

SUMMARY REPORT

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

2017-2018 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. 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 2017-18 school year.

The MHSAA is an association of approximately 1500 individual public, private and parochial high schools and junior high/middle schools. For the 2017-18 school year, member schools include 750 high schools of various enrollments and resources (186 schools with an enrollment greater than 881 students, 187 schools with an enrollment between 880-406 students, 188 schools with an enrollment between 405-204 students, and 189 schools with an enrollment less than 203 students) and 750+ member junior/middle schools*.

*Junior high/middle school head injury data is not part of this report. Injuries to 6th, 7th and 8th 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, 2017-18 School Year

Baseball	Varsity	34	Boys Golf	Varsity	0	Softball	Varsity	66
	Junior Varsity	19		Junior Varsity	0		Junior Varsity	34
	Freshman	7		Freshman	0		Freshman	1
	TOTAL	60		TOTAL	0		TOTAL	101
Boys Basketball	Varsity	97	Girls Golf	Varsity	0	Boys Swimming & Diving	Varsity	14
	Junior Varsity	50		Junior Varsity	0		Junior Varsity	0
	Freshman	35		Freshman	0		Freshman	0
	TOTAL	182		TOTAL	0		TOTAL	14
Girls Basketball	Varsity	160	Girls Gymnastics	Varsity	11	Girls Swimming & Diving	Varsity	22
	Junior Varsity	130		Junior Varsity	0		Junior Varsity	1
	Freshman	47		Freshman	0		Freshman	2
	TOTAL	337		TOTAL	11		TOTAL	25
Boys Bowling	Varsity	0	Ice Hockey	Varsity	96	Boys Tennis	Varsity	2
	Junior Varsity	0		Junior Varsity	9		Junior Varsity	1
	Freshman	0		Freshman	1		Freshman	0
	TOTAL	0		TOTAL	106		TOTAL	3
Girls Bowling	Varsity	0	Boys Lacrosse	Varsity	59	Girls Tennis	Varsity	4
	Junior Varsity	0		Junior Varsity	27		Junior Varsity	2
	Freshman	0		Freshman	1		Freshman	1
	TOTAL	0		TOTAL	87		TOTAL	7
Girls Competitive Cheer	Varsity	98	Girls Lacrosse	Varsity	37	Boys Track & Field	Varsity	6
	Junior Varsity	33		Junior Varsity	19		Junior Varsity	3
	Freshman	0		Freshman	1		Freshman	0
	TOTAL	131		TOTAL	57		TOTAL	9
Boys Cross Country	Varsity	1	Boys Skiing	Varsity	3	Girls Track & Field	Varsity	8
	Junior Varsity	0		Junior Varsity	1		Junior Varsity	3
	Freshman	0		Freshman	1		Freshman	0
	TOTAL	1		TOTAL	5		TOTAL	11
Girls Cross Country	Varsity	2	Girls Skiing	Varsity	1	Volleyball	Varsity	86
	Junior Varsity	1		Junior Varsity	0		Junior Varsity	51
	Freshman	0		Freshman	0		Freshman	38
	TOTAL	3		TOTAL	1		TOTAL	175
11-Player Football	Varsity	663	Boys Soccer	Varsity	125	Wrestling	Varsity	173
	Junior Varsity	567		Junior Varsity	40		Junior Varsity	58
	Freshman	239		Freshman	4		Freshman	3
	TOTAL	1469		TOTAL	169		TOTAL	234
8-Player Football	Varsity	41	Girls Soccer	Varsity	210			
	Junior Varsity	12		Junior Varsity	105			
	Freshman	0		Freshman	14			
	TOTAL	53		TOTAL	329			
						TOTAL	REPORTS	3580

Table 2.2 Head Injury Prevalence Rates by Sport, MHSAA Head Injury Reporting System, 2017-18 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	17,675	60	0.34%	3	-	-	-	-
Basketball	21,372	182	0.85%	9	15,654	337	2.15%	22
Bowling	4,136	0	0.00%	0	3,058	0	0.00%	0
Competitive Cheer	-	-	-	-	6,715	131	1.95%	20
Cross Country	9,656	1	0.01%	0	8,696	3	0.03%	0
Football - 11-player	35,583	1,469	4.13%	41	-	-	-	-
8-player	1,406	53	3.77%	38	-	-	-	-
Golf	6,267	0	0.00%	0	3,712	0	0.00%	0
Gymnastics	-	-	-	-	702	11	1.57%	16
Ice Hockey	3,365	106	3.15%	32	-	-	-	-
Lacrosse	5,168	87	1.68%	17	2,900	57	1.97%	20
Skiing	831	5	0.60%	6	767	1	0.13%	1
Soccer	14,619	169	1.16%	12	13,216	329	2.49%	25
Softball	-	-	-	-	13,610	101	0.74%	7
Swimming & Diving	5,098	14	0.27%	3	5,732	25	0.44%	4
Tennis	6,165	3	0.05%	0	9,123	7	0.08%	1
Track & Field	23,580	9	0.04%	0	17,288	11	0.06%	1
Volleyball	-	-	-	-	19,416	175	0.90%	9
Wrestling	9,397	234	2.49%	25	-	-	-	-

*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, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
6th	0	0.0%	0	0.0%	0	0.0%
7th	1	0.0%	0	0.0%	1	0.0%
8th	1	0.0%	1	0.1%	2	0.1%
9th	662	27.9%	372	30.8%	1034	28.9%
10th	674	28.4%	357	29.6%	1031	28.8%
11th	543	22.9%	257	21.3%	800	22.3%
12th	492	20.7%	220	18.2%	712	19.9%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

Table 2.4 Head Injuries by Level of Competition - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Freshman	290	12.2%	105	8.7%	395	11.0%
Junior Varsity	775	32.7%	391	32.4%	1166	32.6%
Varsity	1308	55.1%	711	58.9%	2019	56.4%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

Table 2.5 Head Injuries by Type of Exposure - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Practice	818	34.5%	432	35.8%	1250	34.9%
Competition	1555	65.5%	775	64.2%	2330	65.1%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

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, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Start of practice	90	11.0%	60	13.9%	150	12.0%
Middle of practice	429	52.4%	237	54.9%	666	53.3%
End of practice	299	36.6%	135	31.3%	434	34.7%
PRACTICE TOTAL	818	100.0%	432	100.0%	1250	100.0%
Start of competition	161	10.4%	109	14.1%	270	11.6%
Middle of competition	790	50.8%	384	49.5%	1174	50.4%
End of competition	604	38.8%	282	36.4%	886	38.0%
COMPETITION TOTAL	1555	100.0%	775	100.0%	2330	100.0%

Table 2.7 Activity Type for All Head Injury Events during Practice – All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
During a drill	585	71.5%	318	73.6%	903	72.2%
During simulated competition-scrimmage	205	25.1%	105	24.3%	310	24.8%
Not specified	28	3.4%	9	2.1%	37	3.0%
TOTAL	818	100.0%	432	100.0%	1250	100.0%

Table 2.8 Head Injuries by Cause of Injury Event - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Person to person contact	1474	62.1%	388	32.1%	1862	52.0%
Person to object contact (e.g. wall, equipment)	196	8.3%	426	35.3%	622	17.4%
Person to playing surface contact	423	17.8%	316	26.2%	739	20.6%
Uncertain as to the cause of the event	280	11.8%	77	6.4%	357	10.0%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

Table 2.9 Head Injuries by Initial Examiner - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Athletic trainer	1436	60.5%	591	49.0%	2027	56.6%
Coach	365	15.4%	319	26.4%	684	19.1%
Sideline emergency personnel	7	0.3%	4	0.3%	11	0.3%
Other appropriate health care professional	51	2.1%	19	1.6%	70	2.0%
DO	10	0.4%	1	0.1%	11	0.3%
MD	57	2.4%	22	1.8%	79	2.2%
PA	3	0.1%	1	0.1%	4	0.1%
NP	7	0.3%	1	0.1%	8	0.2%
Athletic director	14	0.6%	6	0.5%	20	0.6%
Multiple examiners	423	17.8%	243	20.1%	666	18.6%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

Table 2.10 Athlete Removal from Activity at the Time of Injury Event – All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Removed	1995	84.1%	996	82.5%	2991	83.5%
Not removed*	378	15.9%	211	17.5%	589	16.5%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

*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, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Reported at least one previous concussion	413	17.4%	200	16.6%	613	17.1%
No reported previous concussions	1960	82.6%	1007	83.4%	2967	82.9%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

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, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Within last month	18	4.4%	10	5.0%	28	4.6%
Within one to six months	37	9.1%	21	10.5%	58	9.5%
Within six months to one year	87	21.3%	55	27.5%	142	23.4%
Over one year	266	65.2%	114	57.0%	380	62.5%
TOTAL	408	100.0%	200	100.0%	608	100.0%

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, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
1 concussion	295	72.3%	140	70.0%	435	71.5%
2 concussions	71	17.4%	39	19.5%	110	18.1%
3 concussions	21	5.1%	13	6.5%	34	5.6%
≥4 concussions	14	3.4%	8	4.0%	22	3.6%
Not specified	7	1.7%	0	0.0%	7	1.2%
TOTAL	408	100.0%	200	100.0%	608	100.0%

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, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Received written authorization to return by the end of season	1954	82.3%	957	79.3%	2911	81.3%
Did not receive written authorization to return by the end of season	335	14.1%	175	14.5%	510	14.2%
Follow-up Report not completed	84	3.5%	75	6.2%	159	4.4%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

Table 2.15 Head Injuries by Medical Examiner Authorizing Return to Activity - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
MD	1239	52.2%	581	48.1%	1820	50.8%
DO	378	15.9%	177	14.7%	555	15.5%
PA	165	7.0%	106	8.8%	271	7.6%
NP	172	7.2%	93	7.7%	265	7.4%
Medical examiner data not available*	419	17.7%	250	20.7%	669	18.7%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

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, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Hospital	96	4.0%	48	4.0%	144	4.0%
Urgent or Ready Care business	123	5.2%	42	3.5%	165	4.6%
Primary care physician or pediatrician's office	1304	55.0%	700	58.0%	2004	56.0%
Neurologist's office	215	9.1%	82	6.8%	297	8.3%
Team doctor	216	9.1%	85	7.0%	301	8.4%
Medical facility data not available*	419	17.7%	250	20.7%	669	18.7%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

Table 2.17 Head Injuries by Clearance Return to Activity Conditions - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
Unconditional return	1568	66.1%	799	66.2%	2367	66.1%
Conditions to return	386	16.3%	158	13.1%	544	15.2%
Return to activity data not available*	419	17.7%	250	20.7%	669	18.7%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

Table 2.18 Head Injuries by Missed School Days after Injury Event Date - All MHSAA High School Sports Included, MHSAA Head Injury Reporting System, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
0 Days	1330	56.0%	541	44.8%	1871	52.3%
1-2 Days	447	18.8%	319	26.4%	766	21.4%
3-6 Days	129	5.4%	74	6.1%	203	5.7%
7-9 Days	17	0.7%	7	0.6%	24	0.7%
10-20 Days	23	1.0%	14	1.2%	37	1.0%
≥21 Days	8	0.3%	2	0.2%	10	0.3%
Missed school data not available*	419	17.7%	250	20.7%	669	18.7%
TOTAL	2373	100.0%	1207	100.0%	3580	100.0%

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, 2017-18 School Year

	Boys		Girls		Overall	
	n	%	n	%	n	%
1-2 Days	61	2.6%	27	2.2%	88	2.5%
3-5 Days	189	8.0%	97	8.0%	288	8.0%
6-10 Days	554	23.4%	302	25.0%	858	24.0%
11-15 Days	614	25.9%	244	20.2%	859	24.0%
16-20 Days	205	8.7%	112	9.3%	317	8.9%
≥21 Days	285	12.0%	161	13.3%	446	12.5%
Data not available**	460	19.4%	264	21.9%	724	20.2%
TOTAL	2368	100.0%	1207	100.0%	3580	100.0%

159 Missing Follow-up Reports*

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

55 Data entry errors**

III. Baseball Head Injury Reports

Table 3.1 Head Injury Prevalence Rate for Baseball, MHSAA Head Injury Reporting System, 2017-18 School Year

Baseball Participation	17,675
All Baseball Head Injuries	60
Baseball Head Injury Prevalence Rate (reported head injuries/total participants)	0.34%
Baseball Head Injury Prevalence Rate Per Thousand Participants	3

Table 3.2 Baseball Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	34	56.7%
Junior Varsity	19	31.7%
Freshman	7	11.7%
TOTAL	60	100.0%

Table 3.3 Baseball Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	24	40.0%
Competition	36	60.0%
TOTAL	60	100.0%

Table 3.4 Baseball Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	3	12.5%
Middle of practice	14	58.3%
End of practice	7	29.2%
PRACTICE TOTAL	24	100.0%
Start of competition	8	22.2%
Middle of competition	18	50.0%
End of competition	10	27.8%
COMPETITION TOTAL	36	100.0%

Table 3.5 Activity Type for All Baseball Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	20	83.3%
During simulated competition-scrimmage	2	8.3%
Not specified	2	8.3%
TOTAL	24	100.0%

Table 3.6 Baseball Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	17	28.3%
Person to object contact (e.g. wall, equipment)	38	63.3%
Person to playing surface contact	4	6.7%
Uncertain as to the cause of the event	1	1.7%
TOTAL	60	100.0%

Table 3.7 Person to Playing Surface Contact Baseball Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Natural grass	3	75.0%
Wooden gym floor	1	25.0%
TOTAL	4	100.0%

Table 3.8 Baseball Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	29	48.3%
Coach	19	31.7%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	1	1.7%
DO	0	0.0%
MD	2	3.3%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	9	15.0%
TOTAL	60	100.0%

Table 3.9 Baseball Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	55	91.7%
Not removed*	5	8.3%
TOTAL	60	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	11	18.3%
No reported previous concussions	49	81.7%
TOTAL	60	100.0%

Table 3.11 Most Recent Concussion for Baseball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	0	0.0%
Within one to six months	2	18.2%
Within six months to one year	2	18.2%
Over one year	7	63.6%
TOTAL	11	100.0%

Table 3.12 Number of Previous Concussions for Baseball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	7	63.6%
2 concussions	3	27.3%
3 concussions	0	0.0%
≥4 concussions	1	9.1%
Not specified	0	0.0%
TOTAL	11	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	46	76.7%
Did not receive written authorization to return by the end of season	7	11.7%
Follow-up Report not completed	7	11.7%
TOTAL	60	100.0%

Table 3.14 Baseball Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	30	50.0%
DO	8	13.3%
PA	6	10.0%
NP	2	3.3%
Medical examiner data not available*	14	23.3%
TOTAL	60	100.0%

Table 3.15 Baseball Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	3	5.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	36	60.0%
Neurologist's office	5	8.3%
Team doctor	2	3.3%
Medical facility data not available*	14	23.3%
TOTAL	60	100.0%

Table 3.16 Baseball Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	40	66.7%
Conditions to return	6	10.0%
Return to activity data not available*	14	23.3%
TOTAL	60	100.0%

Table 3.17 Baseball Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	24	40.0%
1-2 Days	14	23.3%
3-6 Days	7	11.7%
7-9 Days	0	0.0%
10-20 Days	1	1.7%
≥21 Days	0	0.0%
Missed school data not available*	14	23.3%
TOTAL	60	100.0%

Table 3.18 Baseball Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	1	1.7%
3-5 Days	7	11.7%
6-10 Days	19	31.7%
11-15 Days	18	30.0%
16-20 Days	0	0.0%
≥21 Days	1	1.7%
Data not available**	14	23.3%
TOTAL	60	100.0%

7 Missing Follow-up Reports*

7 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, 2017-18 School Year

Boys Basketball Participation	21,372
All Reported Boys Basketball Head Injuries	182
Boys Basketball Head Injury Prevalence Rate	0.85%
Boys Basketball Head Injury Prevalence Rate Per Thousand Participants	9

Table 4.2 Boys Basketball Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	97	53.3%
Junior Varsity	50	27.5%
Freshman	35	19.2%
TOTAL	182	100.0%

Table 4.3 Boys Basketball Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	61	33.5%
Competition	121	66.5%
TOTAL	182	100.0%

Table 4.4 Boys Basketball Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	8	13.1%
Middle of practice	33	54.1%
End of practice	20	32.8%
PRACTICE TOTAL	61	100.0%
Start of competition	7	5.8%
Middle of competition	58	47.9%
End of competition	56	46.3%
COMPETITION TOTAL	121	100.0%

Table 4.5 Activity Type for Boys Basketball Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	41	67.2%
During simulated competition-scrimmage	20	32.8%
Not specified	0	0.0%
TOTAL	61	100.0%

Table 4.6 Boys Basketball Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	97	53.3%
Person to object contact (e.g. wall, equipment)	8	4.4%
Person to playing surface contact	68	37.4%
Uncertain as to the cause of the event	9	4.9%
TOTAL	182	100.0%

Table 4.7 Person to Playing Surface Contact Boys Basketball Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Wooden gym floor	50	73.5%
Basketball court	14	20.6%
Rubberized gym floor	2	2.9%
Indoor tile type floor	0	0.0%
TOTAL	68	100.0%

Table 4.8 Boys Basketball Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	86	47.3%
Coach	45	24.7%
Sideline emergency personnel	1	0.5%
Other appropriate health care professional	4	2.2%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	2	1.1%
Athletic director	2	1.1%
Multiple examiners	42	23.1%
TOTAL	182	100.0%

Table 4.9 Athlete Removal from Activity at the Time of Injury Event – Boys Basketball Head Injuries, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	153	84.1%
Not removed*	29	15.9%
TOTAL	182	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	33	18.1%
No reported previous concussions	149	81.9%
TOTAL	182	100.0%

Table 4.11 Most Recent Concussion for Boys Basketball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	3	9.1%
Within one to six months	5	15.2%
Within six months to one year	6	18.2%
Over one year	19	57.6%
TOTAL	33	100.0%

Table 4.12 Number of Previous Concussions for Boys Basketball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	18	54.5%
2 concussions	7	21.2%
3 concussions	4	12.1%
≥4 concussions	3	9.1%
Not specified	1	3.0%
TOTAL	33	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	159	87.4%
Did not receive written authorization to return by the end of season	13	7.1%
Follow-up Report not completed	10	5.5%
TOTAL	182	100.0%

Table 4.14 Boys Basketball Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	100	54.9%
DO	30	16.5%
PA	15	8.2%
NP	14	7.7%
Medical examiner data not available*	23	12.6%
TOTAL	182	100.0%

Table 4.15 Boys Basketball Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	11	6.0%
Urgent or Ready Care business	11	6.0%
Primary care physician or pediatrician's office	116	63.7%
Neurologist's office	12	6.6%
Team doctor	9	4.9%
Medical facility data not available*	23	12.6%
TOTAL	182	100.0%

Table 4.16 Boys Basketball Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	128	70.3%
Conditions to return	31	17.0%
Return to activity data not available*	23	12.6%
TOTAL	182	100.0%

Table 4.17 Boys Basketball Head Injuries by Missed School Days After Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	85	46.7%
1-2 Days	51	28.0%
3-6 Days	19	10.4%
7-9 Days	3	1.6%
10-20 Days	1	0.5%
≥21 Days	0	0.0%
Missed school data not available*	23	12.6%
TOTAL	182	100.0%

Table 4.18 Boys Basketball Head Injuries by Time Between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	4	2.2%
3-5 Days	15	8.2%
6-10 Days	55	30.2%
11-15 Days	50	27.5%
16-20 Days	12	6.6%
≥21 Days	18	9.9%
Data not available**	28	15.4%
TOTAL	182	100.0%

10 Missing Follow-up Reports*

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

5 Data entry errors**

V. Girls Basketball Head Injury Reports

Table 5.1 Head Injury Prevalence Rate for Girls Basketball, MHSAA Head Injury Reporting System, 2017-18 School Year

Girls Basketball Participation	15,654
All Reported Girls Basketball Head Injuries	337
Girls Basketball Head Injury Prevalence Rate	2.15%
Girls Basketball Head Injury Prevalence Rate Per Thousand Participants	22

Table 5.2 Girls Basketball Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	160	47.5%
Junior Varsity	130	38.6%
Freshman	47	13.9%
TOTAL	337	100.0%

Table 5.3 Girls Basketball Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	87	25.8%
Competition	250	74.2%
TOTAL	337	100.0%

Table 5.4 Girls Basketball Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	15	17.2%
Middle of practice	50	57.5%
End of practice	22	25.3%
PRACTICE TOTAL	87	100.0%
Start of competition	28	11.2%
Middle of competition	109	43.6%
End of competition	113	45.2%
COMPETITION TOTAL	250	100.0%

Table 5.5 Activity Type for Girls Basketball Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	52	59.8%
During simulated competition-scrimmage	33	37.9%
Not specified	2	2.3%
TOTAL	87	100.0%

Table 5.6 Girls Basketball Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	120	35.6%
Person to object contact (e.g. wall, equipment)	43	12.8%
Person to playing surface contact	150	44.5%
Uncertain as to the cause of the event	24	7.1%
TOTAL	337	100.0%

Table 5.7 Person to Playing Surface Contact Girls Basketball Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Wooden gym floor	123	82.0%
Basketball court	19	12.7%
Gymnasium floor	1	0.7%
Rubberized gym floor	2	1.3%
TOTAL	150	100.0%

Table 5.8 Girls Basketball Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	178	52.8%
Coach	74	22.0%
Sideline emergency personnel	3	0.9%
Other appropriate health care professional	5	1.5%
DO	1	0.3%
MD	5	1.5%
PA	0	0.0%
NP	1	0.3%
Athletic director	2	0.6%
Multiple examiners	68	20.2%
TOTAL	337	100.0%

Table 5.9 Girls Basketball Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	283	84.0%
Not removed*	54	16.0%
TOTAL	337	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	57	16.9%
No reported previous concussions	280	83.1%
TOTAL	337	100.0%

Table 5.11 Most Recent Concussion for Girls Basketball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	4	7.0%
Within one to six months	6	10.5%
Within six months to one year	11	19.3%
Over one year	36	63.2%
TOTAL	57	100.0%

Table 5.12 Number of Previous Concussions for Girls Basketball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	38	66.7%
2 concussions	11	19.3%
3 concussions	4	7.0%
≥4 concussions	4	7.0%
Not specified	0	0.0%
TOTAL	57	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	284	84.3%
Did not receive written authorization to return by the end of season	39	11.6%
Follow-up Report not completed	14	4.2%
TOTAL	337	100.0%

Table 5.14 Girls Basketball Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	165	49.0%
DO	55	16.3%
PA	37	11.0%
NP	27	8.0%
Medical examiner data not available*	53	15.7%
TOTAL	337	100.0%

Table 5.15 Girls Basketball Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	17	5.0%
Urgent or Ready Care business	11	3.3%
Primary care physician or pediatrician's office	211	62.6%
Neurologist's office	17	5.0%
Team doctor	28	8.3%
Medical facility data not available*	53	15.7%
TOTAL	337	100.0%

Table 5.16 Girls Basketball Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	240	71.2%
Conditions to return	44	13.1%
Return to activity data not available*	53	15.7%
TOTAL	337	100.0%

Table 5.17 Girls Basketball Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	158	46.9%
1-2 Days	94	27.9%
3-6 Days	25	7.4%
7-9 Days	3	0.9%
10-20 Days	3	0.9%
≥21 Days	1	0.3%
Missed school data not available*	53	15.7%
TOTAL	337	100.0%

Table 5.18 Girls Basketball Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	8	2.4%
3-5 Days	27	8.0%
6-10 Days	93	27.6%
11-15 Days	70	20.8%
16-20 Days	32	9.5%
≥21 Days	50	14.8%
Data not available**	57	16.9%
TOTAL	337	100.0%

14 Missing Follow-up Reports*

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

4 Data entry errors**

VI. Boys Bowling Head Injury Reports

Table 6.1 Head Injury Prevalence Rate for Boys Bowling, MHSAA Head Injury Reporting System, 2017-18 School Year

Boys Bowling Participation	4,136
All Reported Boys Bowling Head Injuries	0
Boys Bowling Head Injury Prevalence Rate	0.00%
Boys Bowling Head Injury Prevalence Rate Per Thousand Participants	0

Table 6.2 Boys Bowling Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	0	0.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
TOTAL	0	0.0%

Table 6.3 Boys Bowling Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	0	0.0%
Competition	0	0.0%
TOTAL	0	0.0%

Table 6.4 Boys Bowling Head Injuries by Time During Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	0	0.0%
Middle of practice	0	0.0%
End of practice	0	0.0%
PRACTICE TOTAL	0	0.0%
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
COMPETITION TOTAL	0	0.0%

Table 6.5 Activity Type for Boys Bowling Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	0	0.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
TOTAL	0	0.0%

Table 6.6 Boys Bowling Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 6.7 Person to Playing Surface Contact Boys Bowling Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Wooden floor	0	0.0%
TOTAL	0	0.0%

Table 6.8 Boys Bowling Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 6.9 Boys Bowling Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	0	0.0%
Not removed*	0	0.0%
TOTAL	0	0.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	0	0.0%
TOTAL	0	0.0%

Table 6.11 Most Recent Concussion for Boys Bowling Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 6.12 Number of Previous Concussions for Boys Bowling Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 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%
TOTAL	0	0.0%

Table 6.14 Boys Bowling Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 6.15 Boys Bowling Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 6.16 Boys Bowling Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	0	0.0%
Conditions to return	0	0.0%
Return to activity data not available*	0	0.0%
TOTAL	0	0.0%

Table 6.17 Boys Bowling Head Injuries by Missed School Days After Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 6.18 Boys Bowling Head Injuries by Time Between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 School Year

Girls Bowling Participation	3,058
All Reported Girls Bowling Head Injuries	0
Girls Bowling Head Injury Prevalence Rate	0.00%
Girls Bowling Head Injury Prevalence Rate Per Thousand Participants	0

Table 7.2 Girls Bowling Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	0	0.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
TOTAL	0	0.0%

Table 7.3 Girls Bowling Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	0	0.0%
Competition	0	0.0%
TOTAL	0	0.0%

Table 7.4 Girls Bowling Head Injuries by Time During Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	0	0.0%
Middle of practice	0	0.0%
End of practice	0	0.0%
PRACTICE TOTAL	0	0.0%
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
COMPETITION TOTAL	0	0.0%

Table 7.5 Activity Type for Girls Bowling Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	0	0.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
TOTAL	0	0.0%

Table 7.6 Girls Bowling Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 7.7 Person to Playing Surface Contact Girls Bowling Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Wooden floor	0	0.0%
TOTAL	0	0.0%

Table 7.8 Girls Bowling Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 7.9 Girls Bowling Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	0	0.0%
Not removed*	0	0.0%
TOTAL	0	0.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	0	0.0%
TOTAL	0	0.0%

Table 7.11 Most Recent Concussion for Girls Bowling Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 7.12 Number of Previous Concussions for Girls Bowling Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 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%
TOTAL	0	0.0%

Table 7.14 Girls Bowling Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 7.15 Girls Bowling Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 7.16 Girls Bowling Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	0	0.0%
Conditions to return	0	0.0%
Return to activity data not available*	0	0.0%
TOTAL	0	0.0%

Table 7.17 Girls Bowling Head Injuries by Missed School Days After Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 7.18 Girls Bowling Head Injuries by Time Between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 School Year

Competitive Cheer Participation	6,715
All Reported Competitive Cheer Head Injuries	131
Competitive Cheer Head Injury Prevalence Rate	1.95%
Competitive Cheer Head Injury Prevalence Rate Per Thousand Participants	20

Table 8.2 Competitive Cheer Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	98	74.8%
Junior Varsity	33	25.2%
Freshman	0	0.0%
TOTAL	131	100.0%

Table 8.3 Competitive Cheer Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	107	81.7%
Competition	24	18.3%
TOTAL	131	100.0%

Table 8.4 Competitive Cheer Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	9	8.4%
Middle of practice	61	57.0%
End of practice	37	34.6%
PRACTICE TOTAL	107	100.0%
Start of competition	3	12.5%
Middle of competition	15	62.5%
End of competition	6	25.0%
COMPETITION TOTAL	24	100.0%

Table 8.5 Activity Type for Competitive Cheer Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	80	74.8%
During simulated competition-scrimmage	22	20.6%
Not specified	5	4.7%
TOTAL	107	100.0%

Table 8.6 Competitive Cheer Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	79	60.3%
Person to object contact (e.g. wall, equipment)	3	2.3%
Person to playing surface contact	42	32.1%
Uncertain as to the cause of the event	7	5.3%
TOTAL	131	100.0%

Table 8.7 Person to Playing Surface Contact Competitive Cheer Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Cheer mat	11	26.2%
Wrestling-type mat	23	54.8%
Carpeted floor	4	9.5%
Gymnastics mat	2	4.8%
Rubberized gym floor	1	2.4%
Track	1	2.4%
TOTAL	42	100.0%

Table 8.8 Competitive Cheer Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	68	51.9%
Coach	39	29.8%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	2	1.5%
DO	0	0.0%
MD	7	5.3%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	15	11.5%
TOTAL	131	100.0%

Table 8.9 Competitive Cheer Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	108	82.4%
Not removed*	23	17.6%
TOTAL	131	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	17	13.0%
No reported previous concussions	114	87.0%
TOTAL	131	100.0%

Table 8.11 Most Recent Concussion for Competitive Cheer Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	0	0.0%
Within one to six months	2	11.8%
Within six months to one year	5	29.4%
Over one year	10	58.8%
TOTAL	17	100.0%

Table 8.12 Number of Previous Concussions for Competitive Cheer Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	12	70.6%
2 concussions	4	23.5%
3 concussions	1	5.9%
≥4 concussions	0	0.0%
Not specified	0	0.0%
TOTAL	17	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	103	78.6%
Did not receive written authorization to return by the end of season	21	16.0%
Follow-up Report not completed	7	5.3%
TOTAL	131	100.0%

Table 8.14 Competitive Cheer Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	67	51.1%
DO	24	18.3%
PA	7	5.3%
NP	5	3.8%
Medical examiner data not available*	28	21.4%
TOTAL	131	100.0%

Table 8.15 Competitive Cheer Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	1	0.8%
Urgent or Ready Care business	3	2.3%
Primary care physician or pediatrician's office	77	58.8%
Neurologist's office	16	12.2%
Team doctor	6	4.6%
Medical facility data not available*	28	21.4%
TOTAL	131	100.0%

Table 8.16 Competitive Cheer Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	88	67.2%
Conditions to return	15	11.5%
Return to activity data not available*	28	21.4%
TOTAL	131	100.0%

Table 8.17 Competitive Cheer Head Injuries by Missed School Days After Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	64	48.9%
1-2 Days	33	25.2%
3-6 Days	4	3.1%
7-9 Days	1	0.8%
10-20 Days	0	0.0%
≥21 Days	1	0.8%
Missed school data not available*	28	21.4%
TOTAL	131	100.0%

Table 8.18 Competitive Cheer Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	1	0.8%
3-5 Days	6	4.6%
6-10 Days	26	19.8%
11-15 Days	26	19.8%
16-20 Days	12	9.2%
≥21 Days	28	21.4%
Data not available**	32	24.4%
TOTAL	131	100.0%

7 Missing Follow-up Reports*

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

4 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, 2017-18 School Year

Boys Cross Country Participation	9,656
All Reported Boys Cross Country Head Injuries	1
Boys Cross Country Head Injury Prevalence Rate	0.01%
Boys Cross Country Head Injury Prevalence Rate Per Thousand Participants	0

Table 9.2 Boys Cross Country Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	1	100.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
TOTAL	1	100.0%

Table 9.3 Boys Cross Country Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	1	100.0%
Competition	0	0.0%
TOTAL	1	100.0%

Table 9.4 Boys Cross Country Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	1	100.0%
Middle of practice	0	0.0%
End of practice	0	0.0%
PRACTICE TOTAL	1	100.0%
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
COMPETITION TOTAL	0	0.0%

Table 9.5 Activity Type for Boys Cross Country Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 9.6 Boys Cross Country Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

Table 9.7 Person to Playing Surface Contact Boys Cross Country Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
n/a	0	0%
TOTAL	0	0%

Table 9.8 Boys Cross Country Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

Table 9.9 Boys Cross Country Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	1	100.0%
Not removed*	0	0.0%
TOTAL	1	100.0%

*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, 2017-18 School Year

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

Table 9.11 Most Recent Concussion for Boys Cross Country Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 9.12 Number of Previous Concussions for Boys Cross Country Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 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%
TOTAL	1	100.0%

Table 9.14 Boys Cross Country Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

Table 9.15 Boys Cross Country Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

Table 9.16 Boys Cross Country Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 9.17 Boys Cross Country Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

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, 2017-18 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%
TOTAL	1	100.0%

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, 2017-18 School Year

Girls Cross Country Participation	8,696
All Reported Girls Cross Country Head Injuries	3
Girls Cross Country Head Injury Prevalence Rate	0.03%
Girls Cross Country Head Injury Prevalence Rate Per Thousand Participants	0

Table 10.2 Girls Cross Country Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	2	66.7%
Junior Varsity	1	33.3%
Freshman	0	0.0%
TOTAL	3	100.0%

Table 10.3 Girls Cross Country Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	0	0.0%
Competition	3	100.0%
TOTAL	3	100.0%

Table 10.4 Girls Cross Country Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	0	0%
Middle of practice	0	0%
End of practice	0	0%
PRACTICE TOTAL	0	0%
Start of competition	1	33.3%
Middle of competition	0	0.0%
End of competition	2	66.7%
COMPETITION TOTAL	3	100.0%

Table 10.5 Activity Type for Girls Cross Country Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	0	0%
During simulated competition-scrimmage	0	0%
Not specified	0	0%
TOTAL	0	0%

Table 10.6 Girls Cross Country Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	1	33.3%
Person to object contact (e.g. wall, equipment)	0	0.0%
Person to playing surface contact	2	66.7%
Uncertain as to the cause of the event	0	0.0%
TOTAL	3	100.0%

Table 10.7 Person to Playing Surface Contact Girls Cross Country Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Natural grass	2	100.0%
TOTAL	2	100.0%

Table 10.8 Girls Cross Country Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 10.9 Girls Cross Country Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	2	66.7%
Not removed*	1	33.3%
TOTAL	3	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	3	100.0%
TOTAL	3	100.0%

Table 10.11 Most Recent Concussion for Girls Cross Country Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 10.12 Number of Previous Concussions for Girls Cross Country Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 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%
TOTAL	3	100.0%

Table 10.14 Girls Cross Country Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 10.15 Girls Cross Country Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	3	100.0%

Table 10.16 Girls Cross Country Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 10.17 Girls Cross Country Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	1	33.3%
1-2 Days	0	0.0%
3-6 Days	2	66.7%
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%
TOTAL	3	100.0%

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, 2017-18 School Year

	n	%
1-2 Days	0	0.0%
3-5 Days	1	33.3%
6-10 Days	0	0.0%
11-15 Days	0	0.0%
16-20 Days	0	0.0%
≥21 Days	2	66.7%
Data not available**	0	0.0%
TOTAL	3	100.0%

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**

XI. 11-Player Football Head Injury Reports

Table 11.1 Head Injury Prevalence Rate for 11-Player Football, MHSAA Head Injury Reporting System, 2017-18 School Year

11-Player Football Participation	35,583
All Reported 11-Player Football Head Injuries	1,469
11-Player Football Head Injury Prevalence Rate	4.13%
11-Player Football Head Injury Prevalence Rate Per Thousand Participants	41

Table 11.2 11-Player Football Head Injuries by Gender, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Male	1464	99.7%
Female	5	0.3%
TOTAL	1469	100.0%

Table 11.3 11-Player Football Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	663	45.1%
Junior Varsity	567	38.6%
Freshman	239	16.3%
TOTAL	1469	100.0%

Table 11.4 11-Player Football Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	543	37.0%
Competition	926	63.0%
TOTAL	1469	100.0%

Table 11.5 11-Player Football Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	62	11.4%
Middle of practice	290	53.4%
End of practice	191	35.2%
PRACTICE TOTAL	543	100.0%
Start of competition	93	10.0%
Middle of competition	450	48.6%
End of competition	383	41.4%
COMPETITION TOTAL	926	100.0%

Table 11.6 Activity Type for 11-Player Football Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	400	73.7%
During simulated competition-scrimmage	126	23.2%
Not specified	17	3.1%
TOTAL	543	100.0%

Table 11.7 11-Player Football Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	1071	72.9%
Person to object contact (e.g. wall, equipment)	16	1.1%
Person to playing surface contact	173	11.8%
Uncertain as to the cause of the event	209	14.2%
TOTAL	1469	100.0%

Table 11.8 Person to Playing Surface Contact 11-Player Football Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Natural grass	101	58.4%
Artificial turf	62	35.8%
Football field	7	4.0%
Ground	2	1.2%
Rubber weight room floor	1	0.6%
TOTAL	173	100.0%

Table 11.9 11-Player Football Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	935	63.6%
Coach	166	11.3%
Sideline emergency personnel	3	0.2%
Other appropriate health care professional	33	2.2%
DO	8	0.5%
MD	45	3.1%
PA	3	0.2%
NP	3	0.2%
Athletic director	8	0.5%
Multiple examiners	265	18.0%
TOTAL	1469	100.0%

Table 11.10 11-Player Football Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	1220	83.0%
Not removed*	249	17.0%
TOTAL	1469	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	244	16.6%
No reported previous concussions	1225	83.4%
TOTAL	1469	100.0%

Table 11.12 Most Recent Concussion for 11-Player Football Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	8	3.3%
Within one to six months	19	7.8%
Within six months to one year	47	19.3%
Over one year	170	69.7%
TOTAL	244	100.0%

Table 11.13 Number of Previous Concussions for 11-Player Football Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	186	76.2%
2 concussions	39	16.0%
3 concussions	11	4.5%
≥4 concussions	4	1.6%
Not specified	4	1.6%
TOTAL	244	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	1202	81.8%
Did not receive written authorization to return by the end of season	227	15.5%
Follow-up Report not completed	40	2.7%
TOTAL	1469	100.0%

Table 11.15 11-Player Football Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	755	51.4%
DO	241	16.4%
PA	100	6.8%
NP	106	7.2%
Medical examiner data not available*	267	18.2%
TOTAL	1469	100.0%

Table 11.16 11-Player Football Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	67	4.6%
Urgent or Ready Care business	81	5.5%
Primary care physician or pediatrician's office	763	51.9%
Neurologist's office	139	9.5%
Team doctor	152	10.3%
Medical facility data not available*	267	18.2%
TOTAL	1469	100.0%

Table 11.17 11-Player Football Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	955	65.0%
Conditions to return	247	16.8%
Return to activity data not available*	267	18.2%
TOTAL	1469	100.0%

Table 11.18 11-Player Football Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	852	58.0%
1-2 Days	247	16.8%
3-6 Days	73	5.0%
7-9 Days	10	0.7%
10-20 Days	15	1.0%
≥21 Days	5	0.3%
Missed school data not available*	267	18.2%
TOTAL	1469	100.0%

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, 2017-18 School Year

	n	%
1-2 Days	36	2.5%
3-5 Days	111	7.6%
6-10 Days	335	22.8%
11-15 Days	382	26.0%
16-20 Days	127	8.6%
≥21 Days	187	12.7%
Data not available**	291	19.8%
TOTAL	1469	100.0%

40 Missing Follow-up Reports*

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

24 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, 2017-18 School Year

8-Player Football Participation	1,406
All Reported 8-Player Football Head Injuries	53
8-Player Football Head Injury Prevalence Rate	3.77%
8-Player Football Head Injury Prevalence Rate Per Thousand Participants	38

Table 12.2 8-Player Football Head Injuries by Gender, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Male	52	98.1%
Female	1	1.9%
TOTAL	53	100.0%

Table 12.3 8-Player Football Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	41	77.4%
Junior Varsity	12	22.6%
Freshman	0	0.0%
TOTAL	53	100.0%

Table 12.4 8-Player Football Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	10	18.9%
Competition	43	81.1%
TOTAL	53	100.0%

Table 12.5 8-Player Football Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	0	0.0%
Middle of practice	7	70.0%
End of practice	3	30.0%
PRACTICE TOTAL	10	100.0%
Start of competition	5	11.6%
Middle of competition	23	53.5%
End of competition	15	34.9%
COMPETITION TOTAL	43	100.0%

Table 12.6 Activity Type for 8-Player Football Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	7	70.0%
During simulated competition-scrimmage	3	30.0%
Not specified	0	0.0%
TOTAL	10	100.0%

Table 12.7 8-Player Football Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	38	71.7%
Person to object contact (e.g. wall, equipment)	0	0.0%
Person to playing surface contact	5	9.4%
Uncertain as to the cause of the event	10	18.9%
TOTAL	53	100.0%

Table 12.8 Person to Playing Surface Contact 8-Player Football Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Natural grass	5	100.0%
Artificial turf	0	0.0%
TOTAL	5	100.0%

Table 12.9 8-Player Football Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	10	18.9%
Coach	24	45.3%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	3	5.7%
DO	0	0.0%
MD	2	3.8%
PA	0	0.0%
NP	0	0.0%
Athletic director	1	1.9%
Multiple examiners	13	24.5%
TOTAL	53	100.0%

Table 12.10 8-Player Football Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	45	84.9%
Not removed*	8	15.1%
TOTAL	53	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	6	11.3%
No reported previous concussions	47	88.7%
TOTAL	53	100.0%

Table 12.12 Most Recent Concussion for 8-Player Football Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	0	0.0%
Within one to six months	1	16.7%
Within six months to one year	1	16.7%
Over one year	4	66.7%
TOTAL	6	100.0%

Table 12.13 Number of Previous Concussions for 8-Player Football Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	3	50.0%
2 concussions	1	16.7%
3 concussions	0	0.0%
≥4 concussions	1	16.7%
Not specified	1	16.7%
TOTAL	6	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	41	77.4%
Did not receive written authorization to return by the end of season	7	13.2%
Follow-up Report not completed	5	9.4%
TOTAL	53	100.0%

Table 12.15 8-Player Football Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	24	45.3%
DO	4	7.5%
PA	4	7.5%
NP	9	17.0%
Medical examiner data not available*	12	22.6%
TOTAL	53	100.0%

Table 12.16 8-Player Football Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	6	11.3%
Urgent or Ready Care business	2	3.8%
Primary care physician or pediatrician's office	33	62.3%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	12	22.6%
TOTAL	53	100.0%

Table 12.17 8-Player Football Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	26	49.1%
Conditions to return	15	28.3%
Return to activity data not available*	12	22.6%
TOTAL	53	100.0%

Table 12.18 8-Player Football Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	25	47.2%
1-2 Days	13	24.5%
3-6 Days	3	5.7%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	12	22.6%
TOTAL	53	100.0%

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, 2017-18 School Year

	n	%
1-2 Days	0	0.0%
3-5 Days	1	1.9%
6-10 Days	14	26.4%
11-15 Days	17	32.1%
16-20 Days	4	7.5%
≥21 Days	4	7.5%
Data not available**	13	24.5%
TOTAL	53	100.0%

5 Missing Follow-up Reports*

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

1 Data entry errors**

XIII. Boys Golf Head Injury Reports

Table 13.1 Head Injury Prevalence Rate for Boys Golf, MHSAA Head Injury Reporting System, 2017-18 School Year

Boys Golf Participation	6,267
All Boys Golf Head Injuries	0
Boys Golf Head Injury Prevalence Rate	0.00%
Boys Golf Head Injury Prevalence Rate Per Thousand Participants	0

Table 13.2 Boys Golf Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	0	0.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
TOTAL	0	0.0%

Table 13.3 Boys Golf Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	0	0.0%
Competition	0	0.0%
TOTAL	0	0.0%

Table 13.4 Boys Golf Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	0	0.0%
Middle of practice	0	0.0%
End of practice	0	0.0%
PRACTICE TOTAL	0	0.0%
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
COMPETITION TOTAL	0	0.0%

Table 13.5 Activity Type for Boys Golf Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	0	0.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
TOTAL	0	0.0%

Table 13.6 Boys Golf Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 13.7 Person to Playing Surface Contact Boys Golf Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
n/a	0	0.0%
TOTAL	0	0.0%

Table 13.8 Boys Golf Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 13.9 Boys Golf Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	0	0.0%
Not removed*	0	0.0%
TOTAL	0	0.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	0	0.0%
TOTAL	0	0.0%

Table 13.11 Most Recent Concussion for Boys Golf Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 13.12 Number of Previous Concussions for Boys Golf Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 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%
TOTAL	1	100.0%

Table 13.14 Boys Golf Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 13.15 Boys Golf Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 13.16 Boys Golf Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	0	0.0%
Conditions to return	0	0.0%
Return to activity data not available*	0	0.0%
TOTAL	0	0.0%

Table 13.17 Boys Golf Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 13.18 Boys Golf Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 School Year

Girls Golf Participation	3,712
All Reported Girls Golf Head Injuries	0
Girls Golf Head Injury Prevalence Rate	0.00%
Girls Golf Head Injury Prevalence Rate Per Thousand Participants	0

Table 14.2 Girls Golf Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	0	0.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
TOTAL	0	0.0%

Table 14.3 Girls Golf Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	0	0.0%
Competition	0	0.0%
TOTAL	0	0.0%

Table 14.4 Girls Golf Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	0	0.0%
Middle of practice	0	0.0%
End of practice	0	0.0%
PRACTICE TOTAL	0	0.0%
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
COMPETITION TOTAL	0	0.0%

Table 14.5 Activity Type for Girls Golf Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	0	0.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
TOTAL	0	0.0%

Table 14.6 Girls Golf Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	0.0%

Table 14.7 Person to Playing Surface Contact Girls Golf Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Natural grass	0	0.0%
Unknown	0	0.0%
Other	0	0.0%
TOTAL	0	0.0%

Table 14.8 Girls Golf Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 14.9 Girls Golf Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	0	0.0%
Not removed*	0	0.0%
TOTAL	0	0.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	0	0.0%
TOTAL	0	0.0%

Table 14.11 Most Recent Concussion for Girls Golf Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 14.12 Number of Previous Concussions for Girls Golf Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 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%
TOTAL	0	0.0%

Table 14.14 Girls Golf Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 14.15 Girls Golf Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 14.16 Girls Golf Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	0	0.0%
Conditions to return	0	0.0%
Return to activity data not available*	0	0.0%
TOTAL	0	0.0%

Table 14.17 Girls Golf Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 14.18 Girls Golf Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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**

XV. Gymnastics Head Injury Reports

Table 15.1 Head Injury Prevalence Rate for Gymnastics, MHSAA Head Injury Reporting System, 2017-18 School Year

Gymnastics Participation	702
All Reported Gymnastics Head Injuries	11
Gymnastics Head Injury Prevalence Rate	1.57%
Gymnastics Head Injury Prevalence Rate Per Thousand Participants	16

Table 15.2 Gymnastics Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	11	100.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
TOTAL	11	100.0%

Table 15.3 Gymnastics Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	6	54.5%
Competition	5	45.5%
TOTAL	11	100.0%

Table 15.4 Gymnastics Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	0	0.0%
Middle of practice	4	66.7%
End of practice	2	33.3%
PRACTICE TOTAL	6	100.0%
Start of competition	4	80.0%
Middle of competition	0	0.0%
End of competition	1	20.0%
COMPETITION TOTAL	5	100.0%

Table 15.5 Activity Type for Gymnastics Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	3	50.0%
During simulated competition-scrimmage	3	50.0%
Not specified	0	0.0%
TOTAL	6	100.0%

Table 15.6 Gymnastics Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	1	9.1%
Person to playing surface contact	9	81.8%
Uncertain as to the cause of the event	1	9.1%
TOTAL	11	100.0%

Table 15.7 Person to Playing Surface Contact Gymnastics Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Wrestling-Type Mat	5	55.6%
Gymnastics Mat	3	33.3%
Gymnastics Floor	1	11.1%
TOTAL	9	44.4%

Table 15.8 Gymnastics Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	6	54.5%
Coach	2	18.2%
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	3	27.3%
TOTAL	11	100.0%

Table 15.9 Gymnastics Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	9	81.8%
Not removed*	2	18.2%
TOTAL	11	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	11	100.0%
TOTAL	11	100.0%

Table 15.11 Most Recent Concussion for Gymnastics Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 15.12 Number of Previous Concussions for Gymnastics Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	9	81.8%
Did not receive written authorization to return by the end of season	2	18.2%
Follow-up Report not completed	0	0.0%
TOTAL	11	100.0%

Table 15.14 Gymnastics Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	7	63.6%
DO	2	18.2%
PA	0	0.0%
NP	0	0.0%
Medical examiner data not available*	2	18.2%
TOTAL	11	100.0%

Table 15.15 Gymnastics Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	1	9.1%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	8	72.7%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	2	18.2%
TOTAL	11	100.0%

Table 15.16 Gymnastics Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	7	63.6%
Conditions to return	2	18.2%
Return to activity data not available*	2	18.2%
TOTAL	11	100.0%

Table 15.17 Gymnastics Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	7	63.6%
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*	2	18.2%
TOTAL	11	100.0%

Table 15.18 Gymnastics Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	5	45.5%
11-15 Days	1	9.1%
16-20 Days	2	18.2%
≥21 Days	1	9.1%
Data not available**	2	18.2%
TOTAL	11	100.0%

0 Missing Follow-up Reports*

2 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, 2017-18 School Year

Ice Hockey Participation	3,365
All Reported Ice Hockey Head Injuries	106
Ice Hockey Head Injury Prevalence Rate	3.15%
Ice Hockey Head Injury Prevalence Rate Per Thousand Participants	32

Table 16.2 Ice Hockey Head Injuries by Gender, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Male	106	100.0%
Female	0	0.0%
TOTAL	106	100.0%

Table 16.3 Ice Hockey Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	96	90.6%
Junior Varsity	9	8.5%
Freshman	1	0.9%
TOTAL	106	100.0%

Table 16.4 Ice Hockey Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	13	12.3%
Competition	93	87.7%
TOTAL	106	100.0%

Table 16.5 Ice Hockey Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	1	7.7%
Middle of practice	7	53.8%
End of practice	5	38.5%
PRACTICE TOTAL	13	100.0%
Start of competition	10	10.8%
Middle of competition	50	53.8%
End of competition	33	35.5%
COMPETITION TOTAL	93	100.0%

Table 16.6 Activity Type for Ice Hockey Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	7	53.8%
During simulated competition-scrimmage	4	30.8%
Not specified	2	15.4%
TOTAL	13	100.0%

Table 16.7 Ice Hockey Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	43	40.6%
Person to object contact (e.g. wall, equipment)	36	34.0%
Person to playing surface contact	13	12.3%
Uncertain as to the cause of the event	14	13.2%
TOTAL	106	100.0%

Table 16.8 Person to Playing Surface Contact Ice Hockey Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Ice	12	92.3%
Mat	1	7.7%
TOTAL	13	92.3%

Table 16.9 Ice Hockey Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	70	66.0%
Coach	19	17.9%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	2	1.9%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	15	14.2%
TOTAL	106	100.0%

Table 16.10 Ice Hockey Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	91	85.8%
Not removed*	15	14.2%
TOTAL	106	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	29	27.4%
No reported previous concussions	77	72.6%
TOTAL	106	100.0%

Table 16.12 Most Recent Concussion for Ice Hockey Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	3	10.3%
Within one to six months	3	10.3%
Within six months to one year	6	20.7%
Over one year	17	58.6%
TOTAL	29	100.0%

Table 16.13 Number of Previous Concussions for Ice Hockey Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	18	62.1%
2 concussions	7	24.1%
3 concussions	3	10.3%
≥4 concussions	1	3.4%
Not specified	0	0.0%
TOTAL	29	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	100	94.3%
Did not receive written authorization to return by the end of season	2	1.9%
Follow-up Report not completed	4	3.8%
TOTAL	106	100.0%

Table 16.15 Ice Hockey Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	66	62.3%
DO	22	20.8%
PA	7	6.6%
NP	5	4.7%
Medical examiner data not available*	6	5.7%
TOTAL	106	100.0%

Table 16.16 Ice Hockey Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	2	1.9%
Urgent or Ready Care business	4	3.8%
Primary care physician or pediatrician's office	62	58.5%
Neurologist's office	16	15.1%
Team doctor	16	15.1%
Medical facility data not available*	6	5.7%
TOTAL	106	100.0%

Table 16.17 Ice Hockey Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	85	80.2%
Conditions to return	15	14.2%
Return to activity data not available*	6	5.7%
TOTAL	106	100.0%

Table 16.18 Ice Hockey Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	73	68.9%
1-2 Days	18	17.0%
3-6 Days	7	6.6%
7-9 Days	0	0.0%
10-20 Days	1	0.9%
≥21 Days	1	0.9%
Missed school data not available*	6	5.7%
TOTAL	106	100.0%

Table 16.19 Ice Hockey Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	2	1.9%
3-5 Days	13	12.3%
6-10 Days	26	24.5%
11-15 Days	26	24.5%
16-20 Days	13	12.3%
≥21 Days	18	17.0%
Data not available**	8	7.5%
TOTAL	106	100.0%

4 Missing Follow-up Reports*

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

2 Data entry errors**

XVII. Boys Lacrosse Head Injury Reports

Table 17.1 Head Injury Prevalence Rate for Boys Lacrosse, MHSAA Head Injury Reporting System, 2017-18 School Year

Boys Lacrosse Participation	5,168
All Boys Lacrosse Head Injuries	87
Boys Lacrosse Head Injury Prevalence Rate	1.68%
Boys Lacrosse Head Injury Prevalence Rate Per Thousand Participants	17

Table 17.2 Boys Lacrosse Head Injuries by Gender, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Male	84	96.6%
Female	3	3.4%
TOTAL	87	100.0%

Table 17.3 Boys Lacrosse Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	59	67.8%
Junior Varsity	27	31.0%
Freshman	1	1.1%
TOTAL	87	100.0%

Table 17.4 Boys Lacrosse Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	18	20.7%
Competition	69	79.3%
TOTAL	87	100.0%

Table 17.5 Boys Lacrosse Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	1	5.6%
Middle of practice	9	50.0%
End of practice	8	44.4%
PRACTICE TOTAL	18	100.0%
Start of competition	3	4.3%
Middle of competition	44	63.8%
End of competition	22	31.9%
COMPETITION TOTAL	69	100.0%

Table 17.6 Activity Type for Boys Lacrosse Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	12	66.7%
During simulated competition-scrimmage	6	33.3%
Not specified	0	0.0%
TOTAL	18	100.0%

Table 17.7 Boys Lacrosse Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	49	56.3%
Person to object contact (e.g. wall, equipment)	20	23.0%
Person to playing surface contact	10	11.5%
Uncertain as to the cause of the event	8	9.2%
TOTAL	87	100.0%

Table 17.8 Person to Playing Surface Contact Boys Lacrosse Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Artificial turf	6	60.0%
Natural grass	4	40.0%
TOTAL	10	40.0%

Table 17.9 Boys Lacrosse Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	59	67.8%
Coach	12	13.8%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	1	1.1%
DO	0	0.0%
MD	2	2.3%
PA	0	0.0%
NP	0	0.0%
Athletic director	1	1.1%
Multiple examiners	12	13.8%
TOTAL	87	100.0%

Table 17.10 Boys Lacrosse Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	80	92.0%
Not removed*	7	8.0%
TOTAL	87	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	16	18.4%
No reported previous concussions	71	81.6%
TOTAL	87	100.0%

Table 17.12 Most Recent Concussion for Boys Lacrosse Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	0	0.0%
Within one to six months	2	12.5%
Within six months to one year	5	31.3%
Over one year	9	56.3%
TOTAL	16	100.0%

Table 17.13 Number of Previous Concussions for Boys Lacrosse Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	12	75.0%
2 concussions	4	25.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
TOTAL	16	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	70	80.5%
Did not receive written authorization to return by the end of season	14	16.1%
Follow-up Report not completed	3	3.4%
TOTAL	87	100.0%

Table 17.15 Boys Lacrosse Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	49	56.3%
DO	13	14.9%
PA	2	2.3%
NP	6	6.9%
Medical examiner data not available*	17	19.5%
TOTAL	87	100.0%

Table 17.16 Boys Lacrosse Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	2	2.3%
Primary care physician or pediatrician's office	53	60.9%
Neurologist's office	6	6.9%
Team doctor	9	10.3%
Medical facility data not available*	17	19.5%
TOTAL	87	100.0%

Table 17.17 Boys Lacrosse Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	62	71.3%
Conditions to return	8	9.2%
Return to activity data not available*	17	19.5%
TOTAL	87	100.0%

Table 17.18 Boys Lacrosse Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	46	52.9%
1-2 Days	18	20.7%
3-6 Days	3	3.4%
7-9 Days	1	1.1%
10-20 Days	2	2.3%
≥21 Days	0	0.0%
Missed school data not available*	17	19.5%
TOTAL	87	100.0%

Table 17.19 Boys Lacrosse Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	2	2.3%
3-5 Days	9	10.3%
6-10 Days	16	18.4%
11-15 Days	20	23.0%
16-20 Days	14	16.1%
≥21 Days	7	8.0%
Data not available**	19	21.8%
TOTAL	87	100.0%

3 Missing Follow-up Reports*

14 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, 2017-18 School Year

Girls Lacrosse Participation	2,900
All Girls Lacrosse Head Injuries	57
Girls Lacrosse Head Injury Prevalence Rate	1.97%
Girls Lacrosse Head Injury Prevalence Rate Per Thousand Participants	20

Table 18.2 Girls Lacrosse Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	37	64.9%
Junior Varsity	19	33.3%
Freshman	1	1.8%
TOTAL	57	100.0%

Table 18.3 Girls Lacrosse Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	16	28.1%
Competition	41	71.9%
TOTAL	57	100.0%

Table 18.4 Girls Lacrosse Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	2	12.5%
Middle of practice	10	62.5%
End of practice	4	25.0%
PRACTICE TOTAL	16	100.0%
Start of competition	7	17.1%
Middle of competition	13	31.7%
End of competition	21	51.2%
COMPETITION TOTAL	41	100.0%

Table 18.5 Activity Type for Girls Lacrosse Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	12	75.0%
During simulated competition-scrimmage	4	25.0%
Not specified	0	0.0%
TOTAL	16	100.0%

Table 18.6 Girls Lacrosse Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	3	5.3%
Person to object contact (e.g. wall, equipment)	46	80.7%
Person to playing surface contact	7	12.3%
Uncertain as to the cause of the event	1	1.8%
TOTAL	57	100.0%

Table 18.7 Person to Playing Surface Contact Girls Lacrosse Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Artificial turf	6	85.7%
Natural grass	1	14.3%
TOTAL	7	14.3%

Table 18.8 Girls Lacrosse Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	34	59.6%
Coach	6	10.5%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	4	7.0%
DO	0	0.0%
MD	2	3.5%
PA	0	0.0%
NP	0	0.0%
Athletic director	1	1.8%
Multiple examiners	10	17.5%
TOTAL	57	100.0%

Table 18.9 Girls Lacrosse Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	46	80.7%
Not removed*	11	19.3%
TOTAL	57	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	15	26.3%
No reported previous concussions	42	73.7%
TOTAL	57	100.0%

Table 18.11 Most Recent Concussion for Girls Lacrosse Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	1	6.7%
Within one to six months	2	13.3%
Within six months to one year	7	46.7%
Over one year	5	33.3%
TOTAL	15	100.0%

Table 18.12 Number of Previous Concussions for Girls Lacrosse Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	9	60.0%
2 concussions	4	26.7%
3 concussions	2	13.3%
≥4 concussions	0	0.0%
Not specified	0	0.0%
TOTAL	15	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	44	77.2%
Did not receive written authorization to return by the end of season	10	17.5%
Follow-up Report not completed	3	5.3%
TOTAL	57	100.0%

Table 18.14 Girls Lacrosse Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	26	45.6%
DO	6	10.5%
PA	3	5.3%
NP	9	15.8%
Medical examiner data not available*	13	22.8%
TOTAL	57	100.0%

Table 18.15 Girls Lacrosse Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	3	5.3%
Primary care physician or pediatrician's office	30	52.6%
Neurologist's office	7	12.3%
Team doctor	4	7.0%
Medical facility data not available*	13	22.8%
TOTAL	57	100.0%

Table 18.16 Girls Lacrosse Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	39	68.4%
Conditions to return	5	8.8%
Return to activity data not available*	13	22.8%
TOTAL	57	100.0%

Table 18.17 Girls Lacrosse Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	29	50.9%
1-2 Days	12	21.1%
3-6 Days	3	5.3%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	13	22.8%
TOTAL	57	100.0%

Table 18.18 Girls Lacrosse Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	3	5.3%
3-5 Days	5	8.8%
6-10 Days	7	12.3%
11-15 Days	15	26.3%
16-20 Days	5	8.8%
≥21 Days	9	15.8%
Data not available**	13	22.8%
TOTAL	57	100.0%

3 Missing Follow-up Reports*

10 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, 2017-18 School Year

Boys Skiing Participation	831
All Reported Boys Skiing Head Injuries	5
Boys Skiing Head Injury Prevalence Rate	0.60%
Boys Skiing Head Injury Prevalence Rate Per Thousand Participants	6

Table 19.2 Boys Skiing Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	3	60.0%
Junior Varsity	1	20.0%
Freshman	1	20.0%
TOTAL	5	100.0%

Table 19.3 Boys Skiing Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	4	80.0%
Competition	1	20.0%
TOTAL	5	100.0%

Table 19.4 Boys Skiing Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	0	0.0%
Middle of practice	4	100.0%
End of practice	0	0.0%
PRACTICE TOTAL	4	100.0%
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	1	100.0%
COMPETITION TOTAL	1	100.0%

Table 19.5 Activity Type for Boys Skiing Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	1	25.0%
During simulated competition-scrimmage	1	25.0%
Not specified	2	50.0%
TOTAL	4	100.0%

Table 19.6 Boys Skiing Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 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	5	100.0%
Uncertain as to the cause of the event	0	0.0%
TOTAL	5	100.0%

Table 19.7 Person to Playing Surface Contact Boys Skiing Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Snow/ice covered ground	5	100.0%
TOTAL	5	100.0%

Table 19.8 Boys Skiing Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	0	0.0%
Coach	3	60.0%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	1	20.0%
DO	0	0.0%
MD	1	20.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	0	0.0%
TOTAL	5	100.0%

Table 19.9 Boys Skiing Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	5	100.0%
Not removed*	0	0.0%
TOTAL	5	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	5	100.0%
TOTAL	5	100.0%

Table 19.11 Most Recent Concussion for Boys Skiing Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 19.12 Number of Previous Concussions for Boys Skiing Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	4	80.0%
Did not receive written authorization to return by the end of season	1	20.0%
Follow-up Report not completed	0	0.0%
TOTAL	5	100.0%

Table 19.14 Boys Skiing Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	4	80.0%
DO	0	0.0%
PA	0	0.0%
NP	0	0.0%
Medical examiner data not available*	1	20.0%
TOTAL	5	100.0%

Table 19.15 Boys Skiing Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	4	80.0%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	1	20.0%
TOTAL	5	100.0%

Table 19.16 Boys Skiing Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	4	80.0%
Conditions to return	0	0.0%
Return to activity data not available*	1	20.0%
TOTAL	5	100.0%

Table 19.17 Boys Skiing Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	1	20.0%
1-2 Days	3	60.0%
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	20.0%
TOTAL	5	100.0%

Table 19.18 Boys Skiing Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

Time Between Head Injury Event and Authorization Date to Return for Boys Skiing Head Injuries

	n	%
1-2 Days	0	0.0%
3-5 Days	0	0.0%
6-10 Days	1	20.0%
11-15 Days	2	40.0%
16-20 Days	0	0.0%
≥21 Days	1	20.0%
Data not available**	1	20.0%
TOTAL	5	100.0%

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**

XX. Girls Skiing Head Injury Reports

Table 20.1 Head Injury Prevalence Rate for Girls Skiing, MHSAA Head Injury Reporting System, 2017-18 School Year

Girls Skiing Participation	767
All Reported Girls Skiing Head Injuries	1
Girls Skiing Head Injury Prevalence Rate	0.13%
Girls Skiing Head Injury Prevalence Rate Per Thousand Participants	1

Table 20.2 Girls Skiing Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	1	100.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
TOTAL	1	100.0%

Table 20.3 Girls Skiing Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	1	100.0%
Competition	0	0.0%
TOTAL	1	100.0%

Table 20.4 Girls Skiing Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	0	0.0%
Middle of practice	1	100.0%
End of practice	0	0.0%
PRACTICE TOTAL	1	100.0%
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	0	0.0%
COMPETITION TOTAL	0	0.0%

Table 20.5 Activity Type for Girls Skiing Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 20.6 Girls Skiing Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 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	1	100.0%
Uncertain as to the cause of the event	0	0.0%
TOTAL	1	100.0%

Table 20.7 Person to Playing Surface Contact Girls Skiing Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Snow/ice covered ground	1	100.0%
TOTAL	1	100.0%

Table 20.8 Girls Skiing Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

Table 20.9 Girls Skiing Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	1	100.0%
Not removed*	0	0.0%
TOTAL	1	100.0%

*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, 2017-18 School Year

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

Table 20.11 Most Recent Concussion for Girls Skiing Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 20.12 Number of Previous Concussions for Girls Skiing Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 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%
TOTAL	1	100.0%

Table 20.14 Girls Skiing Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

Table 20.15 Girls Skiing Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

Table 20.16 Girls Skiing Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 20.17 Girls Skiing Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

Table 20.18 Girls Skiing Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

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**

XXI. Boys Soccer Head Injury Reports

Table 21.1 Head Injury Prevalence Rate for Boys Soccer, MHSAA Head Injury Reporting System, 2017-18 School Year

Boys Soccer Participation	14,619
All Reported Boys Soccer Head Injuries	169
Boys Soccer Head Injury Prevalence Rate	1.16%
Boys Soccer Head Injury Prevalence Rate Per Thousand Participants	12

Table 21.2 Boys Soccer Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	125	74.0%
Junior Varsity	40	23.7%
Freshman	4	2.4%
TOTAL	169	100.0%

Table 21.3 Boys Soccer Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	24	14.2%
Competition	145	85.8%
TOTAL	169	100.0%

Table 21.4 Boys Soccer Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	3	12.5%
Middle of practice	8	33.3%
End of practice	13	54.2%
PRACTICE TOTAL	24	100.0%
Start of competition	15	10.3%
Middle of competition	90	62.1%
End of competition	40	27.6%
COMPETITION TOTAL	145	100.0%

Table 21.5 Activity Type for Boys Soccer Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	17	70.8%
During simulated competition-scrimmage	7	29.2%
Not specified	0	0.0%
TOTAL	24	100.0%

Table 21.6 Boys Soccer Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	81	47.9%
Person to object contact (e.g. wall, equipment)	52	30.8%
Person to playing surface contact	25	14.8%
Uncertain as to the cause of the event	11	6.5%
TOTAL	169	100.0%

Table 21.7 Person to Playing Surface Contact Boys Soccer Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Natural grass	12	48.0%
Artificial turf	10	40.0%
Soccer field	3	12.0%
TOTAL	25	100.0%

Table 21.8 Boys Soccer Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	99	58.6%
Coach	35	20.7%
Sideline emergency personnel	2	1.2%
Other appropriate health care professional	1	0.6%
DO	2	1.2%
MD	3	1.8%
PA	0	0.0%
NP	1	0.6%
Athletic director	0	0.0%
Multiple examiners	26	15.4%
TOTAL	169	100.0%

Table 21.9 Boys Soccer Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	144	85.2%
Not removed*	25	14.8%
TOTAL	169	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	24	14.2%
No reported previous concussions	145	85.8%
TOTAL	169	100.0%

Table 21.11 Most Recent Concussion for Boys Soccer Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	1	4.2%
Within one to six months	0	0.0%
Within six months to one year	10	41.7%
Over one year	13	54.2%
TOTAL	24	100.0%

Table 21.12 Number of Previous Concussions for Boys Soccer Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	18	75.0%
2 concussions	4	16.7%
3 concussions	1	4.2%
≥4 concussions	0	0.0%
Not specified	1	4.2%
TOTAL	24	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	137	81.1%
Did not receive written authorization to return by the end of season	26	15.4%
Follow-up Report not completed	6	3.6%
TOTAL	169	100.0%

Table 21.14 Boys Soccer Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	95	56.2%
DO	25	14.8%
PA	10	5.9%
NP	7	4.1%
Medical examiner data not available*	32	18.9%
TOTAL	169	100.0%

Table 21.15 Boys Soccer Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	5	3.0%
Urgent or Ready Care business	9	5.3%
Primary care physician or pediatrician's office	93	55.0%
Neurologist's office	16	9.5%
Team doctor	14	8.3%
Medical facility data not available*	32	18.9%
TOTAL	169	100.0%

Table 21.16 Boys Soccer Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	109	64.5%
Conditions to return	28	16.6%
Return to activity data not available*	32	18.9%
TOTAL	169	100.0%

Table 21.17 Boys Soccer Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	92	54.4%
1-2 Days	30	17.8%
3-6 Days	9	5.3%
7-9 Days	2	1.2%
10-20 Days	3	1.8%
≥21 Days	1	0.6%
Missed school data not available*	32	18.9%
TOTAL	169	100.0%

Table 21.18 Boys Soccer Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	12	7.1%
3-5 Days	18	10.7%
6-10 Days	43	25.4%
11-15 Days	39	23.1%
16-20 Days	11	6.5%
≥21 Days	9	5.3%
Data not available**	37	21.9%
TOTAL	169	100.0%

6 Missing Follow-up Reports*

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

5 Data entry errors**

XXII. Girls Soccer Head Injury Reports

Table 22.1 Head Injury Prevalence Rate for Girls Soccer, MHSAA Head Injury Reporting System, 2017-18 School Year

Girls Soccer Participation	13,216
All Girls Soccer Head Injuries	329
Girls Soccer Head Injury Prevalence Rate	2.49%
Girls Soccer Head Injury Prevalence Rate Per Thousand Participants	25

Table 22.2 Girls Soccer Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	210	63.8%
Junior Varsity	105	31.9%
Freshman	14	4.3%
TOTAL	329	100.0%

Table 22.3 Girls Soccer Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	47	14.3%
Competition	282	85.7%
TOTAL	329	100.0%

Table 22.4 Girls Soccer Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	4	8.5%
Middle of practice	25	53.2%
End of practice	18	38.3%
PRACTICE TOTAL	47	100.0%
Start of competition	25	8.9%
Middle of competition	165	58.5%
End of competition	92	32.6%
COMPETITION TOTAL	282	100.0%

Table 22.5 Activity Type for Girls Soccer Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	31	66.0%
During simulated competition-scrimmage	16	34.0%
Not specified	0	0.0%
TOTAL	47	100.0%

Table 22.6 Girls Soccer Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	108	32.8%
Person to object contact (e.g. wall, equipment)	143	43.5%
Person to playing surface contact	46	14.0%
Uncertain as to the cause of the event	32	9.7%
TOTAL	329	100.0%

Table 22.7 Person to Playing Surface Contact Girls Soccer Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Natural grass	26	56.5%
Artificial turf	17	37.0%
Soccer field	2	4.3%
Unknown	1	2.2%
TOTAL	46	100.0%

Table 22.8 Girls Soccer Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	173	52.6%
Coach	86	26.1%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	5	1.5%
DO	0	0.0%
MD	5	1.5%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	60	18.2%
TOTAL	329	100.0%

Table 22.9 Girls Soccer Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	262	79.6%
Not removed*	67	20.4%
TOTAL	329	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	70	21.3%
No reported previous concussions	259	78.7%
TOTAL	329	100.0%

Table 22.11 Most Recent Concussion for Girls Soccer Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	3	4.3%
Within one to six months	6	8.6%
Within six months to one year	22	31.4%
Over one year	39	55.7%
TOTAL	70	100.0%

Table 22.12 Number of Previous Concussions for Girls Soccer Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	51	72.9%
2 concussions	13	18.6%
3 concussions	3	4.3%
≥4 concussions	3	4.3%
Not specified	0	0.0%
TOTAL	70	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	242	73.6%
Did not receive written authorization to return by the end of season	58	17.6%
Follow-up Report not completed	29	8.8%
TOTAL	329	100.0%

Table 22.14 Girls Soccer Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	152	46.2%
DO	36	10.9%
PA	24	7.3%
NP	30	9.1%
Medical examiner data not available*	87	26.4%
TOTAL	329	100.0%

Table 22.15 Girls Soccer Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	11	3.3%
Urgent or Ready Care business	14	4.3%
Primary care physician or pediatrician's office	171	52.0%
Neurologist's office	23	7.0%
Team doctor	23	7.0%
Medical facility data not available*	87	26.4%
TOTAL	329	100.0%

Table 22.16 Girls Soccer Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	203	61.7%
Conditions to return	39	11.9%
Return to activity data not available*	87	26.4%
TOTAL	329	100.0%

Table 22.17 Girls Soccer Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	125	38.0%
1-2 Days	94	28.6%
3-6 Days	16	4.9%
7-9 Days	1	0.3%
10-20 Days	6	1.8%
≥21 Days	0	0.0%
Missed school data not available*	87	26.4%
TOTAL	329	100.0%

Table 22.18 Girls Soccer Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	12	3.6%
3-5 Days	23	7.0%
6-10 Days	74	22.5%
11-15 Days	63	19.1%
16-20 Days	29	8.8%
≥21 Days	35	10.6%
Data not available**	93	28.3%
TOTAL	329	100.0%

29 Missing Follow-up Reports*

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

6 Data entry errors**

XXIII. Softball Head Injury Reports

Table 23.1 Head Injury Prevalence Rate for Softball, MHSAA Head Injury Reporting System, 2017-18 School Year

Softball Participation	13,610
All Softball Head Injuries	101
Softball Head Injury Prevalence Rate	0.74%
Softball Head Injury Prevalence Rate Per Thousand Participants	7

Table 23.2 Softball Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	66	65.3%
Junior Varsity	34	33.7%
Freshman	1	1.0%
TOTAL	101	100.0%

Table 23.3 Softball Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	41	40.6%
Competition	60	59.4%
TOTAL	101	100.0%

Table 23.4 Softball Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	11	26.8%
Middle of practice	19	46.3%
End of practice	11	26.8%
PRACTICE TOTAL	41	100.0%
Start of competition	13	21.7%
Middle of competition	30	50.0%
End of competition	17	28.3%
COMPETITION TOTAL	60	100.0%

Table 23.5 Activity Type for Softball Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	38	92.7%
During simulated competition-scrimmage	3	7.3%
Not specified	0	0.0%
TOTAL	41	100.0%

Table 23.6 Softball Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	17	16.8%
Person to object contact (e.g. wall, equipment)	71	70.3%
Person to playing surface contact	10	9.9%
Uncertain as to the cause of the event	3	3.0%
TOTAL	101	100.0%

Table 23.7 Person to Playing Surface Contact Softball Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Natural grass	6	60.0%
Dirt infield	2	20.0%
Wooden gym floor	1	10.0%
Mat	1	10.0%
TOTAL	10	100.0%

Table 23.8 Softball Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	37	36.6%
Coach	33	32.7%
Sideline emergency personnel	1	1.0%
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	30	29.7%
TOTAL	101	100.0%

Table 23.9 Softball Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	90	89.1%
Not removed*	11	10.9%
TOTAL	101	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	10	9.9%
No reported previous concussions	91	90.1%
TOTAL	101	100.0%

Table 23.11 Most Recent Concussion for Softball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	0	0.0%
Within one to six months	0	0.0%
Within six months to one year	3	30.0%
Over one year	7	70.0%
TOTAL	10	100.0%

Table 23.12 Number of Previous Concussions for Softball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	10	100.0%
2 concussions	0	0.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
TOTAL	10	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	80	79.2%
Did not receive written authorization to return by the end of season	7	6.9%
Follow-up Report not completed	14	13.9%
TOTAL	101	100.0%

Table 23.14 Softball Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	52	51.5%
DO	13	12.9%
PA	11	10.9%
NP	4	4.0%
Medical examiner data not available*	21	20.8%
TOTAL	101	100.0%

Table 23.15 Softball Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	8	7.9%
Urgent or Ready Care business	4	4.0%
Primary care physician or pediatrician's office	56	55.4%
Neurologist's office	4	4.0%
Team doctor	8	7.9%
Medical facility data not available*	21	20.8%
TOTAL	101	100.0%

Table 23.16 Softball Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	62	61.4%
Conditions to return	18	17.8%
Return to activity data not available*	21	20.8%
TOTAL	101	100.0%

Table 23.17 Softball Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	37	36.6%
1-2 Days	32	31.7%
3-6 Days	9	8.9%
7-9 Days	2	2.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	21	20.8%
TOTAL	101	100.0%

Table 23.18 Softball Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	0	0.0%
3-5 Days	15	14.9%
6-10 Days	29	28.7%
11-15 Days	14	13.9%
16-20 Days	11	10.9%
≥21 Days	11	10.9%
Data not available**	21	20.8%
TOTAL	101	100.0%

14 Missing Follow-up Reports*

7 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, 2017-18 School Year

Boys Swimming & Diving Participation	5,098
All Reported Boys Swimming & Diving Head Injuries	14
Boys Swimming & Diving Head Injury Prevalence Rate	0.27%
Boys Swimming & Diving Head Injury Prevalence Rate Per Thousand Participants	3

Table 24.2 Boys Swimming & Diving Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	14	100.0%
Junior Varsity	0	0.0%
Freshman	0	0.0%
TOTAL	14	100.0%

Table 24.3 Boys Swimming & Diving Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	11	78.6%
Competition	3	21.4%
TOTAL	14	100.0%

Table 24.4 Boys Swimming & Diving Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	1	9.1%
Middle of practice	6	54.5%
End of practice	4	36.4%
PRACTICE TOTAL	11	100.0%
Start of competition	2	66.7%
Middle of competition	1	33.3%
End of competition	0	0.0%
COMPETITION TOTAL	3	100.0%

Table 24.5 Activity Type for Boys Swimming & Diving Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	11	100.0%
During simulated competition-scrimmage	0	0.0%
Not specified	0	0.0%
TOTAL	11	100.0%

Table 24.6 Boys Swimming & Diving Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	4	28.6%
Person to object contact (e.g. wall, equipment)	4	28.6%
Person to playing surface contact	4	28.6%
Uncertain as to the cause of the event	2	14.3%
TOTAL	14	100.0%

Table 24.7 Person to Playing Surface Contact Boys Swimming & Diving Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Water	4	100.0%
TOTAL	4	100.0%

Table 24.8 Boys Swimming & Diving Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	8	57.1%
Coach	4	28.6%
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	1	7.1%
Athletic director	0	0.0%
Multiple examiners	1	7.1%
TOTAL	14	100.0%

Table 24.9 Boys Swimming & Diving Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	11	78.6%
Not removed*	3	21.4%
TOTAL	14	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	0	0.0%
No reported previous concussions	14	100.0%
TOTAL	14	100.0%

Table 24.11 Most Recent Concussion for Boys Swimming & Diving Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

Table 24.12 Number of Previous Concussions for Boys Swimming & Diving Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	0	0.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	13	92.9%
Did not receive written authorization to return by the end of season	1	7.1%
Follow-up Report not completed	0	0.0%
TOTAL	14	100.0%

Table 24.14 Boys Swimming & Diving Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	7	50.0%
DO	3	21.4%
PA	2	14.3%
NP	1	7.1%
Medical examiner data not available*	1	7.1%
TOTAL	14	100.0%

Table 24.15 Boys Swimming & Diving Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	2	14.3%
Primary care physician or pediatrician's office	9	64.3%
Neurologist's office	1	7.1%
Team doctor	1	7.1%
Medical facility data not available*	1	7.1%
TOTAL	14	100.0%

Table 24.16 Boys Swimming & Diving Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	9	64.3%
Conditions to return	4	28.6%
Return to activity data not available*	1	7.1%
TOTAL	14	100.0%

Table 24.17 Boys Swimming & Diving Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	12	85.7%
1-2 Days	1	7.1%
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	7.1%
TOTAL	14	100.0%

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, 2017-18 School Year

	n	%
1-2 Days	0	0.0%
3-5 Days	2	14.3%
6-10 Days	5	35.7%
11-15 Days	3	21.4%
16-20 Days	0	0.0%
≥21 Days	3	21.4%
Data not available**	1	7.1%
TOTAL	14	100.0%

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**

XXV. Girls Swimming & Diving Head Injury Reports

Table 25.1 Head Injury Prevalence Rate for Girls Swimming & Diving, MHSAA Head Injury Reporting System, 2017-18 School Year

Girls Swimming & Diving Participation	5,732
All Reported Girls Swimming & Diving Head Injuries	25
Girls Swimming & Diving Head Injury Prevalence Rate	0.44%
Girls Swimming & Diving Head Injury Prevalence Rate Per Thousand Participants	4

Table 25.2 Girls Swimming & Diving Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	22	88.0%
Junior Varsity	1	4.0%
Freshman	2	8.0%
TOTAL	25	100.0%

Table 25.3 Girls Swimming & Diving Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	21	84.0%
Competition	4	16.0%
TOTAL	25	100.0%

Table 25.4 Girls Swimming & Diving Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	2	8.0%
Middle of practice	14	56.0%
End of practice	5	20.0%
PRACTICE TOTAL	21	84.0%
Start of competition	3	75.0%
Middle of competition	1	25.0%
End of competition	0	0.0%
COMPETITION TOTAL	4	100.0%

Table 25.5 Activity Type for Girls Swimming & Diving Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	20	95.2%
During simulated competition-scrimmage	1	4.8%
Not specified	0	0.0%
TOTAL	21	100.0%

Table 25.6 Girls Swimming & Diving Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	6	24.0%
Person to object contact (e.g. wall, equipment)	14	56.0%
Person to playing surface contact	3	12.0%
Uncertain as to the cause of the event	2	8.0%
TOTAL	25	100.0%

Table 25.7 Person to Playing Surface Contact Girls Swimming & Diving Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Water	3	100.0%
TOTAL	3	0.0%

Table 25.8 Girls Swimming & Diving Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	4	16.0%
Coach	17	68.0%
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	16.0%
TOTAL	25	100.0%

Table 25.9 Girls Swimming & Diving Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	19	76.0%
Not removed*	6	24.0%
TOTAL	25	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	2	8.0%
No reported previous concussions	23	92.0%
TOTAL	25	100.0%

Table 25.11 Most Recent Concussion for Girls Swimming & Diving Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	2	100.0%

Table 25.12 Number of Previous Concussions for Girls Swimming & Diving Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

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

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	21	84.0%
Did not receive written authorization to return by the end of season	3	12.0%
Follow-up Report not completed	1	4.0%
TOTAL	25	100.0%

Table 25.14 Girls Swimming & Diving Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	14	56.0%
DO	5	20.0%
PA	0	0.0%
NP	2	8.0%
Medical examiner data not available*	4	16.0%
TOTAL	25	100.0%

Table 25.15 Girls Swimming & Diving Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	2	8.0%
Primary care physician or pediatrician's office	15	60.0%
Neurologist's office	2	8.0%
Team doctor	2	8.0%
Medical facility data not available*	4	16.0%
TOTAL	25	100.0%

Table 25.16 Girls Swimming & Diving Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	17	68.0%
Conditions to return	4	16.0%
Return to activity data not available*	4	16.0%
TOTAL	25	100.0%

Table 25.17 Girls Swimming & Diving Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	12	48.0%
1-2 Days	8	32.0%
3-6 Days	1	4.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	4	16.0%
TOTAL	25	100.0%

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, 2017-18 School Year

	n	%
1-2 Days	1	4.0%
3-5 Days	2	8.0%
6-10 Days	5	20.0%
11-15 Days	5	20.0%
16-20 Days	3	12.0%
≥21 Days	5	20.0%
Data not available**	4	16.0%
TOTAL	25	100.0%

1 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**

XXVI. Boys Tennis Head Injury Reports

Table 26.1 Head Injury Prevalence Rate for Boys Tennis, MHSAA Head Injury Reporting System, 2017-18 School Year

Boys Tennis Participation	6,165
All Reported Boys Tennis Head Injuries	3
Boys Tennis Head Injury Prevalence Rate	0.05%
Boys Tennis Head Injury Prevalence Rate Per Thousand Participants	0

Table 26.2 Boys Tennis Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	2	66.7%
Junior Varsity	1	33.3%
Freshman	0	0.0%
TOTAL	3	100.0%

Table 26.3 Boys Tennis Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	1	33.3%
Competition	2	66.7%
TOTAL	3	100.0%

Table 26.4 Boys Tennis Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	1	33.3%
Middle of practice	0	0.0%
End of practice	0	0.0%
PRACTICE TOTAL	1	33.3%
Start of competition	0	0.0%
Middle of competition	0	0.0%
End of competition	2	100.0%
COMPETITION TOTAL	2	100.0%

Table 26.5 Activity Type for Boys Tennis Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 26.6 Boys Tennis Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	2	66.7%
Person to playing surface contact	1	33.3%
Uncertain as to the cause of the event	0	0.0%
TOTAL	3	100.0%

Table 26.7 Person to Playing Surface Contact Boys Tennis Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Tennis court	1	100.0%
TOTAL	1	100.0%

Table 26.8 Boys Tennis Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 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	3	100.0%
TOTAL	3	100.0%

Table 26.9 Boys Tennis Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	3	100.0%
Not removed*	0	0.0%
TOTAL	3	100.0%

*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, 2017-18 School Year

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

Table 26.11 Most Recent Concussion for Boys Tennis Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

Table 26.12 Number of Previous Concussions for Boys Tennis Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	0	0.0%
2 concussions	1	100.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
TOTAL	1	100.0%

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, 2017-18 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%
TOTAL	3	100.0%

Table 26.14 Boys Tennis Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 26.15 Boys Tennis Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	1	33.3%
Neurologist's office	2	66.7%
Team doctor	0	0.0%
Medical facility data not available*	0	0.0%
TOTAL	3	100.0%

Table 26.16 Boys Tennis Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 26.17 Boys Tennis Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	2	66.7%
1-2 Days	0	0.0%
3-6 Days	1	33.3%
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%
TOTAL	3	100.0%

Table 26.18 Boys Tennis Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

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

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**

XXVII. Girls Tennis Head Injury Reports

Table 27.1 Head Injury Prevalence Rate for Girls Tennis, MHSAA Head Injury Reporting System, 2017-18 School Year

Girls Tennis Participation	9,123
All Girls Tennis Head Injuries	7
Girls Tennis Head Injury Prevalence Rate	0.08%
Girls Tennis Head Injury Prevalence Rate Per Thousand Participants	1

Table 27.2 Girls Tennis Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	4	57.1%
Junior Varsity	2	28.6%
Freshman	1	14.3%
TOTAL	7	100.0%

Table 27.3 Girls Tennis Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	4	57.1%
Competition	3	42.9%
TOTAL	7	100.0%

Table 27.4 Girls Tennis Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	1	25.0%
Middle of practice	2	50.0%
End of practice	1	25.0%
PRACTICE TOTAL	4	100.0%
Start of competition	1	33.3%
Middle of competition	0	0.0%
End of competition	2	66.7%
COMPETITION TOTAL	3	100.0%

Table 27.5 Activity Type for Girls Tennis Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	2	50.0%
During simulated competition-scrimmage	1	25.0%
Not specified	1	25.0%
TOTAL	4	100.0%

Table 27.6 Girls Tennis Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	0	0.0%
Person to object contact (e.g. wall, equipment)	7	100.0%
Person to playing surface contact	0	0.0%
Uncertain as to the cause of the event	0	0.0%
TOTAL	7	100.0%

Table 27.7 Person to Playing Surface Contact Girls Tennis Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Tennis court	0	0.0%
TOTAL	0	0.0%

Table 27.8 Girls Tennis Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	3	42.9%
Coach	2	28.6%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	1	14.3%
DO	0	0.0%
MD	0	0.0%
PA	0	0.0%
NP	0	0.0%
Athletic director	0	0.0%
Multiple examiners	1	14.3%
TOTAL	7	100.0%

Table 27.9 Girls Tennis Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	6	85.7%
Not removed*	1	14.3%
TOTAL	7	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	2	28.6%
No reported previous concussions	5	71.4%
TOTAL	7	100.0%

Table 27.11 Most Recent Concussion for Girls Tennis Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 27.12 Number of Previous Concussions for Girls Tennis Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

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

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	4	57.1%
Did not receive written authorization to return by the end of season	3	42.9%
Follow-up Report not completed	0	0.0%
TOTAL	7	100.0%

Table 27.14 Girls Tennis Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	1	14.3%
DO	2	28.6%
PA	0	0.0%
NP	1	14.3%
Medical examiner data not available*	3	42.9%
TOTAL	7	100.0%

Table 27.15 Girls Tennis Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	0	0.0%
Primary care physician or pediatrician's office	4	57.1%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	3	42.9%
TOTAL	7	100.0%

Table 27.16 Girls Tennis Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	3	42.9%
Conditions to return	1	14.3%
Return to activity data not available*	3	42.9%
TOTAL	7	100.0%

Table 27.17 Girls Tennis Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	2	28.6%
1-2 Days	2	28.6%
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	42.9%
TOTAL	7	100.0%

Table 27.18 Girls Tennis Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	0	0.0%
3-5 Days	1	14.3%
6-10 Days	1	14.3%
11-15 Days	1	14.3%
16-20 Days	1	14.3%
≥21 Days	0	0.0%
Data not available**	3	42.9%
TOTAL	7	100.0%

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**

**XXVIII. Boys Track & Field
Head Injury Reports**

Table 28.1 Head Injury Prevalence Rate for Boys Track & Field, MHSAA Head Injury Reporting System, 2017-18 School Year

Boys Track and Field Participation	23,580
All Boys Track and Field Head Injuries	9
Boys Track and Field Head Injury Prevalence Rate	0.04%
Boys Track and Field Head Injury Prevalence Rate Per Thousand Participants	0

Table 28.2 Boys Track & Field Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	6	66.7%
Junior Varsity	3	33.3%
Freshman	0	0.0%
TOTAL	9	100.0%

Table 28.3 Boys Track & Field Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	5	55.6%
Competition	4	44.4%
TOTAL	9	100.0%

Table 28.4 Boys Track & Field Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	1	20.0%
Middle of practice	2	40.0%
End of practice	2	40.0%
PRACTICE TOTAL	5	100.0%
Start of competition	1	25.0%
Middle of competition	1	25.0%
End of competition	2	50.0%
COMPETITION TOTAL	4	100.0%

Table 28.5 Activity Type for Boys Track & Field Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	3	60.0%
During simulated competition-scrimmage	0	0.0%
Not specified	2	40.0%
TOTAL	5	100.0%

Table 28.6 Boys Track & Field Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	2	22.2%
Person to object contact (e.g. wall, equipment)	3	33.3%
Person to playing surface contact	4	44.4%
Uncertain as to the cause of the event	0	0.0%
TOTAL	9	100.0%

Table 28.7 Person to Playing Surface Contact Boys Track & Field Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Track	4	100.0%
TOTAL	4	100.0%

Table 28.8 Boys Track & Field Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	2	22.2%
Coach	4	44.4%
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	3	33.3%
TOTAL	9	100.0%

Table 28.9 Boys Track & Field Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	8	88.9%
Not removed*	1	11.1%
TOTAL	9	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	1	11.1%
No reported previous concussions	8	88.9%
TOTAL	9	100.0%

Table 28.11 Most Recent Concussion for Boys Track & Field Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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	1	100.0%
TOTAL	1	100.0%

Table 28.12 Number of Previous Concussions for Boys Track & Field Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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%
TOTAL	1	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	6	66.7%
Did not receive written authorization to return by the end of season	2	22.2%
Follow-up Report not completed	1	11.1%
TOTAL	9	100.0%

Table 28.14 Boys Track & Field Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	3	33.3%
DO	2	22.2%
PA	1	11.1%
NP	0	0.0%
Medical examiner data not available*	3	33.3%
TOTAL	9	100.0%

Table 28.15 Boys Track & Field Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	0	0.0%
Urgent or Ready Care business	1	11.1%
Primary care physician or pediatrician's office	5	55.6%
Neurologist's office	0	0.0%
Team doctor	0	0.0%
Medical facility data not available*	3	33.3%
TOTAL	9	100.0%

Table 28.16 Boys Track & Field Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	6	66.7%
Conditions to return	0	0.0%
Return to activity data not available*	3	33.3%
TOTAL	9	100.0%

Table 28.17 Boys Track & Field Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	2	22.2%
1-2 Days	3	33.3%
3-6 Days	0	0.0%
7-9 Days	0	0.0%
10-20 Days	0	0.0%
≥21 Days	1	11.1%
Missed school data not available*	3	33.3%
TOTAL	9	100.0%

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, 2017-18 School Year

	n	%
1-2 Days	0	0.0%
3-5 Days	1	11.1%
6-10 Days	3	33.3%
11-15 Days	1	11.1%
16-20 Days	1	11.1%
≥21 Days	0	0.0%
Data not available**	3	33.3%
TOTAL	9	100.0%

1 Missing Follow-up Reports*

2 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, 2017-18 School Year

Girls Track and Field Participation	17,288
All Girls Track and Field Head Injuries	11
Girls Track and Field Head Injury Prevalence Rate	0.06%
Girls Track and Field Head Injury Prevalence Rate Per Thousand Participants	1

Table 29.2 Girls Track & Field Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	8	72.7%
Junior Varsity	3	27.3%
Freshman	0	0.0%
TOTAL	11	100.0%

Table 29.3 Girls Track & Field Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	7	63.6%
Competition	4	36.4%
TOTAL	11	100.0%

Table 29.4 Girls Track & Field Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	2	28.6%
Middle of practice	4	57.1%
End of practice	1	14.3%
PRACTICE TOTAL	7	100.0%
Start of competition	0	0.0%
Middle of competition	3	75.0%
End of competition	1	25.0%
COMPETITION TOTAL	4	100.0%

Table 29.5 Activity Type for Girls Track & Field Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

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

Table 29.6 Girls Track & Field Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	1	9.1%
Person to object contact (e.g. wall, equipment)	5	45.5%
Person to playing surface contact	5	45.5%
Uncertain as to the cause of the event	0	0.0%
TOTAL	11	100.0%

Table 29.7 Person to Playing Surface Contact Girls Track & Field Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Track	3	60.0%
Natural grass	2	40.0%
TOTAL	5	100.0%

Table 29.8 Girls Track & Field Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	8	72.7%
Coach	1	9.1%
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	2	18.2%
TOTAL	11	100.0%

Table 29.9 Girls Track & Field Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	9	81.8%
Not removed*	2	18.2%
TOTAL	11	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	1	9.1%
No reported previous concussions	10	90.9%
TOTAL	11	100.0%

Table 29.11 Most Recent Concussion for Girls Track & Field Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 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	1	100.0%
TOTAL	1	100.0%

Table 29.12 Number of Previous Concussions for Girls Track & Field Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	0	0.0%
2 concussions	1	100.0%
3 concussions	0	0.0%
≥4 concussions	0	0.0%
Not specified	0	0.0%
TOTAL	1	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	10	90.9%
Did not receive written authorization to return by the end of season	1	9.1%
Follow-up Report not completed	0	0.0%
TOTAL	11	100.0%

Table 29.14 Girls Track & Field Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	6	54.5%
DO	1	9.1%
PA	3	27.3%
NP	0	0.0%
Medical examiner data not available*	1	9.1%
TOTAL	11	100.0%

Table 29.15 Girls Track & Field Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	1	9.1%
Urgent or Ready Care business	2	18.2%
Primary care physician or pediatrician's office	6	54.5%
Neurologist's office	0	0.0%
Team doctor	1	9.1%
Medical facility data not available*	1	9.1%
TOTAL	11	100.0%

Table 29.16 Girls Track & Field Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	9	81.8%
Conditions to return	1	9.1%
Return to activity data not available*	1	9.1%
TOTAL	11	100.0%

Table 29.17 Girls Track & Field Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	5	45.5%
1-2 Days	3	27.3%
3-6 Days	1	9.1%
7-9 Days	0	0.0%
10-20 Days	1	9.1%
≥21 Days	0	0.0%
Missed school data not available*	1	9.1%
TOTAL	11	100.0%

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, 2017-18 School Year

	n	%
1-2 Days	0	0.0%
3-5 Days	1	9.1%
6-10 Days	4	36.4%
11-15 Days	4	36.4%
16-20 Days	0	0.0%
≥21 Days	1	9.1%
Data not available**	1	9.1%
TOTAL	11	100.0%

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**

XXX. Volleyball Head Injury Reports

Table 30.1 Head Injury Prevalence Rate for Volleyball, MHSAA Head Injury Reporting System, 2017-18 School Year

Volleyball Participation	19,416
All Reported Volleyball Head Injuries	175
Volleyball Head Injury Prevalence Rate	0.90%
Volleyball Head Injury Prevalence Rate Per Thousand Participants	9

Table 30.2 Volleyball Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	86	49.1%
Junior Varsity	51	29.1%
Freshman	38	21.7%
TOTAL	175	100.0%

Table 30.3 Volleyball Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	84	48.0%
Competition	91	52.0%
TOTAL	175	100.0%

Table 30.4 Volleyball Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	11	13.1%
Middle of practice	43	51.2%
End of practice	30	35.7%
PRACTICE TOTAL	84	100.0%
Start of competition	23	25.3%
Middle of competition	43	47.3%
End of competition	25	27.5%
COMPETITION TOTAL	91	100.0%

Table 30.5 Activity Type for Volleyball Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	64	76.2%
During simulated competition-scrimmage	19	22.6%
Not specified	1	1.2%
TOTAL	84	100.0%

Table 30.6 Volleyball Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	45	25.7%
Person to object contact (e.g. wall, equipment)	92	52.6%
Person to playing surface contact	31	17.7%
Uncertain as to the cause of the event	7	4.0%
TOTAL	175	100.0%

Table 30.7 Person to Playing Surface Contact Volleyball Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Wooded gym floor	24	77.4%
Volleyball court	0	0.0%
TOTAL	31	100.0%

Table 30.8 Volleyball Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	72	41.1%
Coach	54	30.9%
Sideline emergency personnel	0	0.0%
Other appropriate health care professional	1	0.6%
DO	0	0.0%
MD	2	1.1%
PA	1	0.6%
NP	0	0.0%
Athletic director	3	1.7%
Multiple examiners	42	24.0%
TOTAL	175	100.0%

Table 30.9 Volleyball Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	146	83.4%
Not removed*	29	16.6%
TOTAL	175	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	25	14.3%
No reported previous concussions	150	85.7%
TOTAL	175	100.0%

Table 30.11 Most Recent Concussion for Volleyball Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	2	8.0%
Within one to six months	5	20.0%
Within six months to one year	6	24.0%
Over one year	12	48.0%
TOTAL	25	100.0%

Table 30.12 Number of Previous Concussions for Volleyball Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	18	72.0%
2 concussions	5	20.0%
3 concussions	1	4.0%
≥4 concussions	1	4.0%
Not specified	0	0.0%
TOTAL	25	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	146	83.4%
Did not receive written authorization to return by the end of season	24	13.7%
Follow-up Report not completed	5	2.9%
TOTAL	175	100.0%

Table 30.14 Volleyball Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	85	48.6%
DO	27	15.4%
PA	20	11.4%
NP	14	8.0%
Medical examiner data not available*	29	16.6%
TOTAL	175	100.0%

Table 30.15 Volleyball Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	9	5.1%
Urgent or Ready Care business	3	1.7%
Primary care physician or pediatrician's office	108	61.7%
Neurologist's office	13	7.4%
Team doctor	13	7.4%
Medical facility data not available*	29	16.6%
TOTAL	175	100.0%

Table 30.16 Volleyball Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	121	69.1%
Conditions to return	25	14.3%
Return to activity data not available*	29	16.6%
TOTAL	175	100.0%

Table 30.17 Volleyball Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	93	53.1%
1-2 Days	37	21.1%
3-6 Days	12	6.9%
7-9 Days	0	0.0%
10-20 Days	4	2.3%
≥21 Days	0	0.0%
Missed school data not available*	29	16.6%
TOTAL	175	100.0%

Table 30.18 Volleyball Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	2	1.1%
3-5 Days	15	8.6%
6-10 Days	53	30.3%
11-15 Days	43	24.6%
16-20 Days	17	9.7%
≥21 Days	16	9.1%
Data not available**	29	16.6%
TOTAL	175	100.0%

5 Missing Follow-up Reports*

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

0 Data entry errors**

XXXI. Wrestling Head Injury Reports

Table 31.1 Head Injury Prevalence Rate for Wrestling, MHSAA Head Injury Reporting System, 2017-18 School Year

Wrestling Participation	9,397
All Reported Wrestling Head Injuries	234
Wrestling Head Injury Prevalence Rate	2.49%
Wrestling Head Injury Prevalence Rate Per Thousand Participants	25

Table 31.2 Wrestling Head Injuries by Gender, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Male	223	95.3%
Female	11	4.7%
TOTAL	234	100.0%

Table 31.3 Wrestling Head Injuries by Level of Competition, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Varsity	173	73.9%
Junior Varsity	58	24.8%
Freshman	3	1.3%
TOTAL	234	100.0%

Table 31.4 Wrestling Head Injuries by Type of Exposure, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Practice	114	48.7%
Competition	120	51.3%
TOTAL	234	100.0%

Table 31.5 Wrestling Head Injuries by Time during Practice or Competition of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Start of practice	11	9.6%
Middle of practice	53	46.5%
End of practice	50	43.9%
PRACTICE TOTAL	114	100.0%
Start of competition	18	15.0%
Middle of competition	60	50.0%
End of competition	42	35.0%
COMPETITION TOTAL	120	100.0%

Table 31.6 Activity Type for Wrestling Head Injury Events during Practice, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
During a drill	73	64.0%
During simulated competition-scrimmage	38	33.3%
Not specified	3	2.6%
TOTAL	114	100.0%

Table 31.7 Wrestling Head Injuries by Cause of Injury, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Person to person contact	80	34.2%
Person to object contact (e.g. wall, equipment)	18	7.7%
Person to playing surface contact	121	51.7%
Uncertain as to the cause of the event	15	6.4%
TOTAL	234	100.0%

Table 31.8 Person to Playing Surface Contact Wrestling Head Injuries by Surface Type, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Wrestling-type mat	121	100.0%
TOTAL	121	100.0%

Table 31.9 Wrestling Head Injuries by Initial Examiner, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Athletic trainer	143	61.1%
Coach	38	16.2%
Sideline emergency personnel	1	0.4%
Other appropriate health care professional	5	2.1%
DO	0	0.0%
MD	3	1.3%
PA	0	0.0%
NP	0	0.0%
Athletic director	2	0.9%
Multiple examiners	42	17.9%
TOTAL	234	100.0%

Table 31.10 Wrestling Athlete Removal from Activity at the Time of Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Removed	194	82.9%
Not removed*	40	17.1%
TOTAL	234	100.0%

*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, 2017-18 School Year

	n	%
Reported at least one previous concussion	44	18.8%
No reported previous concussions	190	81.2%
TOTAL	234	100.0%

Table 31.12 Most Recent Concussion for Wrestling Athletes Reporting Previous Concussions after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Within last month	3	6.8%
Within one to six months	5	11.4%
Within six months to one year	9	20.5%
Over one year	27	61.4%
TOTAL	44	100.0%

Table 31.13 Number of Previous Concussions for Wrestling Athletes Reporting Previous Concussion after Head Injury Event, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1 concussion	33	75.0%
2 concussions	5	11.4%
3 concussions	2	4.5%
≥4 concussions	4	9.1%
Not specified	0	0.0%
TOTAL	44	100.0%

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, 2017-18 School Year

	n	%
Received written authorization to return by the end of season	183	78.2%
Did not receive written authorization to return by the end of season	41	17.5%
Follow-up Report not completed	10	4.3%
TOTAL	234	100.0%

Table 31.15 Wrestling Head Injuries by Medical Examiner Authorizing Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
MD	107	45.7%
DO	35	15.0%
PA	19	8.1%
NP	22	9.4%
Medical examiner data not available*	51	21.8%
TOTAL	234	100.0%

Table 31.16 Wrestling Head Injuries by Facility where Medical Examiner Authorized Return to Activity, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Hospital	2	0.9%
Urgent or Ready Care business	11	4.7%
Primary care physician or pediatrician's office	139	59.4%
Neurologist's office	18	7.7%
Team doctor	13	5.6%
Medical facility data not available*	51	21.8%
TOTAL	234	100.0%

Table 31.17 Wrestling Head Injuries by Clearance to Return to Activity Conditions, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
Unconditional return	149	63.7%
Conditions to return	34	14.5%
Return to activity data not available*	51	21.8%
TOTAL	234	100.0%

Table 31.18 Wrestling Head Injuries by Missed School Days after Injury Event Date, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
0 Days	123	52.6%
1-2 Days	51	21.8%
3-6 Days	8	3.4%
7-9 Days	1	0.4%
10-20 Days	0	0.0%
≥21 Days	0	0.0%
Missed school data not available*	51	21.8%
TOTAL	234	100.0%

Table 31.19 Wrestling Head Injuries by Time between Head Injury Event Date and Authorization Date to Return, MHSAA Head Injury Reporting System, 2017-18 School Year

	n	%
1-2 Days	4	1.7%
3-5 Days	15	6.4%
6-10 Days	42	17.9%
11-15 Days	58	24.8%
16-20 Days	22	9.4%
≥21 Days	40	17.1%
Data not available**	53	22.6%
TOTAL	234	100.0%

10 Missing Follow-up Reports*

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

2 Data entry errors**

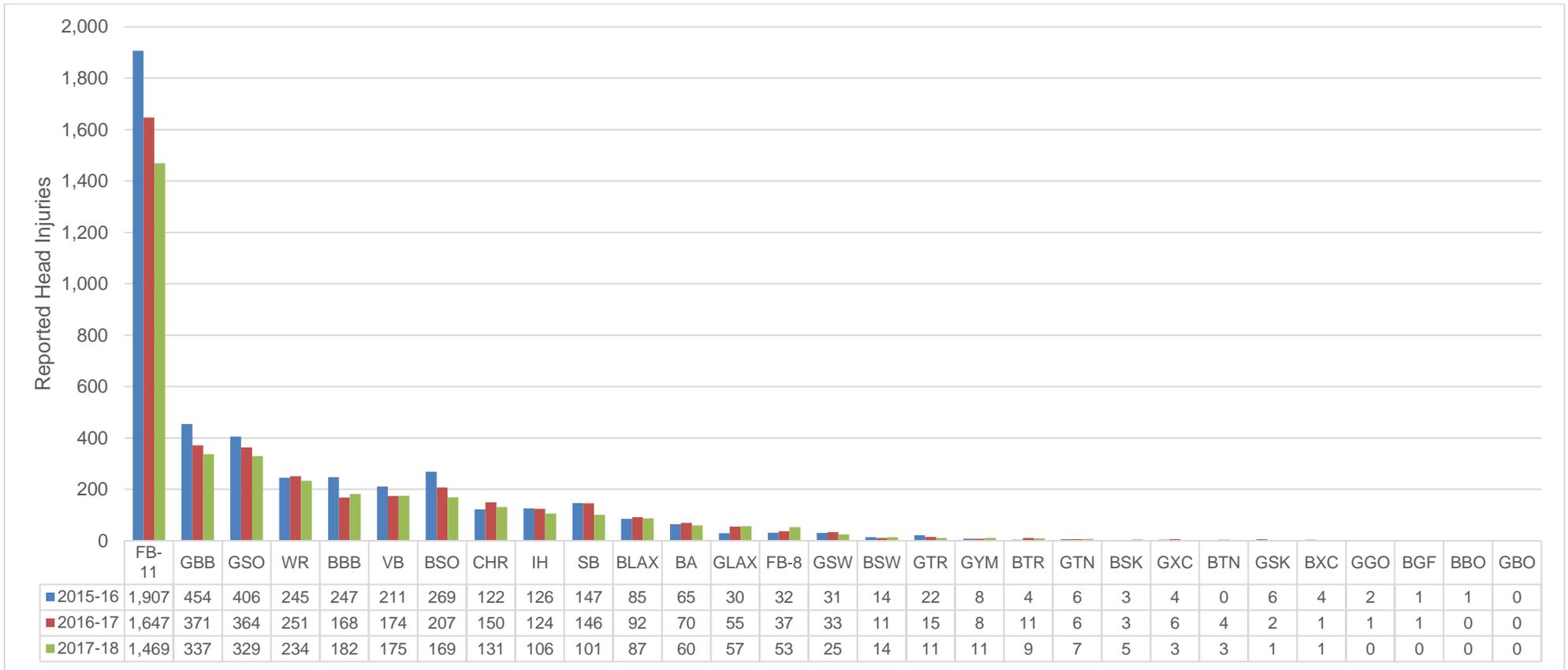
XXXII. Three Year Comparison

Table 32.1 Head Injury Reports by Sport and Year, MHSAA Head Injury Reporting System, 2017-18 School Year

SPORTS	Boys*			Girls		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Baseball	65	70	60	-	-	-
Basketball	247	168	182	454	371	337
Bowling	1	0	0	0	0	0
Competitive Cheer	-	-	-	122	150	131
Cross Country	4	1	1	4	6	3
Football - 11-Player	1,907	1,647	1,469	-	-	-
8-Player	32	37	53	-	-	-
Golf	1	1	0	2	1	0
Gymnastics	-	-	-	8	8	11
Ice Hockey	126	124	106	-	-	-
Lacrosse	85	92	87	30	55	57
Skiing-Alpine	3	3	5	6	2	1
Soccer	269	207	169	406	364	329
Softball	-	-	-	147	146	101
Swimming & Diving	14	11	14	31	33	25
Tennis	0	4	3	6	6	7
Track & Field	4	11	9	22	15	11
Volleyball	-	-	-	211	174	175
Wrestling	245	251	234	-	-	-

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

Figure 32.1 Head Injury Reports by Sport and Year, MHSAA Head Injury Reporting System, 2017-18 School Year



ABBREVIATIONS

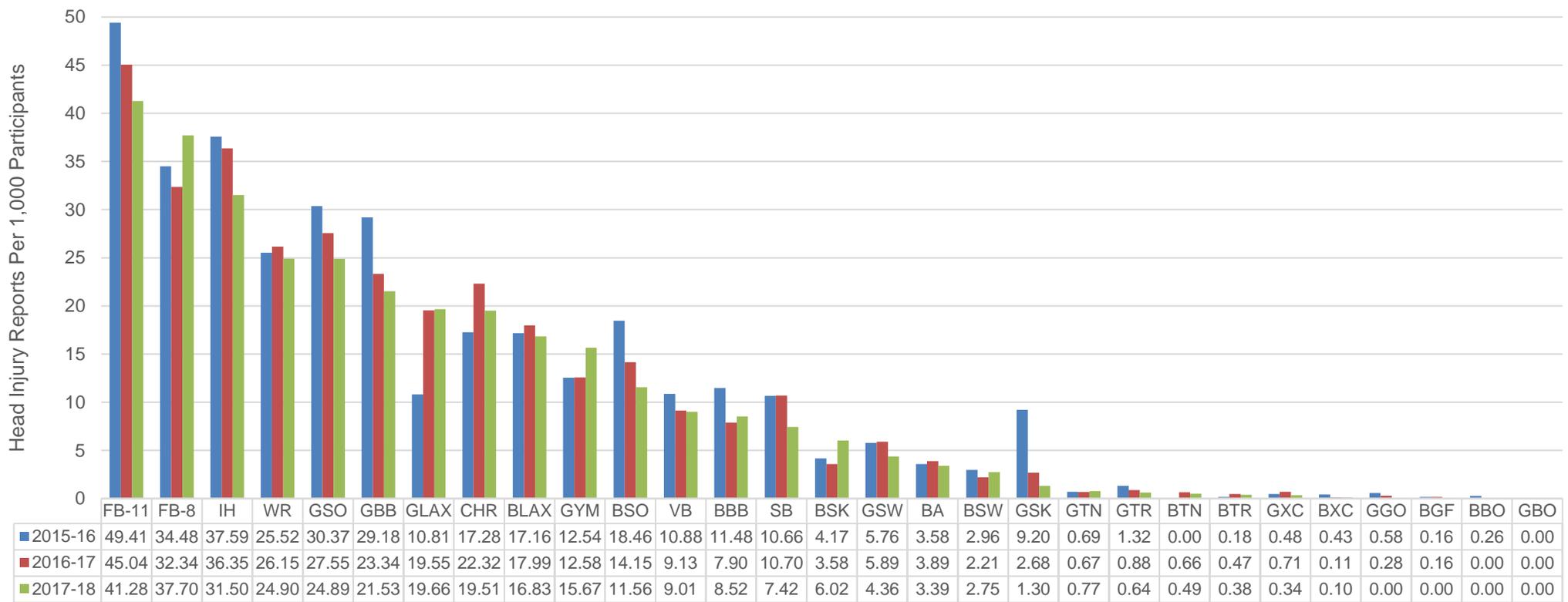
- | | | | | |
|--------------------------|------------------------------|-------------------------------|------------------------------|----------------------------|
| Baseball – BA | Boys Basketball – BBB | Girls Basketball – GBB | Boys Bowling – BBO | Girls Bowling – GBO |
| Competitive Cheer – CHR | 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 | |

**Table 32.2 Head Injury Reports per 1,000 Participants by Sport and Year,
MHSAA Head Injury Reporting System, 2017-18 School Year**

SPORTS	Boys*			Girls		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Baseball	3.58	3.89	3.39	-	-	-
Basketball	11.48	7.90	8.52	29.18	23.34	21.53
Bowling	0.26	0.00	0.00	0.00	0.00	0.00
Competitive Cheer	-	-	-	17.28	22.32	19.51
Cross Country	0.43	0.11	0.10	0.48	0.71	0.34
Football - 11-Player	49.41	45.04	41.28	-	-	-
8-Player	34.48	32.34	37.70	-	-	-
Golf	0.16	0.16	0.00	0.58	0.28	0.00
Gymnastics	-	-	-	12.54	12.58	15.67
Ice Hockey	37.59	36.35	31.50	-	-	-
Lacrosse	17.16	17.99	16.83	10.81	19.55	19.66
Skiing-Alpine	4.17	3.58	6.02	9.20	2.68	1.30
Soccer	18.46	14.15	11.56	30.37	27.55	24.89
Softball	-	-	-	10.66	10.70	7.42
Swimming & Diving	2.96	2.21	2.75	5.76	5.89	4.36
Tennis	0.00	0.66	0.49	0.69	0.67	0.77
Track & Field	0.18	0.47	0.38	1.32	0.88	0.64
Volleyball	-	-	-	10.88	9.13	9.01
Wrestling	25.52	26.15	24.90	-	-	-

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

Figure 32.2 Head Injury Reports per 1,000 Participants by Sport and Year, MHSAA Head Injury Reporting System, 2017-18 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 continued in 2017-18 and will continue in 2018-19.
- Concussion reporting was required for all MHSAA member high schools at practices and during competition in all levels of all MHSAA sports. That requirement continues.

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, 2016-17, and 2017-18 school years.

33.2 Ranking

SPORT	PARTICIPANTS	HEAD INJURY REPORTS	HEAD INJURY REPORTS PER THOUSAND PARTICIPANTS	HEAD INJURIES PER THOUSAND PARTICIPANTS RATE RANK OUT OF ALL MHSAA SPORTS
Football - 11 player	35,583	1,469	41	1
Football 8-player	1,406	53	38	2
Ice Hockey	3,365	106	32	3
Wrestling	9397	234	25	4
Girls Soccer	13,216	329	25	5
Girls Basketball	15,654	337	22	6
Girls Lacrosse	2,900	57	20	7
Competitive Cheer	6,715	131	20	8
Boys Lacrosse	5,168	87	17	9
Gymnastics	702	11	16	10
Boys Soccer	14,619	169	12	11
Volleyball	19,416	175	9	12
Boys Basketball	21,372	182	9	13
Softball	13,610	101	7	14
Boys Skiing	831	5	6	15
Girls Swimming & Diving	5,732	25	4	16
Baseball	17,675	60	3	17
Boys Swimming & Diving	5,098	14	3	18
Girls Skiing	767	1	1	19
Girls Tennis	9123	7	1	20
Girls Track & Field	17,288	11	1	21
Boys Tennis	6,165	3	0	22
Boys Track & Field	23,580	9	0	23
Girls Cross Country	8,696	3	0	24
Boys Cross Country	9,656	1	0	25
Boys Bowling	4,136	0	0	26
Boys Golf	6,267	0	0	26
Girls Bowling	3,058	0	0	26
Girls Golf	3,712	0	0	26

33.3 Key Observations of Year #3 (2017-18)

- During the 2017-18 school year, 4,217 suspected concussions were entered by MHSAA member high schools into the Head Injury Reporting System:
 - 37 duplicate reports were entered and subsequently deleted
 - 32 reports were not included because of entry error
 - 145 reports were for injury events that either took place out of season or in a non-MHSAA event (sideline cheerleading, club sport, gym class, car accident, etc.)
 - 344 reported head injuries were not diagnosed as concussions and not included in the 2017-18 Summary Report
 - 79 reports were middle school athletes participating in middle school athletic events – because middle school reporting is voluntary and remains low, middle school data was not included in the 2017-18 Summary Report

With the above deletions and exclusions, **3,580** head injury reports were included in the 2017-18 Summary Report.

- Overall head injury reports decreased for the second consecutive year – 3,580 concussion reports is down 9.6% from the 3,958 reports for 2016-17, and down 19.6% from the 4,452 reports for the 2015-16 school year. A number of factors may have contributed to the decrease in reports:
 - (1) Year to year fluctuation
 - (2) Refinement of the follow-up report (i.e. addition of the question regarding official diagnosis of the head injury as a concussion) after year one and continued refinement and communication with schools regarding the reporting process has led to increased exclusion of reports for injuries that did not occur during MHSAA sponsored activities, and head injuries not diagnosed as concussion
 - (3) Better understanding by schools of what needs to be reported
 - (4) Schools not reporting – a rare occurrence and often associated with transitions in administration
- With the decrease, obviously reports per 1,000 participants decreased slightly from 2016-17 to 2017-18 in most all sports. The most significant drops in sports with a reasonable sample size of reported head injuries were seen in Ice Hockey (from 36 per 1,000 in 2016-17 to 32 per 1,000 in 2017-18), 11-Player Football (from 45 to 41 per 1,000), and Softball (11 to 7 per 1,000). An increase in reports per 1,000 participants was observed in 8-Player Football (32 to 38 per 1,000), and Gymnastics (13 to 16 per 1,000).
- 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 – 25 per 1,000 (Ranks 5th)

Boys Soccer – 12 per 1,000 (Ranks 11th)

Girls Basketball – 22 per 1,000 (Ranks 6th)

Boys Basketball – 9 per 1,000 (Ranks 13th)

Softball – 7 per 1,000 (Ranks 14th)

Baseball – 3 per 1,000 (Ranks 17th)

- Combining data in all sports, nearly two-thirds of reported concussions occur during competition (65.1%). Looking at each sport individually, again about two-thirds of all reported concussions occur during competition with the exception of Volleyball (48.0% in practice; 52.0% in competition), Wrestling (48.7% in practice; 51.3% in competition), and Competitive Cheer (81.7% in practice; 18.3% in competition). Competitive Cheer was the only sport with a reasonably large sample size of head injury reports in which more concussions were sustained during practice.
- Of the 1,250 total reported head injuries occurring during practice, a large portion of those injuries (72.2%) were sustained while participating in a drill – only 24.8% occurring during simulated competition-scrimmage.
- 62.2% of all boys concussions occur as a result of person to person contact compared to 32.1% for girls. Primarily boys contact/collisions sports (i.e. football, ice hockey, boys lacrosse, and wrestling) likely skew this data, but if we look at sports sponsored under the same playing rules for both genders, person to person contact is the leading cause of concussions in both boys basketball and boys soccer, and the proportion of reports identifying person to person contact as mechanism of injury is higher for boys when compared to girls in the same sport:

Boys Basketball – 53.3%

Girls Basketball – 35.6%

Boys Soccer – 47.9%

Girls Soccer – 32.8%

- Combining data from the first three years, 75.4% of all concussions in girls lacrosse have been the result of person to object contact (e.g. wall, equipment, ball, stick), while 44.6% of all girls head injuries being the result of person to object contact over that same three year period. This data may contribute to the lively discussion of the use of helmets – required or voluntary – in girls lacrosse, but it does not inform us if more protection for the head would make the sport safer or more physical and injurious.
- The majority of injured athletes are initially examined by an athletic trainer (56.6%). That proportion is likely higher as 18.6% of athletes were reported as having been

initially looked at by multiple examiners. 19.1% were initially examined only by the coach.

- 16.5% of athletes determined to have a concussion were not removed from activity at the time of the injury. This is by no means an indication the injury was mismanaged at the time of the event; the athlete may not have reported the injury, symptoms may not have presented until after the event, or any number of different situations may have led to the athlete not being removed at the time of injury.
- 66.3% of injured athletes were authorized to return to activity by an MD or DO. 56.0% of athletes were cleared in a primary care physician or pediatrician's office.
- 69.3% of concussions caused athletes to be withheld from activity for 6 days or more, which suggests that a degree of caution is being exercised in most cases following removal from play. In football (both 11-Player and 8-Player combined), where games are usually spread 7 days apart, 76.0% of concussions caused athletes to be withheld from activity for 6 days or longer.
- Male vs female injury prevalence rates in 11-Player Football, Ice Hockey, Boys Lacrosse, and Wrestling if head injury and participation numbers are separated for calculations:

11-Player Football

5 reported athletes were female / 108 females participating
4.6% or 46 head injuries per 1,000 participants

1,464 reported athletes were male / 35,457 males participating
4.1% or 41 head injuries per 1,000 participants

Ice Hockey

0 reported athletes were female / 12 females participating
0% or 0 head injuries per 1,000 participants

106 reported athletes were male / 3,353 males participating
3.2% or 32 head injuries per 1,000 participants

Boys Lacrosse

3 reported athletes were female / 7 females participating
42.9% or 429 head injuries per 1,000 participants

84 reported athletes were male / 5,161 males participating
1.6% or 16 head injuries per 1,000 participants

Wrestling

11 reported athletes were female / 250 females participating
4.4% or 44 head injuries per 1,000 participants

223 reported athletes were male / 9,147 males participating
2.4% or 24 head injuries per 1,000 participants

- At the time of this summary, Online Follow-up Reports were not completed for 159 (4.44%) of the 3,580 reports.
- The MHSAA has received 1,679 Return to Activity and Post-Concussion Consent Forms (40.5% of the 4148 reported head injuries for which a clearance should have been received). This is a decrease from the 45.98% received last year. Of those 1,679 return to activity documents, 100 (or 5.96%) were returned to the school because there were either conditions from the medical examiner on clearance documentation or missing parent and/or student consent.
- In the Fall season, 190 schools did not report any concussions – 181 schools attested 0 concussions for the season – 9 did not submit any response
- In the Winter season, 292 schools did not report any concussions – 281 schools attested 0 concussions for the season – 11 did not submit any response
- In the Spring season, 375 schools did not report any concussions – 363 schools attested 0 concussions for the season – 12 did not submit any response

33.4 Emerging Inquires for Year #4 (2018-19)

- A. Because participation in football is greater than in any other high school sport and because head injuries in football is a topic receiving attention of players, parents and the general public, we must continue to examine closely the data related to football and try to identify where risks for injury are real and can be reduced.

It is noteworthy that the number of head injuries reported in 11-player football decreased from 45 to 41 per 1,000 participants when comparing the 2016 season to 2017. However, the frequency of head injury reports for 8-player football increased from 32 to 38 per 1,000 participants when comparing 2016 to 2017.

This happens at the same time that decreases in 11-player participation match almost exactly the increases in 8-player participation among MHSAA member schools; and this suggests that more inquiry into the policies and procedures of 8-player football is needed.

- B. Three years of data substantiates that, in similar sports, three times as many concussions are reported for girls as for boys. This data is consistent with research by many other entities.

In this year's summary, it is pointed out that the dominant cause of concussion reports for boys is person-to-person contact, but this is not true for girls.

The data combines to suggest that more inquiry be devoted to the following:

1. Playing rules and equipment changes that might be beneficial in reducing head injuries for girls.
 2. Coaches education that might better prepare individuals who are working with boys teams where participants may be under-reporting head injuries.
- C. This reporting initiative by the MHSAA requires attention by member schools that is sometimes delayed or incomplete, which suggests the need to investigate and widely discuss procedures that will improve compliance, especially:
1. Prompt submission of initial reports.
 2. Timely submission of follow-up reports.
 3. Consistent submission of Return to Activity forms.

33.5 Next Steps

The 2015-16 school year report raised some initial themes. The 2016-17 report may began the identification of trends. The 2017-18 data helps to refine our understanding of those trends, but also raises new questions.

Understanding questions do not demand that all actions must be delayed. It is not too soon to experiment with more head protection and modified play and practice rules in football, ice hockey, soccer, wrestling and lacrosse – all of which rank in the top ten sports in terms of number of injures 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 2018-19 school year will begin 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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