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**Commonwealth of Massachusetts**

**Trauma Systems Committee**

**Region IV Report**

**November 20th, 2019**

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**Region IV Report**

* Region Overview
* Prevention and Access
* Pre-Hospital: Notification and EMS Feedback
* Transferring Hospitals: criteria, pre-notification, feedback
* Post Trauma Care: resources and barriers

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**Region Overview**

7 Adult Trauma Centers

* 6 Level One Trauma Centers
  + BWH, MGH, BIDMC, BMC, Tufts, Lahey
* 1 Level Two Trauma Center
  + SSH

4 Pediatric Trauma Centers

* 3 Level One Trauma Centers
  + BCH, MGH, Tufts
* 1 Level Two Trauma Center
  + BMC

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**Region IV Overview**

Adult Trauma Centers

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**Beth Israel Deaconess Medical Center Profile CY18**

N = 2242

Percent of patients meeting activation criteria = 36%(Stat/Basic)

63% (Stat/Basic/Consult)

Percent of trauma transfers = 56%

Top 3 mechanisms of injury =

1. Falls
2. MVC
3. Pedal Cycle

Percent of patients 65yo and older = 51%

Percent of patients 70yo and older with ground level falls = 27%

Mortality rate = 2.45%

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**Boston Medical Center Profile CY18**

N = 1727

Percent of patients meeting activation criteria = 85%

Percent of trauma transfers = 22% (transfers into BMC),

Top 3 mechanisms of injury =

1. Falls -> 690/40%
2. Interpersonal Violence -> 450/26%
3. MVC -> 202/12%

Percent of patients 65yo and older = 23%

Percent of patients 70yo and older with ground level falls = 12%

Mortality rate = 2% (inpatient only) 4% (including DOA)

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**Brigham and Women’s Profile CY18**

N = 1740

Percent of patients meeting activation criteria =

Percent of trauma transfers = 63%

Top 3 mechanisms of injury =

1. Falls
2. MVC
3. Assault

Percent of patients 65yo and older = 53%

Percent of patients 70yo and older with ground level falls = 45%

Mortality rate = 3.8%

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**Lahey Hospital & Medical Center Profile CY18**

N = 1703

Percent of patients meeting activation criteria = 49%

Percent of trauma transfers = 35%

Top 3 mechanisms of injury =

1. Ground level falls
2. Fall from stairs
3. MVC

Percent of patients 65yo and older = 70%

Percent of patients 70yo and older with ground level falls = 64%

Mortality rate = 3%

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**Massachusetts General Hospital Profile CY18**

N =

Percent of patients meeting activation criteria = 27%

Percent of trauma transfers = 40%

Top 3 mechanisms of injury =

1. Falls
2. MVC/ MCC
3. Pedestrian Struck

Percent of patients 65yo and older = 48%

Percent of patients 70yo and older with ground level falls = 16%

Mortality rate = 4.3%

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**Tufts Medical Center Profile CY18**

N =

Percent of patients meeting activation criteria = 75%

Percent of trauma transfers = 48%

Top 3 mechanisms of injury =

1. Fall
2. MVC
3. Assault

Percent of patients 65yo and older = 45%

Percent of patients 70yo and older with ground level falls = 25%

Mortality rate = 5%

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**South Shore Hospital Profile CY18**

N = 1842 admissions

Percent of patients meeting activation criteria = 37%

Percent of trauma transfers = 12% (Adult 8%, Pedi 4%)

Top 3 mechanisms of injury =

1. Falls (all heights)
2. MVC
3. Pedestrian struck

Percent of patients 65yo and older = 51%

Percent of patients 70yo and older with ground level falls = 28%

Mortality rate = 3%

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**Region IV Overview**

Pediatric Trauma Centers

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**Boston Children’s Hospital Profile CY18**

N =

Percent of patients meeting activation criteria = 22%

Percent of trauma transfers in = 53%

Top 3 mechanisms of injury =

1. Falls
2. Motor vehicle/bicycle related
3. Sports

Percent of patients 65yo and older = 0%

Percent of patients 70yo and older with ground level falls = 0%

Mortality Rate = 0%

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**Massachusetts General Hospital Pediatric Profile CY18**

N =

Percent of patients meeting activation criteria = 26%

Percent of trauma transfers = 49%

Top 3 mechanisms of injury =

1. Falls

2. Sports related

3. MVC / Pedestrian

Percent of patients 65yo and older =

Percent of patients 70yo and older with ground level falls =

Mortality rate = 1.8%

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**Tufts Medical Center Pediatric Profile CY18**

N =

Percent of patients meeting activation criteria = 93%

Percent of trauma transfers = 78%

Top 3 mechanisms of injury =

1. Falls
2. MVC
3. Sports

Mortality rate = 0

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**Prevention and Access**

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**Prevention and Access**

Injury Prevention Initiatives

* Stop the Bleed
* Gun Violence Prevention
* Distracted Driving Education
* SBIRT
* Geriatric Falls Prevention
* AARP Automotive Courses
* Government Advocacy

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**Prevention and Access (cont.)**

Injury Prevention Initiatives

* Safe Kids Initiatives (medication safety, pedestrian safety)
* Child Passenger Safety events and checkpoints
* Safe Shelter Program (child-proofing family homeless shelters)
* Think First (brain and spinal cord injury prevention education)

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**Pre-Hospital: Notification and EMS Feedback**

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**Pre-Hospital: Notification and EMS Feedback**

* Notification:
  + Boston Central Medical Emergency Direction (CMED) radio
  + Ring Down Phone – recorded line from EMS turret; utilized for sensitive patient information, SA, high profile events/patients
  + Access Centers (each institution with own process)
* Feedback
  + EMS participation/attendance at institution Peer Review
    - Review of scene time, transport, care rendered
  + EMS Liaisons – direct communication with Pre-hospital Providers

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Image of Metropolitan Boston Emergency Medical Services Council, Inc. Logo

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**Metropolitan Boston Emergency Medical Services Council, Inc.**

* The delivery of emergency medical services in the Commonwealth of Massachusetts is regulated by the Massachusetts Department of Public Health (DPH) Office of Emergency Medical Services. M.G.L.  Chapter 111c, the enabling legislation, empowers DPH to create and enforce the Commonwealth's EMS regulations, 105 CMR 170.000.
* The Metropolitan Boston Emergency Medical Services Council, Inc. (MBEMSC), EMS Region IV, is the agency designated by the DPH to coordinate the delivery of emergency medical services, as defined by 105 CMR 170.100 - 170.106, within the sixty-one cities and towns comprising the Metropolitan Boston Area.
  + - coordinates, maintains and improves the EMS system within those sixty-one communities;
    - oversees EMS activities focusing on quality patient care;
    - reviews and recommends continuing education programs for ambulance service providers;
    - provides information and educational resources to the public;
    - coordinates the Metro Boston CMED radio and communication system;
    - assists in statewide EMS treatment protocol development;
    - disaster response and communications.

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**Mission of Region IV**

The Regional Board of Directors supports, strengthens, and promotes the quality of EMS by fostering a system of care, furthering public and professional education, and encouraging research.

Region IV's goal is to ensure that timely access to appropriate emergency medical care is available to all residents and visitors. In addition, we work to increase public recognition and understanding of the EMS system.

We strive to promote:

* the availability and quality of emergency care by developing clinical and system performance standards
* inter-agency coordination and collaboration
* efforts to strengthen and expand professional education
* MBEMSC works to develop a database and methodologies to evaluate EMS system performance, as well as to develop funding resources sufficient to support program initiatives.

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**Governance**

The council is governed by a Board of Directors consisting of local and state government officials, emergency medical technicians (EMTs), nurses, doctors, ambulance service providers, fire, police, hospitals, and citizens representing the 61 communities of Metropolitan Boston and the surrounding area.

* Licensed Physicians with regular and frequent involvement in the provision of emergency care (representing 2 OBTH and 2 non‑COBTH hospitals; 1 Physician shall be a Surgeon with regular and frequent involvement in the provision of emergency care who represents a Level I or Level II Trauma Center)
* Hospital Administrators (representing COBTH and non‑COBTH hospitals)
* Emergency Nurses
* Emergency Medical Technician, Advanced, or Paramedic, (2 shall be non-officers or non-managers)
* Prehospital ALS Manager/Directors, with 1 representing each of the following geographic areas covered by the Representative’s service: COBTH area, Northwest Suburban area, North Suburban area, South Middlesex area, Southwest Suburban area, and South Suburban area. (No service shall have more than one Representative in this category.)
* Consumers
* Law Enforcement Representative
* Fire Service Representatives (1 shall be a Chief of Department, 1 shall be a non-Fire Chief)
* Licensed Ambulance Service Representatives (1 individual shall represent a municipally-funded ambulance service)
* Representative of the municipally designated primary EMS provider of the City of Boston
* State Representative/Senator or Senior Staff Person
* Local Government Representative
* Licensed EFR Service Representative (This category shall exclude all licensed ambulance services)
* At‑Large Members

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Organizational Chart of Metropolitan Boston Emergency Medical Services Council, Inc. Logo

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**The Region**

Image: Map of the region

The Region, which extends north as far as Wilmington and Littleton, west as far as Marlborough and Hopkinton, and south as far as Wrentham and Hanover, serves as residence to over 2 million people, and accounts for close to 1 million emergency department visits in the Region's hospitals each year.

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**Hospitals**

Beth Israel-Deaconess Hospital - Milton  
Beth Israel Deaconess Hospital - Needham  
Beth Israel Deaconess Medical Center- East and West Campuses  
Boston Children's Hospital  
Boston Medical Center  
Brigham and Women's Hospital  
Brigham and Women's Faulkner Hospital  
Cambridge Health Alliance  
Carney Hospital  
Dana-Farber Cancer Institute  
Emerson Hospital  
Lahey Hospital and Medical Center  
Massachusetts Eye and Ear Infirmary  
Massachusetts General Hospital

MetroWest Medical Center (Framingham and Natick)  
Mount Auburn Hospital  
Newton Wellesley Hospital  
Norwood Hospital  
Shriner's Hospital for Children - Boston  
Somerville Hospital (a campus of Cambridge Health Alliance)  
South Shore Hospital  
St. Elizabeth's Medical Center  
Steward Satellite ER Facility-Quincy (a satellite location of Carney Hospital)  
Tufts Medical Center  
UMASS/Memorial Medical Center - Marlborough Hospital Campus  
VA Boston Healthcare System  
Winchester Hospital

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**Services**

* There are 70 ambulance services that reside in Region IV with several others that operate in and around the area.
* They consist of a mix of BLS and ALS services form several different areas:
* Municipal
* Private
* 3rd Service
* Air
* Call/Volunteer
* Hospital Based
* College Based

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Map of Massachusetts Region IV Metro-Boston EMS Council hospital locations

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**Massachusetts EMS Region IV**

* Region IV consists of 62 cities and towns surrounding and including the city of Boston
* Region IV consists of 911 square miles and a population density of 2331 persons per square mile
* CMED services approximately 100 ambulance services. They include municipal, private, hospital based, and aeromedical units

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**CMED’s Responsibilities**

* Routine ambulance to hospital communications
* Daily testing of system
* Prompt notification of MCI/disaster with timely updates as available
* Coordination of EMS resources
* Appropriate distribution of patients from scene to hospital
* Tracking care capabilities of individual hospitals: RED/ YELLOW/ GREEN

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**Boston EMS Department Overview CY18**

* Bureau of the Boston Public Health Commission
* 401 FTE
* Two tiered system
* 21 BLS/ 5 ALS (peak)
* 126,419 incidents
* 154,417 responses
  + 400 calls per day
  + 85, 897 transports annually

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**Trauma Stats**

|  |  |  |
| --- | --- | --- |
| Incidents By Type | Number | Percentage |
| **Injury**  (lacerations, fractures, etc.) | 15,952 | 12.62% |
| **Motor Vehicle Collision**  (MVA, Ped, Bike/Scooter) | 5,652 | 4.27% |
| **Trauma**  (Penetrating, Long Fall, etc.) | 1,096 | 0.87% |
| Fire/Hazmat/Standby | 2,237 | 1.77% |
| TOTAL | 24,937 | 19.53% |

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**BEMS – System Assets**

* BLS - Basic Life Support
* ALS - Advance Life Support
* Tango Trucks - Logistics / Support
* T10 MERV- Mobile Emergency Response Vehicle - 15+ patient capacity
* Jake Units - Gator (golf cart) Teams
* X-Ray Units - Bicycle Teams
* Harbor Unit - Marine unit in partnership with BPD marine boats
* Squad 80 CAT unit - Community Assistance Teams
* Critical Incident Support Management- Peer Support / CISM Teams
* Partnerships
  + BAMA- Boston Ambulance Mutual Aid
  + BFD
  + Law Enforcement Organizations (LEO)- BPD/MSP/MBTA Transit/Park Rangers
  + Boston Trauma Response Team - SMART Team\*

<https://jri.org/services/behavioral-health-and-trauma/boston-trauma?gclid=Cj0KCQiAn8nuBRCzARIsAJcdIfNOWn9w4OoKjMMBF9nvbFsgjBFfQZSaOBBkTu8eDtsOOuDP-uxYPEgaAhwBEALw_wcB>

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**Prevention Programs**

Car Seat Program

<https://www.boston.gov/departments/emergency-medical-services/how-schedule-car-seat-check>

Senior Safety Presentations

<https://www.boston.gov/departments/emergency-medical-services>

CPR Training

<https://www.boston.gov/departments/emergency-medical-services/cpr-training>

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**BOSTON MEDFLIGHT**

Your Life. Our Mission.

Images of Boston Medflight

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**Boston MedFlight History**

* Nonprofit consortium formed in 1985
* Founded by six academic medical centers, seventh added in 2017
  + Boston Medical Center
  + Beth Israel Deaconess Medical Center
  + Brigham & Women’s Hospital
  + Boston Children’s Hospital
  + Lahey Hospital and Medical Center
  + Massachusetts General Hospital
  + Tufts Medical Center

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Boston MedFlight Philosophy

* Nonprofit, put patient needs first
* Right patient, right vehicle, right time – using the most appropriate vehicle for patient needs
* Consortium hospitals expect us to be an extension of their care – we are their transport team
* “High end” critical care – we care for patients other services cannot (including other air services)

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Boston MedFlight’s Operation

* 4 Bases operating out of Lawrence (12hr), Bedford (24hr), Mansfield (12hr), and Plymouth (24hr).
* Lawrence to become a 24hr base in March 2020.
* Helicopter/Ground services from all bases; Fixed Wing services from Bedford Base.
* Additional resources available from cooperative relationship with regional partners.

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**Boston MedFlight’s Volume**

* Total Transports in FY 2019 : 4780 patients
* Trauma is 17% of the overall volume.
* Transport requests consist of :
  + Scene 12%
  + Interfacility 88%
  + Adult 78%
  + Pediatric 12%
  + Neonate 10%
* Significant increase this year in ECMO and iEPO transports and will soon be routinely carrying blood products on our vehicles.
* Natural evolution of our program

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**Transferring Hospital**

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**Transferring Hospital**

* Criteria for transfer
* Patient need outweighs sending facility’s ability, resources
  + In need of damage control surgery, neurosurgery, microvascular or reimplantation
  + High risk patients (pregnant, significant co-morbidities with high injury burden)
* Formal/informal transfer agreements
* ACS criteria for trauma transfer
* Process for Notification
  + CMED – scene trauma, transfer update
  + Undesignated MedFlight
    - BMF selects transfer destination based on rotation, ICU bed availability
* Access Centers
  + Report called, information provided to ED and Trauma service

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**Resources/Barriers for Post Trauma Care**

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**Resources/Barriers for Post Trauma Care**

* Resources
  + Rehab facilities within enterprise (ex. Spaulding under Partners umbrella, Franciscan Children’s Hospital)
  + Value beds (beds “rented” by hospital to facilitate placement)
* Barriers
  + Lack of mental health beds, facilities that have capability to care for concomitant injury and psychiatric illness
  + Under insured
    - Medicare/Medicaid limits to rehab days/care
  + Insurance approval
  + Repatriation for out of state patients
    - Uninsured and difficult to place