
# Trauma Systems Committee

Bureau of Health Care Safety and Quality Department of Public Health

March 17, 2021

**Agenda**

Department Update

Trauma Registry and Data Submissions Update Trauma Point of Entry Update and Discussion

**Open Meeting Law: G.L. c. 30A, §§18-25**

##### The purpose of open meeting law (OML) is to ensure transparency in the deliberations on which public policy is based.

* + This requires that meetings of public bodies be open to the public.
* All meetings of a public body must be open to the public.
	+ A meeting is any deliberation by a public body with respect to any matter within the body’s jurisdiction.
	+ A deliberation is a communication between members among members of a public body.
* A public body is any multi-member board, commission, committee or subcommittee within the executive or legislative branches (except the Legislature) of state government
	+ This includes any body created to advise or make recommendations
* Under OML the public is permitted to attend meetings.
	+ Individuals in meetings may not address the public body without the permission of the chair.
	+ Public participation is allowed at the discretion of the chair.
* For more information on Open Meeting Law, please visit:
	+ https://[www.mass.gov/the-open-meeting-law](http://www.mass.gov/the-open-meeting-law)

**What is a Quorum?**

* A Quorum is defined as:
	+ A **simple majority** of the members of a public body, unless otherwise provided in a general or special law, executive order, or other authorizing provision. G.L. c. 30A, § 18.
	+ **As applied to the Trauma Systems Committee—a quorum equals 10 members (½ of 19 members + 1)**

**Trauma Data Submissions from Designated Trauma Centers**

* One facility is still working on submitting 4 quarters from FFY2016-2019
	+ This facility have reported multiple quarters for FFY2016-2019 and has individual quarters remaining
* 16 facilities have completed all quarters of data submission FFY2016-2029
* 15 Trauma Centers have submitted FFY 2020 data, 14 have completed all FFY 2020 trauma submissions

|  |
| --- |
| **Count of Trauma Center Registry Submissions by Year** |
| N = 17 | February2019 | May2019 | August2019 | November2019 | November2020 | **March****2021** | **All Quarters as of****March 2021** |
| 2016 | 16 | 16 | 16 | 16 | 17 | 17 | 16 |
| 2017 | 16 | 16 | 16 | 17 | 17 | 17 | 16 |
| 2018 | 15 | 15 | 15 | 17 | 17 | 17 | 16 |
| 2019 | -- | -- | 0 | 4 | 16 | 17 | 16 |
| 2020 | -- | -- | -- | -- | 10 | 15 | 14 |

**Trauma Data Submissions from Community Hospitals**

* + The Department continues to provide ongoing, individual outreach and assistance to community hospitals to increase reporting
	+ 26 community hospitals have complete data reporting through FFY2020 to date

|  |
| --- |
| **Count of Community Hospital Trauma Registry Submissions by Year** |
| FederalFiscal Year | N | February2019 | May2019 | August2019 | November2019 | November2020 | **March****2021** | **All Quarters as of****March 2021** |
| 2016 | 49 | 32 | 38 | 39 | 39 | 39 | 41 | 39 |
| 2017 | 49 | 29 | 28 | 33 | 33 | 38 | 42 | 42 |
| 2018 | 49 | 25 | 30 | 33 | 33 | 41 | 45 | 45 |
| 2019 | 49 | --- | 3 | 15 | 18 | 43 | 46 | 45 |
| 2020 | 46 | -- | -- | -- | -- | 31 | 42 | 37 |

 **Massachusetts Trauma Registry Update**

DPH continues to work with its selected vendor, DI by ESO to develop and implement a web-based Trauma Registry

* + ADA testing of all webpages and materials by third party is almost complete;
	+ Hospitals will receive communications shortly regarding account set up for transmitting trauma events;
	+ Training sessions are planned for users in the next month;
	+ Guidance and submissions details and timelines are forthcoming
	+ Data were extracted from the Massachusetts Department of Public Health Trauma Registry

### Interfacility transfers have been matched to initial encounters to prevent double counting of injuries

* + - Only facilities that have reported all quarters of 2019 and 2020 were included in these analyses. 17 facilities were removed
		- Weekly trauma rates, rate ratios, and confidence intervals were calculated to identify changes in traumatic injury admissions in Massachusetts from 2019 to 2020
		- In addition to comparing 2019 to 2020, three time periods of interest were identified for

further examination

* + - Mortality outcomes and substance use will also be detailed

##### Initial Trauma Encounter

10/1/2018-9/30/2020

Unique Trauma Reports (N=37,936)

Q1 2016-Q3 2020

All Trauma Reports

(N=109,383)

All Unique Trauma Reports

Facilities with complete

(N=114,144) Interfacility Transfers (N=4,761)

**Impact of COVID-19 Pandemic on Trauma**

**Methods**

(N=113,292)

data (N=26,019)

10000

**Massachusetts COVID-19 Cases by Test Date, Jan 2020 to Feb 2021 (N= 540,794)**

**COVID-19 in Massachusetts**

**as of February 22, 2021**

8000

End of preliminary trauma data

6000

4000

2000

0

Data Source: MA COVID-19 Raw Data 2/23/2021

Data Source: Massachusetts COVID-19 Raw Data, accessed on 2/23/2021: <https://www.mass.gov/info-details/archive-of-covid-19-cases-in-massachusetts>

**COVID-19 and Trauma in Massachusetts**

**as of February 15, 2021**

###### Massachusetts Trauma Reports by Day of Hospital Arrival, 10/1/2018-9/30/2021 (N= 26,019)

COVID-19 Pandemic

80

70

60

Count of Trauma Arrival

50

40

30

20

10

0

Data Source: MA Trauma Registry 2/17/2021

Data Source: Massachusetts Trauma Registry, 2/17/2021

\*Reopening Massachusetts, May 18, 2020 accessed on 3/1/2021: <https://www.mass.gov/doc/reopening-massachusetts-may-18-2020/download>

\*\*DiFazio LT, Curran T, Bilaniuk JW, et al. The Impact of the COVID-19 Pandemic on Hospital Admissions for Trauma and Acute Care Surgery. The American Surgeon. 2020;86(8):901-903. doi:10.1177/0003134820939904. [Accessed at: https://journals.sagepub.com/doi/10.1177/0003134820939904?url\_ver=Z39.88- 2003&rfr\_id=ori%3Arid%3Acrossref.org&rfr\_dat=cr\_pub++0pubmed&#articleCitationDownloadContainer](https://journals.sagepub.com/doi/10.1177/0003134820939904?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%2B%2B0pubmed&&articleCitationDownloadContainer)

#  Time Periods for Comparison

#### Time Period Date Range

**Governor’s Order Restrictions**

##### Period 1

Period 2

Period 3

March 15, 2020 to July 1, 2020

July 2, 2020 to August 6, 2020

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Gatherings greater than 25 people prohibited

Reduced again to 10 people on March 23, 2020 Stay at Home Advisory and socially distance High risk should work from home if possible Socially distance

Specific work places allowed to open at limited

Indoor limit increased to 25 people

Outdoor limit increased to 100 people Business and recreational travel discouraged High risk should work from home if possible Safer at Home Advisory and socially distance

August 7, 2020 to September 30, 2020

* Indoor gatherings limit remained at 25 people
* Outdoor gatherings limited to 50 people
* Business and recreational travel discouraged
* High risk should work from home if possible
* Safer at Home Advisory and socially distance

COVID-19 State of Emergency, accessed on 3/1/2021: <https://www.mass.gov/info-details/covid-19-state-of-emergency> Reopening Massachusetts, May 18, 2020 accessed on 3/1/2021: <https://www.mass.gov/doc/reopening-massachusetts-may-18-2020/download>

**Trauma Counts Period of Interest 2019 & 2020**

**as of February 15, 2020**

##### A direct comparison of March 15-September 30 in 2019 and 2020 show that all cause trauma was statistically significantly lower in 2020

* Massachusetts all cause trauma decreased by 0.73 times in 2020 when compared to 2019
* However, as seen when traumas were graphed over time, all cause trauma varied greatly in 2020
	+ Are there significant differences by injury type, manner, substance use, and mortality?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Period** | **All Cause Trauma** | **Weekly Rate/100,000 Resident** | **Unadjusted Risk Ratio** | **Confidence Interval** | **P-value** |
| 2019 | 8,225 | 4.20 | --- | --- | --- |
| 2020 | 5,976 | 3.05 | 0.73 | 0.70-0.75 | < 0.0001 |

Data Source: Massachusetts Trauma Registry, 2/17/2021 Data are preliminary and subject to change

Limited to facilities reporting all quarters of FFY2019 and 2020 <https://www.mass.gov/info-details/archive-of-covid-19-cases-in-massachusetts>

**COVID-19 and Trauma in Massachusetts by Manner**

**as of February 15, 2021**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Manner of Injury** | **2019 Rate/100,000****Residents\*** | **2020 Rate/100,000****Residents\*** | **Unadjusted Risk Ratio** | **Confidence Interval** | **p-value** |
| Piercing | 7.6 | 4.5 | 0.5895 | 0.5126-0.6778 | <.0001\*\*\* |
| Fall | 69.2 | 54.7 | 0.7894 | 0.7569-0.8241 | <.0001\*\*\* |
| Motor Vehicle Crash in Traffic | 10.1 | 6.8 | 0.6719 | 0.5978-0.7551 | <.0001\*\*\* |
| Cycling | 1.6 | 1.8 | 1.0991 | 0.8499-1.4213 | 0.4713 |
| Pedestrian | 0.32 | 0.23 | 0.7273 | 0.382-1.3848 | 0.3324 |
| Total\*\* | 118.1 | 85.8 | 0.7266 | 0.728-0.7512 | < 0.0001\*\*\* |

Data Source: Massachusetts Trauma Registry, 2/17/2021 Data are preliminary and subject to change

\*Includes March 15, 2019-September 30, 2019 and March 15, 2020-September 30, 2020 Limited to facilities reporting all quarters of FFY2019 and 2020

\*\*Total includes all manners of injury, including those not detailed in the table

\*\*\*Statistically significant change from 2019 to 2020

**COVID-19 and Trauma in Massachusetts by Intent**

**as of February 15, 2021**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Intent of Injury** | **2019 Rate/100,000****Residents\*** | **2020 Rate/100,000****Residents\*** | **Unadjusted Risk Ratio** | **Confidence Interval** | **p-value** |
| Unintentional | 110.7 | 80.3 | 0.72 | 0.702-0.75 | <.0001\*\*\* |
| Assault | 3.59 | 3.40 | 0.79 | 0.56-1.13 | 0.556 |
| Self-harm | 0.92 | 0.57 | 0.63 | 0.42-0.93 | 0.0197\*\*\* |

##### Overall, unintentional and self-harm trauma decreased significantly from 2019 to 2020

* + - Assaults, while lower, were not significantly lower than 2019 during the COVID-19 pandemic

Data Source: Massachusetts Trauma Registry, 2/17/2021 Data are preliminary and subject to change

\*Includes March 15, 2019-September 30, 2019 and March 15, 2020-September 30, 2020

**Time Normalized Mean Trauma by Period**

**as of February 15, 2020**

##### Time normalized mean is used because the time periods are not of equal duration. This allows all cause trauma to be compared across periods

|  |  |  |
| --- | --- | --- |
| **Time Period** | **Count** | **Time Normalized Mean Traumas/Week\*** |
| **Period 1** | **Mar 15-Jul 1** | **15.4 weeks** |
| 2019 | 4,373 | 284.0 |
| 2020 | 2,628 | 170.7 |
| **Period 2** | **Jul 2-Aug 6** | **5 weeks** |
| 2019 | 1,559 | 311.8 |
| 2020 | 1,704 | 340.8 |
| **Period 3** | **Aug 7-Sep 30** | **7.7 weeks** |
| 2019 | 2,293 | 297.8 |
| 2020 | 1,644 | 213.5 |

* + - * Counts cannot be directly compared across periods, only to the same period in different years
			* It appears that all cause trauma decreased during periods with strong restrictions on gathering sizes. However all cause trauma may have been increased above 2019 levels when gathering restrictions were lifted

Data Source: Massachusetts Trauma Registry, 2/17/2021 Data are preliminary and subject to change

**COVID-19 and Trauma in Massachusetts – Period 1**

**as of February 15, 2021**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Period 1 - 15.4 weeks** | **Period 2 – 5 weeks** | **Period 3 – 7.7 weeks** |
| **Manner of Injury** | **Year** | Weekly Rate/100,000 Residents (N) | Unadj Rate Ratio (Conf. Interval) | Weekly Rate/100,000 Residents (N) | Unadj Rate Ratio (Conf. Interval) | Weekly Rate/100,000 Residents (N) | Unadj Rate Ratio (Conf. Interval) |
| Piercing | 2019 | 0.11 (114) | --- | 0.30 (102) | --- | 0.29 (158) | --- |
| 2020 | 0.25 (271) | 0.42(0.34-0.52) \* | 0.38 (134) | 1.31(1.02-1.70) \* | 0.12 (65) | 0.41(0.31-0.55) \* |
| Fall | 2019 | 2.40 (2,569) | --- | 2.59 (901) | --- | 2.52 (1,350) | --- |
| 2020 | 1.67 (1,795) | 0.7(0.66-0.74) \* | 2.71 (942) | 1.05(0.95-1.15) | 1.99 (1,068) | 0.79(0.73-0.86) \* |
| Struck by or against | 2019 | 0.32 (342) | --- | 0.38 (134) | --- | 0.29 (156) | --- |
| 2020 | 0.13 (141) | 0.41(0.34-0.50)\* | 0.40 (141) | 1.05(0.83-1.33) | 0.17 (92) | 0.59(0.46-0.76)\* |

**COVID-19 and Trauma in Massachusetts – Period 1**

**as of February 15, 2021**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Period 1 - 15.4 weeks** | **Period 2 – 5 weeks** | **Period 3 – 7.7 weeks** |
| **Manner of Injury** | **Year** | Weekly Rate/100,000 Residents (N) | Unadj Rate Ratio (Conf. Interval) | Weekly Rate/100,000 Residents (N) | Unadj Rate Ratio (Conf. Interval) | Weekly Rate/100,000 Residents (N) | Unadj Rate Ratio (Conf. Interval) |
| Motor Vehicle Crash in Traffic | 2019 | 0.35 (376) | --- | 0.38 (133) | --- | 0.36 (192) | --- |
| 2020 | 0.17 (177) | 0.47(0.39-0.56) \* | 0.41 (144) | 1.08(0.86-1.37) | 0.28 (150) | 0.78(0.63-0.97) \* |
| Cycling | 2019 | 0.05 (53) | --- | 0.06 (21) | --- | 0.07 (37) | --- |
| 2020 | 0.4 (40) | 0.76(0.50-1.14) | 0.11 (40) | 1.91(1.12-3.23) \* | 0.08 (42) | 1.14(0.73-1.77) |
| Pedestrian | 2019 | 0.01 (14) | --- | 0.002 (<5) | --- | 0.01 (7) | --- |
| 2020 | 0.01 (10) | 0.71(0.32-1.61) | 0.006 (<5) | 2 .0(0.18-22.06) | 0.007 (<5) | 0.57(0.17-1.95) |

**COVID-19 and Trauma in Massachusetts – Period 1**

**as of February 15, 2021**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Period 1 - 15.4 weeks** | **Period 2 – 5 weeks** | **Period 3 – 7.7 weeks** |
| **Intent of Injury** | **Year** | Weekly Rate/100,000 Residents (N) | Unadj Rate Ratio (Conf. Interval) | Weekly Rate/100,000 Residents | Unadj Rate Ratio (Conf. Interval) | Weekly Rate/100,000 Residents | Unadj Rate Ratio (Conf. Interval) |
| Unintentional | 2019 | 3.82 (4,097) | --- | 4.17 (1,453) | --- | 4.03 (2,163) | --- |
| 2020 | 2.29 (2,466) | 0.60 (0.57-0.63) \* | 4.59 (1,597) | 1.10 (1.03-1.18) \* | 2.86 (1,536) | 0.71 (0.67-0.76) \* |
| Assault | 2019 | 0.12 (130) | --- | 0.16 (56) | --- | 0.12 (64) | --- |
| 2020 | 0.10 (103) | 0.79 (0.61-1.03) | 0.21 (72) | 1.29 (0.91-1.08) | 0.12 (62) | 0.97 (0.68-1.37) |
| Self-harm | 2019 | 0.03 (34) | --- | 0.04 (15) | --- | 0.03 (15) | --- |
| 2020 | 0.02 (17) | 0.50 (0.28-0.90) \* | 0.03 (12) | 0.80 (0.37-0.1.60) | 0.02 (11) | 0.733 (0.34-1.60) |

**COVID-19, Substance Use and Trauma**

**as of February 15, 2021**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Count** | **Rate/100,000 Residents\*** | **Rate Ratio** | **Confidence Interval** |
| Substance Use |  |  |  |  |
| 2019 | 215 | 3.09 |  |  |
| 2020 | 267 | 3.83 | 1.24 | (1.04-1.49)\*\* |
| Alcohol Use |  |  |  |  |
| 2019 | 256 | 3.68 |  |  |
| 2020 | 239 | 3.43 | 0.93 | (0.73-1.11) |

##### In 2020, from March 15 to September 30, all cause trauma patients were 1.24 times more likely to test positive for substance use on a toxicology report, when compared to 2019

* There was no significant change in trauma and alcohol use from 2019 to 2020

###### Massachusetts Traumas with Substance Use, March 15-Sept 30 2019 & 2020 (N=450)

160

**121**

120

**91**

**71**

**62**

**14**

**19**

**9**

**17**

**13 12**

**13**

**8**

Count of Traumas

80

40

0

Fall Motor Vehicle Traffic

Cut or Pierce Struck By, Against Firearm Motor Vehicle

Nontraffic

2019 2020 Data Source: MA Trauma Registry 2/17/2021

**COVID-19, Substance Use and Trauma**

**as of February 15, 2021**

Data Source: Massachusetts Trauma Registry, 2/17/2021 Data are preliminary and subject to change

#  Next Steps

## Small counts are a limitation of this analysis and additional data have been received

* + - Rerun analysis with newly receive quarters of data
		- Further examine substance use, mortality, and injury severity to identify addition differences between 2019 and 2020
	+ Further examine piercing traumatic injuries, which were shown to be more common in Period 2 2020, when compared to the same time period in 2019

**Future Meetings**

Meeting Schedule:

* + - June 2021
		- September 2021
		- December 2021

All meetings will be from 10:00AM-12:00PM; location and access information will be announced closer to the time of the meeting.

**Additional Information**

For more information, please visit:

[https://www.mass.gov/service-details/trauma-systems-committee](https://www.facs.org/quality-programs/trauma/tqip)