming & Diving Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	10	90.9%
Neurologist's office	0	0.0%
Team doctor	1	9.1%
Medical facility data not available*	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 24.16 Boys Swimming & Diving Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	9	81.8%
Conditions to return	2	18.2%
Return to activity data not available*	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 24.17 Boys Swimming & Diving Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	9	81.8%
1-2 Days	2	18.2%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 24.18 Boys Swimming & Diving Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	2	18.2%
3-5 Days	2	18.2%
6-10 Days	1	9.1%
11-15 Days	5	45.5%
16-20 Days	0	0.0%
≥21 Days	1	9.1%
Data not available**	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

0 Missing Follow-up Reports\*

0 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XXV. Girls Swimming & Diving Head Injury Reports**

**Table 25.1 Head Injury Prevalence Rate for Girls Swimming & Diving, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Girls Swimming &amp; Diving Participation</b>	<b>5,600</b>
<b>All Reported Girls Swimming &amp; Diving Head Injuries</b>	<b>33</b>
<b>Girls Swimming &amp; Diving Head Injury Prevalence Rate</b>	<b>0.59%</b>
<b>Girls Swimming &amp; Diving Head Injuries Per 1,000 Participants</b>	<b>6</b>

**Table 25.2 Girls Swimming & Diving Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	33	100.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

**Table 25.3 Girls Swimming & Diving Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	25	75.8%
Competition	8	24.2%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>



**Table 25.4 Girls Swimming & Diving Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	3	9.1%
Middle of practice	16	48.5%
End of practice	6	18.2%
<b>PRACTICE TOTAL</b>	<b>25</b>	<b>75.8%</b>
Start of competition	3	37.5%
Middle of competition	4	50.0%
End of competition	1	12.5%
<b>COMPETITION TOTAL</b>	<b>8</b>	<b>100.0%</b>

**Table 25.5 Activity Type for Girls Swimming & Diving Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	20	<b>80.0%</b>
During simulated competition-scrimmage	3	<b>12.0%</b>
Not specified	2	<b>8.0%</b>
<b>TOTAL</b>	<b>25</b>	<b>100.0%</b>

**Table 25.6 Girls Swimming & Diving Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	2	6.1%
Person to object contact (e.g. wall, equipment)	11	33.3%
Person to playing surface contact	19	57.6%
Uncertain as to the cause of the event	1	3.0%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

**Table 25.7 Person to Playing Surface Contact Girls Swimming & Diving Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Water	7	36.8%
Pool	6	31.6%
Pool Wall	2	10.5%
Cement	1	5.3%
Diving board	1	5.3%
Indoor tile type floor	1	5.3%
Pool deck	1	5.3%
<b>TOTAL</b>	<b>19</b>	<b>57.9%</b>

**Table 25.8 Girls Swimming & Diving Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	16	48.5%
Coach	8	24.2%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	2	6.1%
DO	0	0.0%
MD	1	3.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	6	18.2%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

**Table 25.9 Girls Swimming & Diving Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	27	81.8%
Not removed*	6	18.2%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 25.10 Girls Swimming & Diving Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	2	6.1%
No reported previous concussions	31	93.9%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

**Table 25.11 Most Recent Concussion for Girls Swimming & Diving Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	2	100.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 25.12 Number of Previous Concussions for Girls Swimming & Diving Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	2	100.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 25.13 Girls Swimming & Diving Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	31	93.9%
Did not receive written authorization to return by the end of season	1	3.0%
Follow-up Report not completed	1	3.0%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

**Table 25.14 Girls Swimming & Diving Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	15	45.5%
DO	8	24.2%
PA	2	6.1%
NP	6	18.2%
Medical examiner data not available*	2	6.1%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

**Table 25.15 Girls Swimming & Diving Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	27	81.8%
Neurologist's office	2	6.1%
Team doctor	2	6.1%
Medical facility data not available*	2	6.1%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

**Table 25.16 Girls Swimming & Diving Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	24	72.7%
Conditions to return	7	21.2%
Return to activity data not available*	2	6.1%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

**Table 25.17 Girls Swimming & Diving Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	23	69.7%
1-2 Days	3	9.1%
3-6 Days	4	12.1%
7-9 Days	1	3.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	2	6.1%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

**Table 25.18 Girls Swimming & Diving Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	1	3.0%
3-5 Days	5	15.2%
6-10 Days	7	21.2%
11-15 Days	12	36.4%
16-20 Days	4	12.1%
≥21 Days	2	6.1%
Data not available**	2	6.1%
<b>TOTAL</b>	<b>33</b>	<b>100.0%</b>

1 Missing Follow-up Reports\*

1 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XXVI. Boys Tennis Head Injury Reports**

**Table 26.1 Head Injury Prevalence Rate for Boys Tennis, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Boys Tennis Participation</b>	<b>6,106</b>
<b>All Reported Boys Tennis Head Injuries</b>	<b>4</b>
<b>Boys Tennis Head Injury Prevalence Rate</b>	<b>0.07%</b>
<b>Boys Tennis Head Injuries Per 1,000 Participants</b>	<b>1</b>

**Table 26.2 Boys Tennis Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	3	75.0%
Junior Varsity	1	25.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 26.3 Boys Tennis Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	2	50.0%
Competition	2	50.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 26.4 Boys Tennis Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	1	25.0%
Middle of practice	1	25.0%
End of practice	0	0.0%
<b>PRACTICE TOTAL</b>	<b>2</b>	<b>50.0%</b>
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	2	100.0%
<b>COMPETITION TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 26.5 Activity Type for Boys Tennis Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	1	50.0%
During simulated competition-scrimmage	0	0.0%
Not specified	1	50.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 26.6 Boys Tennis Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	2	50.0%
Person to playing surface contact	2	50.0%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>



**Table 26.7 Person to Playing Surface Contact Boys Tennis Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Tennis court	2	100.0%
<b>TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 26.8 Boys Tennis Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	0	0.0%
Coach	0	0.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	4	100.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 26.9 Boys Tennis Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	3	75.0%
Not removed*	1	25.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 26.10 Boys Tennis Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	4	100.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 26.11 Most Recent Concussion for Boys Tennis Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 26.12 Number of Previous Concussions for Boys Tennis Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	0	0.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 26.13 Boys Tennis Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	3	75.0%
Did not receive written authorization to return by the end of season	1	25.0%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 26.14 Boys Tennis Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	2	50.0%
DO	0	0.0%
PA	0	0.0%
NP	1	25.0%
Medical examiner data not available*	1	25.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 26.15 Boys Tennis Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	1	25.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	2	50.0%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	1	25.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 26.16 Boys Tennis Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	3	75.0%
Conditions to return	0	0.0%
Return to activity data not available*	1	25.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 26.17 Boys Tennis Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	3	75.0%
1-2 Days	0	0.0%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	1	25.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 26.18 Boys Tennis Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	1	25.0%
6-10 Days	0	0.0%
11-15 Days	0	0.0%
16-20 Days	1	25.0%
≥21 Days	1	25.0%
Data not available**	1	25.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

0 Missing Follow-up Reports\*

1 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XXVII. Girls Tennis Head Injury Reports**

**Table 27.1 Head Injury Prevalence Rate for Girls Tennis, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Girls Tennis Participation</b>	<b>8,920</b>
<b>All Girls Tennis Head Injuries</b>	<b>6</b>
<b>Girls Tennis Head Injury Prevalence Rate</b>	<b>0.07%</b>
<b>Girls Tennis Head Injuries Per 1,000 Participants</b>	<b>1</b>

**Table 27.2 Girls Tennis Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	5	83.3%
Junior Varsity	1	16.7%
Freshman	0	0.0%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 27.3 Girls Tennis Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	4	66.7%
Competition	2	33.3%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 27.4 Girls Tennis Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	3	75.0%
End of practice	1	25.0%
<b>PRACTICE TOTAL</b>	<b>4</b>	<b>100.0%</b>
Start of competition	1	50.0%
Middle of competition	1	50.0%
End of competition	0	0.0%
<b>COMPETITION TOTAL</b>	<b>2</b>	<b>100.0%</b>

**Table 27.5 Activity Type for Girls Tennis Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	4	100.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 27.6 Girls Tennis Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	6	100.0%
Person to playing surface contact	0	0.0%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 27.7 Person to Playing Surface Contact Girls Tennis Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Tennis court	0	0.0%
<b>TOTAL</b>	<b>0</b>	<b>0.0%</b>

**Table 27.8 Girls Tennis Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	5	83.3%
Coach	0	0.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 27.9 Girls Tennis Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	4	66.7%
Not removed*	2	33.3%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.



**Table 27.10 Girls Tennis Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	1	16.7%
No reported previous concussions	5	83.3%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 27.11 Most Recent Concussion for Girls Tennis Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	1	100.0%
Within one to six months	0	0.0%
Within six months to one year	0	0.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 27.12 Number of Previous Concussions for Girls Tennis Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	1	100.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 27.13 Girls Tennis Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	5	83.3%
Did not receive written authorization to return by the end of season	1	16.7%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 27.14 Girls Tennis Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	3	50.0%
DO	1	16.7%
PA	0	0.0%
NP	1	16.7%
Medical examiner data not available*	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 27.15 Girls Tennis Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	5	83.3%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 27.16 Girls Tennis Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	2	33.3%
Conditions to return	3	50.0%
Return to activity data not available*	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 27.17 Girls Tennis Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	5	83.3%
1-2 Days	0	0.0%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 27.18 Girls Tennis Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	3	50.0%
11-15 Days	1	16.7%
16-20 Days	1	16.7%
≥21 Days	0	0.0%
Data not available**	1	16.7%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

0 Missing Follow-up Reports\*

1 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

**XXVIII. Boys Track & Field  
Head Injury Reports**

**Table 28.1 Head Injury Prevalence Rate for Boys Track & Field, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Boys Track &amp; Field Participation</b>	<b>23,232</b>
<b>All Boys Track &amp; Field Head Injuries</b>	<b>11</b>
<b>Boys Track &amp; Field Head Injury Prevalence Rate</b>	<b>0.05%</b>
<b>Boys Track &amp; Field Head Injuries Per 1,000 Participants</b>	<b>0</b>

**Table 28.2 Boys Track & Field Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	9	81.8%
Junior Varsity	2	18.2%
Freshman	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 28.3 Boys Track & Field Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	5	45.5%
Competition	6	54.5%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 28.4 Boys Track & Field Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	0	0.0%
Middle of practice	5	100.0%
End of practice	0	0.0%
<b>PRACTICE TOTAL</b>	<b>5</b>	<b>100.0%</b>
Start of competition	0	0.0%
Middle of competition	4	66.7%
End of competition	2	33.3%
<b>COMPETITION TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 28.5 Activity Type for Boys Track & Field Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	5	100.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>5</b>	<b>100.0%</b>

**Table 28.6 Boys Track & Field Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	2	18.2%
Person to object contact (e.g. wall, equipment)	5	45.5%
Person to playing surface contact	4	36.4%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 28.7 Person to Playing Surface Contact Boys Track & Field Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Track	3	75.0%
Asphalt	0	0.0%
Natural grass	1	25.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 28.8 Boys Track & Field Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	6	54.5%
Coach	4	36.4%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	1	9.1%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 28.9 Boys Track & Field Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	10	90.9%
Not removed*	1	9.1%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 28.10 Boys Track & Field Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	1	9.1%
No reported previous concussions	10	90.9%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 28.11 Most Recent Concussion for Boys Track & Field Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	1	100.0%
Over one year	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>

**Table 28.12 Number of Previous Concussions for Boys Track & Field Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	0	0.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	1	100.0%
Not specified	0	0.0%
<b>TOTAL</b>	<b>1</b>	<b>100.0%</b>



**Table 28.13 Boys Track & Field Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	8	72.7%
Did not receive written authorization to return by the end of season	3	27.3%
Follow-up Report not completed	0	0.0%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 28.14 Boys Track & Field Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	5	45.5%
DO	1	9.1%
PA	1	9.1%
NP	1	9.1%
Medical examiner data not available*	3	27.3%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 28.15 Boys Track & Field Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	7	63.6%
Neurologist's office	0	0.0%
Team doctor	1	9.1%
Medical facility data not available*	3	27.3%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 28.16 Boys Track & Field Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	7	63.6%
Conditions to return	1	9.1%
Return to activity data not available*	3	27.3%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 28.17 Boys Track & Field Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	5	45.5%
1-2 Days	3	27.3%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	3	27.3%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

**Table 28.18 Boys Track & Field Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	0	0.0%
11-15 Days	4	36.4%
16-20 Days	2	18.2%
≥21 Days	2	18.2%
Data not available**	3	27.3%
<b>TOTAL</b>	<b>11</b>	<b>100.0%</b>

0 Missing Follow-up Reports\*

3 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

**XXIX. Girls Track & Field  
Head Injury Reports**

**Table 29.1 Head Injury Prevalence Rate for Girls Track & Field, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Girls Track &amp; Field Participation</b>	<b>17,009</b>
<b>All Girls Track &amp; Field Head Injuries</b>	<b>15</b>
<b>Girls Track &amp; Field Head Injury Prevalence Rate</b>	<b>0.09%</b>
<b>Girls Track &amp; Field Head Injuries Per 1,000 Participants</b>	<b>1</b>

**Table 29.2 Girls Track & Field Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	12	80.0%
Junior Varsity	3	20.0%
Freshman	0	0.0%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 29.3 Girls Track & Field Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	9	60.0%
Competition	6	40.0%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 29.4 Girls Track & Field Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	1	11.1%
Middle of practice	5	55.6%
End of practice	3	33.3%
<b>PRACTICE TOTAL</b>	<b>9</b>	<b>100.0%</b>
Start of competition	1	16.7%
Middle of competition	1	16.7%
End of competition	4	66.7%
<b>COMPETITION TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Table 29.5 Activity Type for Girls Track & Field Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	7	77.8%
During simulated competition-scrimmage	0	0.0%
Not specified	2	22.2%
<b>TOTAL</b>	<b>9</b>	<b>100.0%</b>

**Table 29.6 Girls Track & Field Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	5	33.3%
Person to object contact (e.g. wall, equipment)	6	40.0%
Person to playing surface contact	4	26.7%
Uncertain as to the cause of the event	0	0.0%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 29.7 Person to Playing Surface Contact Girls Track & Field Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Track	3	75.0%
Artificial turf	1	25.0%
<b>TOTAL</b>	<b>4</b>	<b>100.0%</b>

**Table 29.8 Girls Track & Field Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	7	46.7%
Coach	4	26.7%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	0	0.0%
DO	0	0.0%
MD	1	6.7%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	3	20.0%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 29.9 Girls Track & Field Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	11	73.3%
Not removed*	4	26.7%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 29.10 Girls Track & Field Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	3	20.0%
No reported previous concussions	12	80.0%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 29.11 Most Recent Concussion for Girls Track & Field Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	1	33.3%
Over one year	2	66.7%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 29.12 Number of Previous Concussions for Girls Track & Field Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	2	66.7%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	1	33.3%
Not specified	0	0.0%
<b>TOTAL</b>	<b>3</b>	<b>100.0%</b>

**Table 29.13 Girls Track & Field Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	10	66.7%
Did not receive written authorization to return by the end of season	4	26.7%
Follow-up Report not completed	1	6.7%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 29.14 Girls Track & Field Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	4	26.7%
DO	4	26.7%
PA	1	6.7%
NP	1	6.7%
Medical examiner data not available*	5	33.3%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 29.15 Girls Track & Field Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	1	6.7%
Urgent or Ready Care business	1	6.7%
Primary care physician or pediatrician's office	8	53.3%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	5	33.3%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>



**Table 29.16 Girls Track & Field Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	10	66.7%
Conditions to return	0	0.0%
Return to activity data not available*	5	33.3%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 29.17 Girls Track & Field Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	7	46.7%
1-2 Days	2	13.3%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	1	6.7%
≥21 Days	0	0.0%
Missed school data not available*	5	33.3%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

**Table 29.18 Girls Track & Field Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	1	6.7%
3-5 Days	1	6.7%
6-10 Days	3	20.0%
11-15 Days	3	20.0%
16-20 Days	0	0.0%
≥21 Days	2	13.3%
Data not available**	5	33.3%
<b>TOTAL</b>	<b>15</b>	<b>100.0%</b>

1 Missing Follow-up Reports\*

4 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

0 Data entry errors\*\*

## **XXX. Volleyball Head Injury Reports**

**Table 30.1 Head Injury Prevalence Rate for Volleyball, MHSAA Head Injury Reporting System, 2016-17 School Year**

Volleyball Participation	19,067
All Reported Volleyball Head Injuries	174
Volleyball Head Injury Prevalence Rate	0.91%
Volleyball Head Injuries Per 1,000 Participants	9

**Table 30.2 Volleyball Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	76	43.7%
Junior Varsity	54	31.0%
Freshman	44	25.3%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

**Table 30.3 Volleyball Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	85	48.9%
Competition	89	51.1%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

**Table 30.4 Volleyball Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	14	16.5%
Middle of practice	48	56.5%
End of practice	23	27.1%
<b>PRACTICE TOTAL</b>	<b>85</b>	<b>100.0%</b>
Start of competition	19	21.3%
Middle of competition	45	50.6%
End of competition	25	28.1%
<b>COMPETITION TOTAL</b>	<b>89</b>	<b>100.0%</b>

**Table 30.5 Activity Type for Volleyball Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	65	76.5%
During simulated competition-scrimmage	18	21.2%
Not specified	2	2.4%
<b>TOTAL</b>	<b>85</b>	<b>100.0%</b>

**Table 30.6 Volleyball Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	17	9.8%
Person to object contact (e.g. wall, equipment)	102	58.6%
Person to playing surface contact	41	23.6%
Uncertain as to the cause of the event	14	8.0%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

**Table 30.7 Person to Playing Surface Contact Volleyball Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Wooded gym floor	38	92.7%
Volleyball court	2	4.9%
Rubberized gym floor	1	2.4%
<b>TOTAL</b>	<b>41</b>	<b>100.0%</b>

**Table 30.8 Volleyball Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	69	39.7%
Coach	67	38.5%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	3	1.7%
DO	0	0.0%
MD	5	2.9%
PA	2	1.1%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	28	16.1%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

**Table 30.9 Volleyball Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	137	78.7%
Not removed*	37	21.3%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 30.10 Volleyball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	23	13.2%
No reported previous concussions	151	86.8%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

**Table 30.11 Most Recent Concussion for Volleyball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	0	0.0%
Within one to six months	1	4.3%
Within six months to one year	6	26.1%
Over one year	16	69.6%
<b>TOTAL</b>	<b>23</b>	<b>100.0%</b>

**Table 30.12 Number of Previous Concussions for Volleyball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	18	78.3%
2 concussions	4	17.4%
3 concussions	0	0.0%
≥4 concussions	1	4.3%
Not specified	0	0.0%
<b>TOTAL</b>	<b>23</b>	<b>100.0%</b>

**Table 30.13 Volleyball Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	153	87.9%
Did not receive written authorization to return by the end of season	20	11.5%
Follow-up Report not completed	1	0.6%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

**Table 30.14 Volleyball Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	101	58.0%
DO	23	13.2%
PA	17	9.8%
NP	12	6.9%
Medical examiner data not available*	21	12.1%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

**Table 30.15 Volleyball Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	3	1.7%
Urgent or Ready Care business	3	1.7%
Primary care physician or pediatrician's office	126	72.4%
Neurologist's office	9	5.2%
Team doctor	12	6.9%
Medical facility data not available*	21	12.1%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

**Table 30.16 Volleyball Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	128	73.6%
Conditions to return	25	14.4%
Return to activity data not available*	21	12.1%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

**Table 30.17 Volleyball Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	95	54.6%
1-2 Days	38	21.8%
3-6 Days	15	8.6%
7-9 Days	4	2.3%
10-20 Days	0	0.0%
≥21 Days	1	0.6%
Missed school data not available*	21	12.1%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

**Table 30.18 Volleyball Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	4	2.3%
3-5 Days	10	5.7%
6-10 Days	63	36.2%
11-15 Days	39	22.4%
16-20 Days	21	12.1%
≥21 Days	12	6.9%
Data not available**	25	14.4%
<b>TOTAL</b>	<b>174</b>	<b>100.0%</b>

1 Missing Follow-up Reports\*

20 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

4 Data entry errors\*\*



## **XXXI. Wrestling Head Injury Reports**

**Table 31.1 Head Injury Prevalence Rate for Wrestling, MHSAA Head Injury Reporting System, 2016-17 School Year**

<b>Wrestling Participation</b>	<b>9,598</b>
<b>All Reported Wrestling Head Injuries</b>	<b>251</b>
<b>Wrestling Head Injury Prevalence Rate</b>	<b>2.62%</b>
<b>Wrestling Head Injuries Per 1,000 Participants</b>	<b>26</b>

**Table 31.2 Boys Cross Country Head Injuries by Gender, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Male	240	95.6%
Female	11	4.4%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.3 Wrestling Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Varsity	198	78.9%
Junior Varsity	46	18.3%
Freshman	7	2.8%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.4 Wrestling Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Practice	128	51.0%
Competition	123	49.0%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.5 Wrestling Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Start of practice	10	7.8%
Middle of practice	68	53.1%
End of practice	50	39.1%
<b>PRACTICE TOTAL</b>	<b>128</b>	<b>100.0%</b>
Start of competition	15	12.2%
Middle of competition	45	36.6%
End of competition	63	51.2%
<b>COMPETITION TOTAL</b>	<b>123</b>	<b>100.0%</b>

**Table 31.6 Activity Type for Wrestling Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
During a drill	92	<b>71.9%</b>
During simulated competition-scrimmage	33	<b>25.8%</b>
Not specified	3	<b>2.3%</b>
<b>TOTAL</b>	<b>128</b>	<b>100.0%</b>

**Table 31.7 Wrestling Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Person to person contact	82	32.7%
Person to object contact (e.g. wall, equipment)	14	5.6%
Person to playing surface contact	127	50.6%
Uncertain as to the cause of the event	28	11.2%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.8 Person to Playing Surface Contact Wrestling Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Wrestling-type mat	126	99.2%
Wooden gym floor	1	0.8%
<b>TOTAL</b>	<b>127</b>	<b>100.0%</b>

**Table 31.9 Wrestling Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Athletic trainer	134	53.4%
Coach	51	20.3%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	6	2.4%
DO	0	0.0%
MD	9	3.6%
PA	0	0.0%
NP	3	1.2%
Athletic director	0	0.0%
Multiple examiners	48	19.1%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.10 Wrestling Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Removed	202	80.5%
Not removed*	49	19.5%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

\*Not indicating the injury was mismanaged at the time of the event; athlete may not have reported injury, symptoms may not have presented until after the event, etc.

**Table 31.11 Wrestling Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Reported at least one previous concussion	52	20.7%
No reported previous concussions	199	79.3%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.12 Most Recent Concussion for Wrestling Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Within last month	1	2.0%
Within one to six months	7	13.7%
Within six months to one year	11	21.6%
Over one year	32	62.7%
<b>TOTAL</b>	<b>51</b>	<b>100.0%</b>

**Table 31.13 Number of Previous Concussions for Wrestling Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1 concussion	34	66.7%
2 concussions	11	21.6%
3 concussions	3	5.9%
≥4 concussions	3	5.9%
Not specified	0	0.0%
<b>TOTAL</b>	<b>51</b>	<b>100.0%</b>

**Table 31.14 Wrestling Head Injuries by Athlete Clearance to Return to Activity before the End of Season in which the Injury Occurred, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Received written authorization to return by the end of season	209	83.3%
Did not receive written authorization to return by the end of season	41	16.3%
Follow-up Report not completed	1	0.4%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.15 Wrestling Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
MD	124	49.4%
DO	40	15.9%
PA	27	10.8%
NP	18	7.2%
Medical examiner data not available*	42	16.7%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.16 Wrestling Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Hospital	10	4.0%
Urgent or Ready Care business	12	4.8%
Primary care physician or pediatrician's office	153	61.0%
Neurologist's office	14	5.6%
Team doctor	20	8.0%
Medical facility data not available*	42	16.7%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.17 Wrestling Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
Unconditional return	172	68.5%
Conditions to return	37	14.7%
Return to activity data not available*	42	16.7%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.18 Wrestling Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
0 Days	144	57.4%
1-2 Days	41	16.3%
3-6 Days	17	6.8%
7-9 Days	3	1.2%
10-20 Days	2	0.8%
≥21 Days	2	0.8%
Missed school data not available*	42	16.7%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

**Table 31.19 Wrestling Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2016-17 School Year**

	n	%
1-2 Days	6	2.4%
3-5 Days	18	7.2%
6-10 Days	58	23.1%
11-15 Days	42	16.7%
16-20 Days	29	11.6%
≥21 Days	50	19.9%
Data not available**	48	19.1%
<b>TOTAL</b>	<b>251</b>	<b>100.0%</b>

1 Missing Follow-up Reports\*

41 Did not receive clearance to return to activity before the end of season (thus no follow-up data)\*

6 Data entry errors\*\*

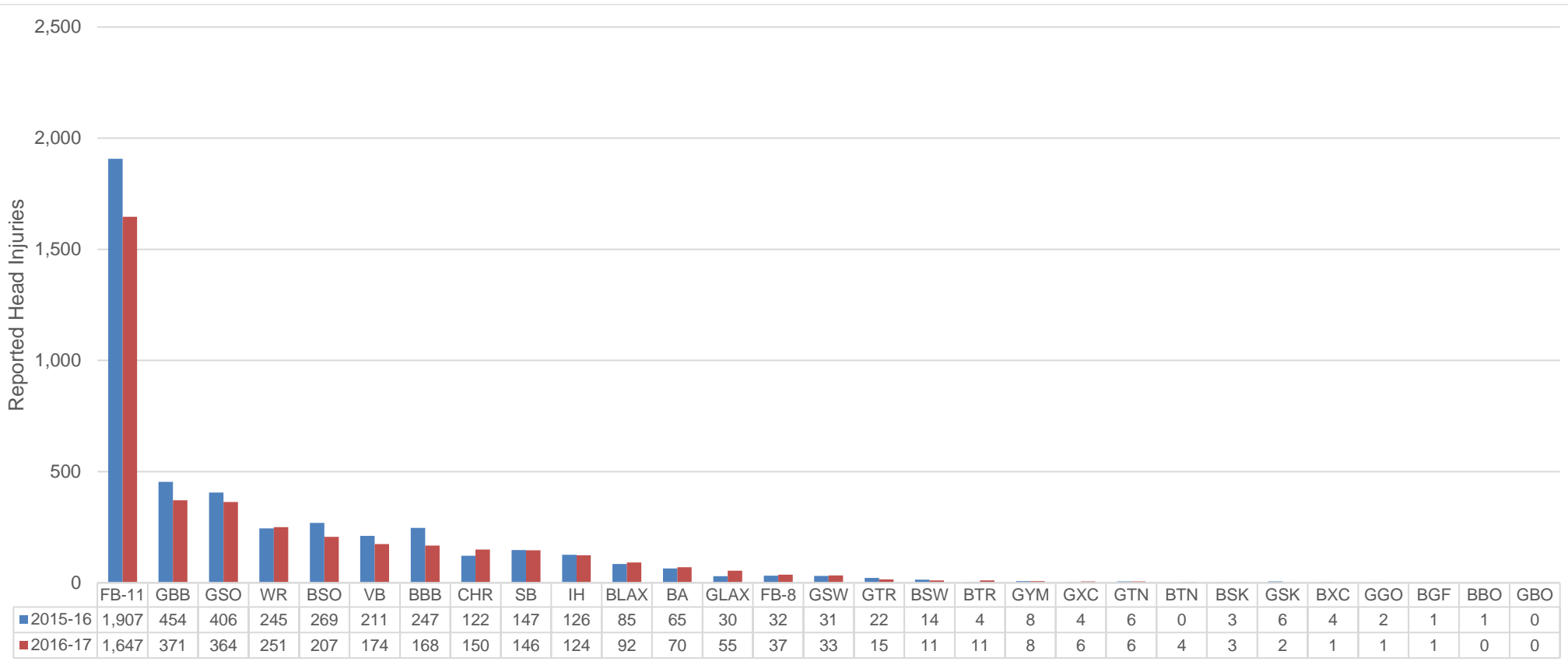
## **XXXII. Two Year Comparison**



**Table 32.1 Head Injury Reports by Sport and Year, MHSAA Head Injury Reporting System, 2016-17 School Year**

SPORTS	Boys*		Girls	
	2015-16	2016-17	2015-16	2016-17
Baseball	65	70	-	-
Basketball	247	168	454	371
Bowling	1	0	0	0
Competitive Cheer	-	-	122	150
Cross Country	4	1	4	6
Football - 11-Player	1,907	1,647	-	-
8-Player	32	37	-	-
Golf	1	1	2	1
Gymnastics	-	-	8	8
Ice Hockey	126	124	-	-
Lacrosse	85	92	30	55
Skiing-Alpine	3	3	6	2
Soccer	269	207	406	364
Softball	-	-	147	146
Swimming & Diving	14	11	31	33
Tennis	0	4	6	6
Track & Field	4	11	22	15
Volleyball	-	-	211	174
Wrestling	245	251	-	-

**Figure 32.1 Head Injury Reports by Sport and Year, MHSAA Head Injury Reporting System, 2016-17 School Year**



**ABBREVIATIONS**

Baseball – BA  
 Competitive Cheer – CHR  
 Boys Golf – BGO  
 Girls Lacrosse – GLAX  
 Softball – SB  
 Boys Track & Field – BTR

Boys Basketball – BBB  
 Boys Cross Country – BXC  
 Girls Golf – GGO  
 Boys Skiing – BSK  
 Boys Swimming & Diving – BSW  
 Girls Track & Field – GTR

Girls Basketball – GBB  
 Girls Cross Country – GXC  
 Gymnastics – GYM  
 Girls Skiing – GSK  
 Girls Swimming & Diving – GSW  
 Volleyball – VB

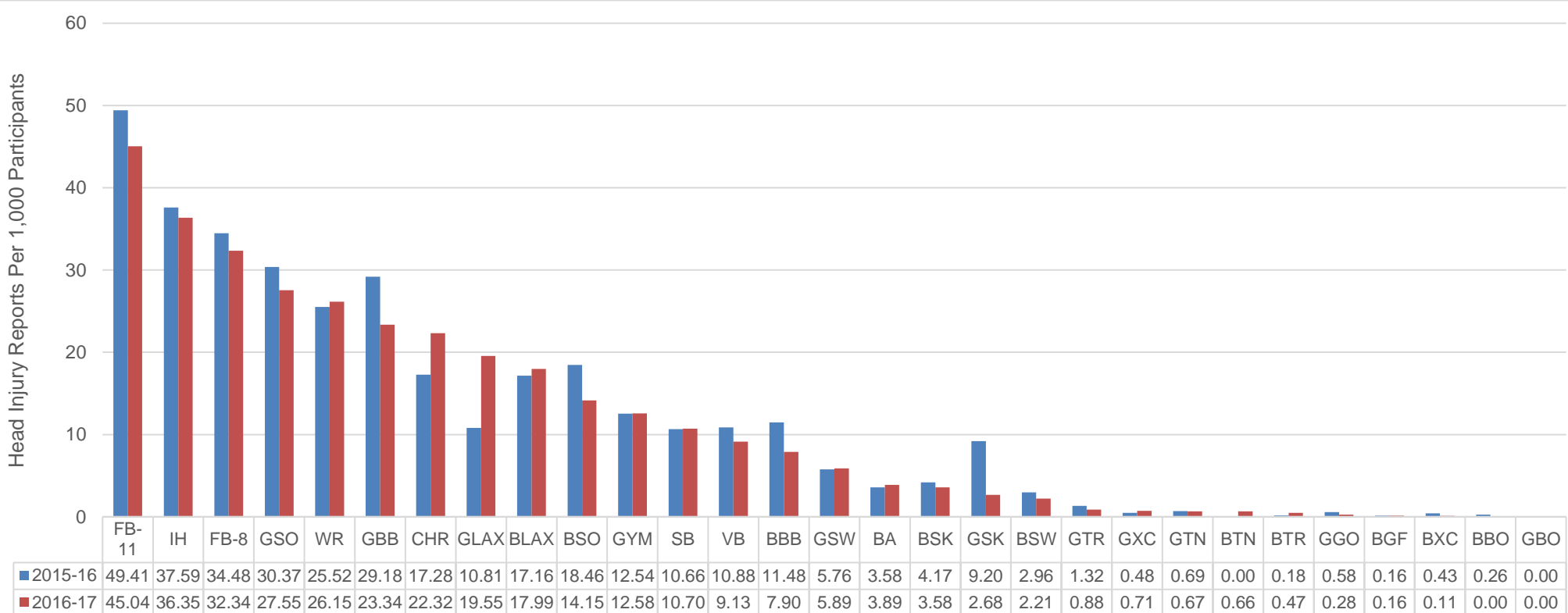
Boys Bowling – BBO  
 Football – 11-Player – FB-11  
 Ice Hockey – IH  
 Boys Soccer – BSO  
 Boys Tennis – BTN  
 Wrestling - WR

Girls Bowling – GBO  
 Football – 8-Player – FB-8  
 Boys Lacrosse – BLAX  
 Girls Soccer – GSO  
 Girls Tennis - GTN

**Table 32.2 Head Injury Reports per 1,000 Participants by Sport and Year, MHSAA Head Injury Reporting System, 2016-17 School Year**

SPORTS	Boys*		Girls	
	2015-16	2016-17	2015-16	2016-17
Baseball	3.58	3.89	-	-
Basketball	11.48	7.90	29.18	23.34
Bowling	0.26	0.00	0.00	0.00
Competitive Cheer	-	-	17.28	22.32
Cross Country	0.43	0.11	0.48	0.71
Football - 11-Player	49.41	45.04	-	-
8-Player	34.48	32.34	-	-
Golf	0.16	0.16	0.58	0.28
Gymnastics	-	-	12.54	12.58
Ice Hockey	37.59	36.35	-	-
Lacrosse	17.16	17.99	10.81	19.55
Skiing-Alpine	4.17	3.58	9.20	2.68
Soccer	18.46	14.15	30.37	27.55
Softball	-	-	10.66	10.70
Swimming & Diving	2.96	2.21	5.76	5.89
Tennis	0.00	0.66	0.69	0.67
Track & Field	0.18	0.47	1.32	0.88
Volleyball	-	-	10.88	9.13
Wrestling	25.52	26.15	-	-

**Figure 32.2 Head Injury Reports per 1,000 Participants by Sport and Year, MHSAA Head Injury Reporting System, 2016-17 School Year**



**ABBREVIATIONS**

- |                          |                              |                               |                              |                            |
|--------------------------|------------------------------|-------------------------------|------------------------------|----------------------------|
| Baseball – BA            | Boys Basketball – BBB        | Girls Basketball – GBB        | Boys Bowling – BBO           | Girls Bowling – GBO        |
| Competitive Cheer – CHR  | Boys Cross Country – BXC     | Girls Cross Country – GXC     | Football – 11-Player – FB-11 | Football – 8-Player – FB-8 |
| Boys Golf – BGO          | Girls Golf – GGO             | Gymnastics – GYM              | Ice Hockey – IH              | Boys Lacrosse – BLAX       |
| Girls Lacrosse – GLAX    | Boys Skiing – BSK            | Girls Skiing – GSK            | Boys Soccer – BSO            | Girls Soccer – GSO         |
| Softball – SB            | Boys Swimming & Diving – BSW | Girls Swimming & Diving – GSW | Boys Tennis – BTN            | Girls Tennis - GTN         |
| Boys Track & Field – BTR | Girls Track & Field – GTR    | Volleyball – VB               | Wrestling - WR               |                            |

## **XXXIII. Executive Summary**

### **33.1 Introduction**

In May of 2015, the Representative Council of the Michigan High School Athletic Association approved two long-term additions to the history of efforts by MHSAA's member schools to promote and protect participant health.

- Concussion care “gap” insurance was provided by the MHSAA without cost to member schools or students’ families, covering practices and competition for all levels of all MHSAA sports, 7th through 12th grades. The coverage was extended to 6th-graders in 2016-17. That continues in 2017-18.
- Concussion reporting was required for all MHSAA member high schools at practices and during competition in all levels of all MHSAA sports.

The purpose of the mandated concussion reporting is not to identify areas of the state or individual schools or teams that are above or below average in terms of the number of concussions reported. The intended purpose is to help identify the significant broad themes and questions that might be researched to help point school-sponsored sports leadership toward policies and procedures that will tend to improve the experience of students in interscholastic athletic programs of Michigan and beyond.

This Executive Summary is based on confirmed Head Injury Reports submitted for MHSAA supported sports sponsored and conducted at the MHSAA’s member high schools during the 2015-16 and 2016-17 school years.

### 33.2 Ranking

<b>SPORT</b>	<b>HEAD INJURY REPORTS</b>	<b>HEAD INJURY REPORTS PER THOUSAND PARTICIPANTS</b>	<b>HEAD INJURIES PER THOUSAND PARTICIPANTS RATE RANK OUT OF ALL MHSAA SPORTS</b>
Football - 11 player	1,647	45	1
Ice Hockey	124	36	2
Football 8-player	37	32	3
Girls Soccer	364	28	4
Wrestling	251	26	5
Girls Basketball	371	23	6
Competitive Cheer	150	22	7
Girls Lacrosse	55	20	8
Boys Lacrosse	92	18	9
Boys Soccer	207	14	10
Gymnastics	8	13	11
Softball	146	11	12
Volleyball	174	9	13
Boys Basketball	168	8	14
Girls Swimming & Diving	33	6	15
Baseball	70	4	16
Boys Skiing	3	4	17
Girls Skiing	2	3	18
Boys Swimming & Diving	11	2	19
Girls Track & Field	15	1	20
Girls Cross Country	6	1	21
Girls Tennis	6	1	22
Boys Tennis	4	1	23
Boys Track & Field	11	0	24
Girls Golf	1	0	25
Boys Golf	1	0	26
Boys Cross Country	1	0	27
Boys Bowling	0	0	28
Girls Bowling	0	0	28

### 33.3 Key Observations of Year #2 (2016-17)

- A. The number of confirmed concussions for 2016-17 was 3,958 – down 11 percent from the 4,452 reported for 2015-16.
- B. In sports sponsored under the same or similar playing rules for both genders (i.e., soccer, basketball and baseball/softball), significantly more concussions continue to be reported for females compared to males at the high school level.

Girls Soccer – 28 per 1,000 (Ranks 4<sup>th</sup>)  
Boys Soccer – 14 per 1,000 (Ranks 10<sup>th</sup>)

Girls Basketball – 23 per 1,000 (Ranks 6<sup>th</sup>)  
Boys Basketball – 8 per 1,000 (Ranks 14<sup>th</sup>)

Softball – 11 per 1,000 (Ranks 12<sup>th</sup>)  
Baseball – 4 per 1,000 (Ranks 16<sup>th</sup>)

#### Question for Further Research –

There was an expectation that increased awareness would lead to increased reports of concussions. That did not occur. Is the decline in the total number of confirmed concussions reported for the 2016-17 school year the result of (a) year-to-year fluctuation; (b) reduced risk; or (c) better data (slight changes were made in the survey instrument and there was a likely clearer understanding of what injuries were to be reported and decreased errors)?

### 33.4 Emerging Inquires for Year #3 (2017-18)

- A. A year ago we posed this question:

“Will the third season of reduced contact during practice, accompanied by more awareness and use of non-contact methods of teaching blocking and tackling, lead to lower occurrences of concussions in football and an even lower percentage of football concussions occurring during practice sessions?”

The result of the second year is that slightly **more** concussions were reported during practices in the second report than in the first report.

11-Player Football – 35.4% for 2015; 37.5% for 2016  
8-Player Football – 15.6% for 2015; 18.9% for 2016



It is too early to describe this as a trend, but it deserves our close attention during 2017-18 and beyond.

- B. A year ago we asked researchers at the Institute for the Study of Youth Sports at Michigan State University to explore these questions:
1. Is the difference in concussions reported by girls and boys an accurate indicator of the difference in concussions sustained by girls and boys?
    - If so, why is this so, and what response is suggested for those who prepare the playing rules for girls and boys, including equipment requirements?
    - If so, or if not, what responses are suggested for those who coach girls and boys and who design and deliver the coaches education programs for girls and boys?
  2. Is the difference in concussions reported by girls and boys a reflection of over-reporting by females or under-reporting by males?
    - What responses do the answers to that question require of those who coach girls and boys and of those who design and deliver coaches education programs for girls and boys?

Lauren Walker, MS, and Daniel Gould, Ph.D., submitted the paper “Gender Differences in Youth Sport Concussion.” Our summary of their work is as follows:

- Data from the mandatory concussion reporting initiative of the Michigan High School Athletic Association reflects national trends – more concussions are reported for females compared to males in comparable sports (e.g., basketball and soccer).
- Researchers purport that structural differences in the neck and head (e.g., weaker neck muscles, lighter skulls) may contribute to the disparity in concussions reported.
- Differences in neurological function of the female brain compared to the male brain may contribute to the disparity in concussions reported and to the length of time needed for recovery.
- It is less clear that sex-based hormones make the brain of one gender more likely to suffer concussions than the other gender.
- Just as there is research merit for believing females may be more susceptible than males to having concussions, there is research merit for believing females may be more honest in reporting concussions.
- The complexity of the issues and the wide range of understanding within the diverse constituencies of school sports challenge the MHSAA. Efforts must address athletes,

their parents and coaches. Messages must be consistent and persistent as we consider coaches education, sideline protocols and other initiatives intended to address education, prevention, recognition, removal from play, and recovery and return to play.

### **33.5 Next Steps**

The 2015-16 school year report raised some initial themes. The 2016-17 report may begin the identification of trends, although a third year's data is necessary to suggest trends and future years' data is required to test those suggestions.

This does not demand that all other actions must be delayed. It is not too soon to experiment with more head protection and modified play and practice rules in ice hockey, soccer, wrestling and lacrosse – all of which rank in the top ten sports in terms of number of injuries per thousand participants.

Moreover, efforts must continue to educate players, parents and coaches and to encourage all to report the signs and symptoms of concussion that they experience or see in others.

The 2017-18 school year has begun with the expectation that, again, nearly 100 percent of MHSAA member high schools will submit initial and follow-up reports of head injuries for every level of every MHSAA sport they sponsor.

Meanwhile, the MHSAA is inviting the colleges, universities and health care systems of Michigan, as well as the National Federation of State High School Associations, to consider how they may help address the emerging issues and any other questions suggested by the first two years' data.

Interested representatives of these entities are invited to contact:

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