

# BOSTON MEDICAL CENTER

EXCEPTIONAL CARE. WITHOUT EXCEPTION.

## THE TRAUMA PROGRAM 2009 ANNUAL REPORT



**Boston Medical Center  
Department of Surgery  
Division of Trauma  
2009 Annual Report**

We are delighted to bring you our 2009 Trauma Program Annual Report. There are several changes this year that we are excited to share with the BMC Community. The most obvious one is that we have changed our reporting year timeframe from Calendar Year to Fiscal Year to be more congruent with the rest of the Medical Center activities. To make this change more meaningful, any comparisons to previous year's data will be adjusted to previous year's fiscal year timeframes as well.

Although technically occurring in FY 2010, a major accomplishment during this past year was the preparation for a site visit by the American College of Surgeons Committee on Trauma Verification Review Committee. This occurred in February 2010 and we have successfully maintained our status as a Massachusetts Designated Level I Adult Trauma Center. We also had to organize the Pediatric Trauma Program as a mostly separate stand alone program and specific volume requirements for each level caused us to be verified as a Level II Pediatric Trauma Program. We have several outreach initiatives in place or planned and we are optimistic we will grow this program to be a stand alone Level I Pediatric Trauma Program before the next re-verification cycle.

Our Outreach and Follow Up program has been re-implemented and involves formal feedback relationships with the Emergency Department Directors of seven community hospitals that have referred us patients. Almost one hundred letters have been sent to them detailing the care provided to the patients they have sent us and specifically identifying the referring Emergency Physician. Plans are in place to grow this program to all hospitals in our region as well as Municipal Fire Departments and Private Ambulance Companies.

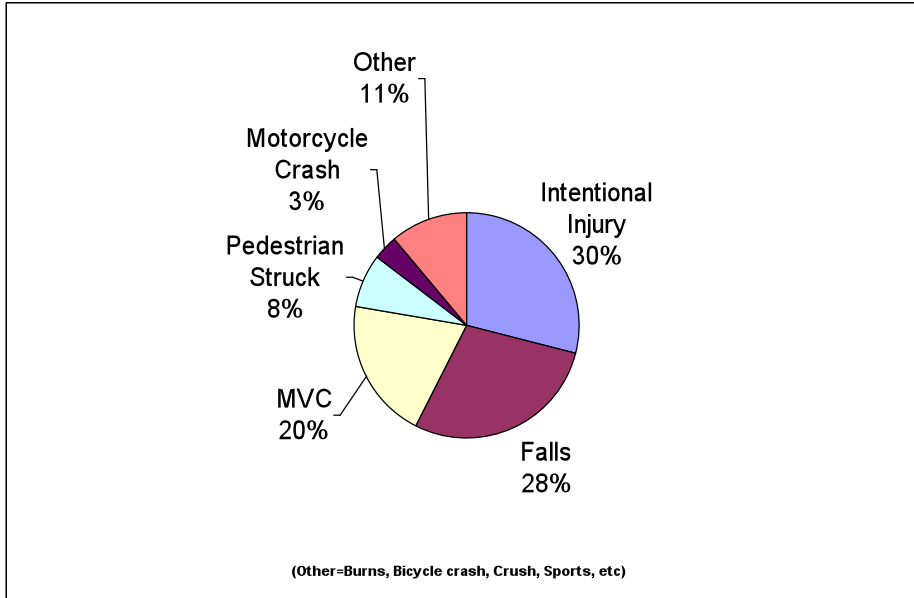
The Trauma, Acute Care and Critical Care Surgery Program interacts with practically every department in the Medical Center. While our staff is small, we are happy to say we have added two new members to our ranks. Martha DiMilla, NP joined the Surgical Critical Care Program and Julie Duggan, joined the Trauma Program as a Data Coordinator with the Trauma Registry. Both will help us coordinate and deliver better patient care.

**Highlights from the Trauma Registry Data**

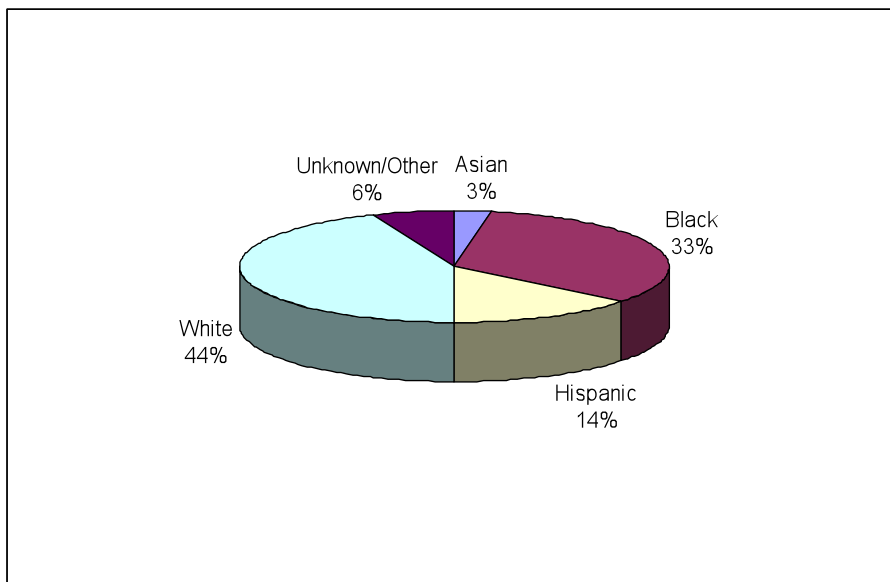
Keeping in mind the Boston Medical Center goals of Volume, Safety, Satisfaction and Cost, we can accurately say we have consistently admitted over 2000 patients for each of the last 5 years. Our male/female breakdown remains at about 70/30% and our Blunt/Penetrating Trauma ratio is still at 80/20% which is the highest in the Massachusetts and New England.

Further data analysis reveals that our Pediatric volume has grown approximately 2.5% from 134 to 178 admissions. Our Inpatient Mortality has dropped 20% from 60 to 48 while the Injury Severity Score remained unchanged. Another notable fact is that all of this occurred with an overall drop in utilization of resources as measured by Diagnostic Procedures used to make initial diagnosis.

The most common mechanisms of injury admitted to the Trauma Center are (in descending order): Intentional Injury (Assault, Firearm, Stab), Falls, Motor Vehicle Collisions, Pedestrian Injuries, and Motorcycle Crashes.



The ethnicity breakdown of our patients remains essentially unchanged with the largest demographic being White, then Black, Hispanic, Asian, Middle Eastern and Indian.



Documentation of Safety Devices by Mechanism is interesting, showing that Drivers' use of Safety Belts while involved in MVC has increased, while helmet use among Motorcycle Crash victims has decreased. Helmet use among bicyclists remains unchanged.

Hospital length of stay as well as length of stay in the Intensive Care Unit is also down and with Injury Severity Scores largely unchanged, this reflects more careful and cost effective patient care management.

A disturbing statistic is that the average Ethanol level of patients admitted to the trauma center with an injury diagnosis has increased from 146 to 183. We have an active screening, Brief Negotiated Interview process and referral to treatment program in place for all trauma patients and hope to see this figure reversed in the future.

We have been regularly submitting our data to the Erwin F. Hirsch State Trauma Registry and the National Trauma Data Bank. One data point mandated by these databases is Body Mass Index (BMI). As Obesity has been identified as a co-morbid condition, we are now evaluating the BMI of our trauma patients compared to a national standard to identify those who are at risk for potential complications as well as an opportunity for referral, nutritional education and diet counseling.

Disposition from the Emergency Department to a monitored setting (OR, ICU, Telemetry) accounts for over one third of our admissions and has remained the same for several years. This year we are examining the length of stay in the ED as well as surgical decision-making to look for areas of improvement.

Thank you to everyone who has helped us during this past year and we look forward to further collaboration with everyone at Boston Medical Center as we continue to provide Exceptional Care Without Exception. For any questions or comments, please contact:

Peter A. Burke, MD, FACS Trauma Medical Director 617/414-8056

Joseph S. Blansfield, RN, MS, NP Trauma Program Manager 617/414-4088

Heidi A. Wing, Trauma Data Manager 617/414-5206

Lisa Allee, MSW, LICSW, Injury Prevention Coordinator 617/414-8007

## **Injury Prevention FY2009**

Most injuries are preventable and The Department of Surgery, Division of Trauma is dedicated to the efforts of injury prevention across the lifespan. Below are the highlights from our Injury Prevention initiatives from FY2009.

### **1. Child Passenger Safety Program**

The program includes assistance with car seat fittings and installations by appointment as well as educational in-services on car seat safety for both staff and families.

BMC also continues to ensure every newborn has a safe car seat for discharge if parents/guardians are unable to purchase one themselves due to financial constraints.

### **2. Helmet Rx Program**

We continue to offer discounted helmets at the Menino Lobby Gift Shop for \$5 each for adults and children and provide helmet education to all pediatric trauma patients.

### **3. Trauma, Stress and Depression**

Trauma Patients are screened prior to discharge for Post trauma as well as depression symptoms. We are in the planning stages for a prospective cohort trial to follow patients in community reentry and potential development of PTSD 3 months following trauma.

### **4. Violence Prevention and Intervention**

#### **a. Violence Intervention Advocate Program (VIAP)**

The DPH funded work of Dr. Judith Bernstein and Dr. Edward Bernstein, founders and directors of The BNI (Brief Negotiated Interview) Institute at Boston University School of Public Health continues to supplement their substance abuse initiative with violence intervention. BMC's VIAP includes 3 full time peer mentors who provide intervention to our victims of violence, an MSW Program Assistant and an MSW Program Manager.

In 2008, there were a reported 522 patient encounters by the VIAP at BMC.

#### **b. Violence Is Preventable (VIP) program**

BMC Emergency Nurses work with selected Boston Public Schools high risk youth with providing a tour the trauma rooms and a video on resuscitation, followed by a debriefing and discussion about conflict resolution and alternatives to interpersonal violence.

#### **c. Violence Prevention Outreach Program**

The Injury Prevention Coordinator and a Trauma Surgeon provides a monthly presentation at the Barron Center (Counseling and Guidance Center of Boston Public Schools) titled "The Real Story" detailing outcome and life changes from a gun shot wound.

#### **d. Domestic Violence Program**

BMC works to improve and coordinate the institution's response to domestic violence- as a health care provider and an employer- through...

training, education, and awareness initiatives  
and protocol development  
consultation and technical assistance  
direct advocacy/support for survivors of abuse and violence  
connection to community resources

policy

### **5. Screening, Brief Intervention And Referral To Treatment For Trauma Patients**

Since 1994 Project Assert has seen over 50,000 patients. There have been 215 SBIRT interventions conducted during FY2009 on an inpatient setting with Trauma patients.

**6. Inpatient Consultation** The Injury Prevention Coordinator (IPC) provides consultation to inpatients on concussion prevention, helmet safety, infant orchilhood injury prevention, seatbelt safety and consultations for our victims of violence.

### **7. Emergency Department Injury Patient Follow up**

The IPC reviews all patients from the Pedi and Adult ED's for potential follow up needs for injury or violence intervention and/or prevention. Referrals are made to the Pediatric ED Social Worker and the Violence Intervention Advocate Program as needed. This program began in April 09 and has involved over 450 patients.

#### **8. Window Falls Prevention**

The "Kids Can't Fly" campaign begins in the spring and continues throughout the summer months throughout the hospital and community.

#### **9. Pediatric Residency Training**

Injury prevention for providers is presented encouraging teaching with families and connecting them to appropriate resources. Past topics have included Child Passenger Safety and Toddler Home Safety.

#### **10. Sports Concussion Prevention**

- a. **Heads Up" Campaign** – A campaign for employees to bring back to their communities where children are youth and high school athletes. To date, BMC has distributed over 1, 200 kits to communities in Massachusetts.
- b. **Partnership with Family Medicine, Sports Medicine Group** – Initiative to revise concussion discharge instructions and develop a referral system for concussion evaluation and management post discharge.
- c. **Boston Public Schools Outreach Program in Sports Medicine** – Pre-participation physicals, medical consult for coaches and attendance at home football games for 4 Inner City Boston High Schools and 2 Metro Area High Schools.

#### **11. Safe Sleep Initiative**

We are planning an IRB submission for a multi-phase project to study sleep practices and access to safe sleep settings in our community. We plan to survey, educate and randomize families in a RCT in which a pack and play would be provided.

#### **12. Older Adult Driving Safety**

IRB submitted for a Randomized control trial to evaluate an in-patient motivational interview encouraging mentally competent older adults to assess their driving skills.

#### **13. Pedestrian Safety**

IPC participated in the National "Walk to School" day and walked over 200 children and their parents to a local elementary school using crosswalks and following signals.

### **Memberships/Affiliations**

1. Violence Prevention and Intervention Community Partners Coalition
2. Massachusetts Injury Prevention Coordinators Collaborative
3. Massachusetts Prevents Injury Now Network (MASSPINN)
4. Safe Kids Boston
5. MA COT – IPC Consortium
6. New England Injury and Violence Research Collaborative (NEIVRC)
7. Child Protection Team at Boston Medical Center

Submitted by: Lisa C. Allee, LICSW, MSW  
Injury Prevention Coordinator

# Boston Medical Center Trauma Registry Annual Report

Fiscal Year 2009

%

	<b><u>FY 2009</u></b>	
<b><u>Total Admissions</u></b>	2105	
Male	1519	72.16%
Female	586	27.84%
<b><u>Age</u></b>		
AGE LT 1	19	0.90%
AGE 1-5	52	2.47%
AGE 6-14	107	5.08%
AGE 15-25	527	25.04%
AGE 26-35	357	16.96%
AGE 36-55	622	29.55%
AGE 56-65	180	8.55%
AGE Over 65	239	11.35%
AGEU	2	0.10%
	2105	
<b><u>Mechanism</u></b>		
Stab	172	610 = 28.98%
Assault	236	
Firearm	202	
Burn	17	0.81%
Fall<15	364	17.29%
Fall>15	79	3.75%
Fall fr. Standing	155	7.36%
MCC	72	3.42%
BCC	51	2.42%
MVC Driver	307	14.58%
MVC Passenger	115	5.46%
MVC Unknown	5	0.24%
Pedestrian Struck	163	7.74%
Crush	18	0.86%
Puncture	30	1.43%
Sports Injury	50	2.38%
Struck (Non MVC)	10	0.48%
Other	59	2.80%
	2105	
<b><u>Work Related Injuries:</u></b>	41	
<b><u>Race</u></b>		
Asian	57	2.71%
Black	698	33.16%
Hispanic	298	14.16%
Indian	4	0.19%
Middle Eastern	7	0.33%
White	924	43.90%
Unknown/Other	117	5.56%
	2105	

178 = 8.46%

		%
Blunt	1655	78.62%
Penetrating	433	20.57%
Burn	17	0.81%
	2105	

**Mortality by ISS Strata**

**FY 2009**

		%
ISS <= 9	5	6.76%
ISS 10-15	6	8.11%
ISS 16-24	17	22.97%
ISS >= 25	46	62.16%
<b>Total</b>	<b>74</b>	

**Mortality by Service**

**FY 2009**

Trauma Surgery	45
Orthopedic Surgery	1
Neuro Surgery	1
Other	1
<hr/> 48 = 2.3% mortality rate	
ED Deaths	26
<b>Total:</b>	<b>74</b>

**Average ISS by Service:**

**FY 2009**

Trauma Surgery	8
Orthopedic Surgery	5
Neuro Surgery	11
Pediatric Surgery	7

**Safety Devices by Mechanism:**

**FY 2009**

Motorcycle Accident	Helmet	56	77.78%
	None	5	6.94%
	Unknown	11	15.28%
72			
Bicycle Accident	Helmet	8	15.69%
	None	29	56.86%
	Unknown	14	27.45%
51			
MVC Driver	Seatbelt	148	48.21%
	Air Bag	127	41.37%
	None	74	24.10%
	Unknown	25	8.14%
MVC Passenger	Seatbelt	52	45.22%
	Air Bag	26	22.61%
	None	46	40.00%
	Unknown	8	6.96%

**Transfers:**

**FY 2009**

From Scene/Home	By Ambulance	1109	
	By Helicopter	66	1500 =
	No EM Assistance	301	71.26%
	Not Indicated	24	
From Another Facility	By Ambulance	482	
	By Helicopter	85	605 =
	No EM Assistance	37	28.74%
	Not Indicated	1	
Walk-Ins		-	
Not Indicated		-	
2105			

**Diagnostic Procedures: To determine initial diagnosis**

**FY 2009**

Angiogram	88
Aortogram	3
CT Head	1139
CT Chest	732
CT Abdomen	795
MRI	74
Trauma Panel:	593

**Special Procedures:**

		<b><u>FY 2009</u></b>	
	<u>Field</u>	<u>Refer Hosp</u>	<u>BMC ED</u>
Intubated	95	42	122
Chest Tube (s)	0	2	36
CPR	23	1	7
Thoracotomy	7	0	6

**First Arterial pH:**

	<b><u>FY 2009</u></b>	
6.00 - 7.10	31	
7.11 - 7.21	51	
7.22 - 7.29	192	
7.30 - 7.39	766	
7.40 +	191	
	1231	(874)

**ED Disposition:**

	<b><u>FY 2009</u></b>	<u>%</u>	
Floor	1268	60.24%	788 = 37.43%
Telemetry	224	10.64%	
ICU	399	18.95%	
OR	165	7.84%	
Death	26	1.24%	
Other	23	1.09%	
Unknown			
	2105		

**Admitting Service:**

	<b><u>FY 2009</u></b>	<u>%</u>
General Surgery/Trauma	1607	76.34%
Oral Surgery	54	2.57%
ENT	3	0.14%
Orthopedics	284	13.49%
Pediatric Surgery/Trauma	134	6.37%
Neurosurgery *	14	0.67%
Other	9	0.43%
	2105	

\* Most Neurosurgery trauma patients are admitted to the General Surgery/Trauma Service

**ICU Length of Stay:**

	<b><u>FY 2009</u></b>
< 3 Days	242
3 - 5 Days	106
6 - 7 Days	23
8 - 14 Days	52
15 - 21 Days	31
> 21 Days	22
	476

**Length of time on Ventilator:**

	<b><u>FY</u></b> <b><u>2009</u></b>
1 - 2 Days	114
3 - 5 Days	56
6 - 10 Days	34
11 - 14 Days	13
15 - 21 Days	18
> 21 Days	10

**Hospital Length of Stay:**

	<b><u>FY</u></b> <b><u>2009</u></b>
< 3 Days	1207
3 - 5 Days	450
6 - 7 Days	131
8 - 14 Days	169
15 - 21 Days	78
> 21 Days	70
	2105

**Admitting Toxicology:**

	<b><u>FY</u></b> <b><u>2009</u></b>
Cocaine	106
Alcohol	431
Benzodiazepines	103
Amphetamines	4
Barbituates	6
Heroin	1
Opiates	267
Other	7

**Average ETOH Level:** 183.61

**Blood Utilization by Trauma Patients:**

	<b><u>FY 2009</u></b>
Patients Receiving Blood Pre-Hospital	20
Patients Receiving Blood in the ER @ BMC	67
Patients Receiving Blood Inpatient	197

**ISS:**

	<b><u>FY</u></b> <b><u>2009</u></b>
1 - 9	1601
10 - 15	152
16 - 24	237
25 +	113
Pending	2
	2105

**Number of Patients that went to the Operating Room:**

**FY 2009**      643

**Total Number of Procedures performed:**

**FY 2009**      2167

**Complications:**

	<b><u>FY 2009</u></b>
Pneumonia	34
DVT	13
Pulmonary Embolus	12
Myocardial Infarction	2
ARDS	2

**Disposition:**

	<b><u>FY 2009</u></b>	%
Home	1646	78.19%
Transfer to Acute Care	23	1.09%
Death	74	3.52%
(26 ED Deaths, 48 Inpatient Deaths)		
Rehab	211	10.02%
Nursing Home/SNF	77	3.66%
AMA	61	2.90%
Other	13	0.62%
	2105	

**APACHE:**

	<b><u>FY 2009</u></b>
< 24	412
≥ 24	20

**Organ/Tissue  
Donors:**

**FY 2009**  
14