Boston Marathon
April 15, 2013 - Lessons Learned
Pre & Post 2:50 PM

Chris Troyanos, ATC
Medical Coordinator
Boston Athletic Association
NFL’s Version of Preparedness

• Always have a plan, and believe it in. Nothing good happens by accident.

Chuck Knox
LA Rams
Medical’s Role in Race Operations

- Ensure event safety
- Provide medical care
- Event medical decisions
- Medical spokesperson
- Coordination of city, town, state & federal agencies
- Coordinate hospital support
Medical Coverage Locations
Medical Preparation

- Competitor Safety/education
- Hazardous Conditions
- Impaired competitor policy
- Race scheduling
- Hospital notification
- Communications
- Post race tracking/families
- Medical Technology
- Fluid Protocols
- Equipment/Supplies
- Medical Staffing
- Medical Records
- Medical Protocols
- SD Protocol
- HIPAA/federal regulations
- OSHA Standards
- Transportation Plans
Injury/Casualty Rates
30,000/weather a major factor

- 3% of field  900  Light day
- 5% of field  1500  Moderate day
- 8% of field  2400  Heavy day
- 10% of field  3000  Oak Room Bar

* # of beds in Tent A - 200
- # of beds in Tent B – 150
- # of beds/Course - 300
Key Years
BAA Medical Program

- 1995 – New York Marathon
- 1996 – 100th Boston Marathon
- **2004 – 22,000 runners/Heat**
- 2007 – Nor'easter/near cancelation
- **2012 – 27,000 runners/Heat/near cancelation**

* Willingness to share info between marathon medical groups
## 2012 Boston Marathon
### 2500 (+) Encounters

<table>
<thead>
<tr>
<th>Location</th>
<th>Encounters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course DMAT’s (4)</td>
<td>377</td>
</tr>
<tr>
<td>Medical Tent A</td>
<td>895</td>
</tr>
<tr>
<td>Medical Tent B</td>
<td>665</td>
</tr>
<tr>
<td>Medical Tent C</td>
<td>114</td>
</tr>
<tr>
<td>Elite Medical</td>
<td>10</td>
</tr>
<tr>
<td>Elite Medical</td>
<td>30</td>
</tr>
<tr>
<td>Red Cross Station (22)</td>
<td>4000*</td>
</tr>
</tbody>
</table>

*Note: The number 4000 is marked with an asterisk, indicating it might be an estimate or a special note.
Emergency Medical Services
2012 - Race Day EMS Transports

Boston EMS  94
Cataldo     54
Fallon      50
AMR         53

Total = 251
2004 Total - 278
<table>
<thead>
<tr>
<th>Hospital</th>
<th>Admitted Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framingham Union</td>
<td>4/2</td>
</tr>
<tr>
<td>Leonard Morse</td>
<td>7</td>
</tr>
<tr>
<td>Newton Wellesley</td>
<td>61/1</td>
</tr>
<tr>
<td>St. Elizabeth’s</td>
<td>28</td>
</tr>
<tr>
<td>Brigham &amp; Women’s</td>
<td>25/10</td>
</tr>
<tr>
<td>Beth Israel</td>
<td>52/3</td>
</tr>
<tr>
<td>Tuft NE Medical</td>
<td>34/7</td>
</tr>
<tr>
<td>Boston Medical Center</td>
<td>20/9</td>
</tr>
<tr>
<td>MGH</td>
<td>23/9</td>
</tr>
</tbody>
</table>
Pre Planning – Agencies Involved

- Boston EMS
- Boston Fire/Police
- MEMA
- FBI
- DPH/OEMS
- 10 Supporting Hospitals
- State Police
- National Guard
- Red Cross
- 8 Cities/Towns
What we learned.....

• Marathons are “Planned Mass Casualty Events”
  - Marriage of Sports & Disaster Medicine
• All events should determine their ability to properly triage and treat w/out overloading the hospital and EMS systems.
• Higher level of coordination is needed between the race and PS
• Medical “best practices” need to be developed for all.
• Improved interagency communications are needed.
• Sharing of data collected > BAA > DPH > MEMA
All Marathons should be Considered a Planned Mass Casualty Event

“An MCI is defined as one in which the number of people killed or injured in a single incident is large enough to strain or overwhelm the resources of the local EMS providers.”
What we learned…..

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Pre 2:50 PM

- 21,000 Finishers
- 5,600 Still on Course
- 15 Medical Transports
- Near perfect weather
- < 3% Casualty Rate
- 2 Reported MI’s/Course
Timing/Luck/Fate?
Bombing Sites

- Bomb #1 2:50 pm
- 75 Yards from Med Tent
- Bomb #2 (12 seconds later)
- Over 100 Yards from Med Tent
- Finish Line Staffing
  * 8 Physicians
  * 30 ATC’s
  * 20 Student AT’s/WC
  * 4 Boston EMS
What happened in 25 minutes?

- Immediate Response
- Spectators
- BAA Volunteers
- Police/Boston EMS/Fire
- 264 casualties
  - 97 victims to Medical Tent “A”
  - 3 fatalities/two on site
  - 14 + traumatic amputations
  - First victim to hospital in 18 min.
  - All victims triaged & transported
Rapid Response

- Triage
- First Aid
- Package
- Transport
Eventual Outcome

- Proximity to Finish line and Medical Tent.
- Highest concentration of medical person in the world.
- Boston EMS
- 5 Level I Trauma Centers
- 3 Pediatric Trauma Centers
- Pre Event Planning
- Mutual Aid Agreements
- “Team Approach”
The Immediate Aftermath

- Now What
- Checking In
- Roll Call
- Inventory
- Heading “Home”
- Now What
Game Changer
Chicago/New York
Psychological - “First Aid”

Tuesday:
* Colleges/Universities
* DPH/DMH
* HHS

Wednesday:
* BAA OC/Medical Meeting
* Calls to medical leadership
* Federal Assets Arrive

Thursday:
* Coordinated Plan in place
* Host 4 Debriefing sessions
* Counselors to BAA Offices
* Emails to all BAA volunteers

Friday:
* Shelter in Place
* City of Boston shut down

Saturday:
* Events cancelled

Sunday:
* First of 3 BAA/DPH Debriefs

Federal Crisis Management Team – 10 days
All events coordinated through DPH/MIC
Secondary Programs Arranged
The Week Ahead

• Uncertainty
• Lockdown
• Manhunt & Apprehension
Post-Event Processing: Dealing with Catastrophic Events

- Situational irony – did that really happen?
- I did not do enough....
- I ran from the event....
- Could not leave my post to help...
- Fear of additional devices....
- Visual trauma....

- All levels of medical staff (professionals and volunteers)
Post-Event Processing: Dealing with Catastrophic Events

• I can’t remember everything that happened.
  – If I can’t remember, how do I know if I did the right thing?
• Hyper vigilance
• Sound sensitive
• Crowd sensitive
• Disordered sleeping/eating
• “You just don’t understand what I am going through”
• Quick to anger
• Social Media connections
• Family Anxiety/inability to connect on after 2:50 PM
Healing Process/Moving Forward
6 Months Post Blast

* Coordination with City/State and private Mental Health groups.
• Hospitals/EMS Groups conduct support programs.
* Colleges/Universities provide support
• BAA Coordinates Volunteer Recognition Program
• AllOne live webinars – Runners/BAA Volunteers
* Schwartz Center Rounds (4)
* WBZ Video Message
* BAA webpages dedicated for support programs
Planning for 2014

• Field Size 36,000
• Security Changes
• Volunteer Anxiety
• Runner Anxiety
• Public Safety Anxiety
• World Affairs
• Weather
• My focus......
Getting Ready
“ A new challenge”

• Education
  - Keefe Tech
  - Babson College
• Online Programs
  - Security Concerns
• “Train the trainer”
• Schwartz Center Rounds
• AllOne Webinar
• Psych Teams
• Psych Messaging
2014

“What was different?”

- Increased number of medical volunteers
- Larger tents/additional beds on course
- Density concerns
- Psych Teams - 60
- Coverage area to Boston Commons
- Large increase to Tent B
- Expansion to Auxiliary and VIP Tents
- BAA Operations Center
- Security
- Communications
- Education
2014 Results/36,000 Runners

- Course Medical (26) – 1866
- Boston Medical Tents
  - A – 1187
  - B – 645
- Boston Commons -54
- Hospitals (10) – 202
- EMS Transports – 124

* 99% Finished Race
Lessons Learned

- We needed closure.....
- EAP/preparations vs human element
- Communication failures
- BAA Command Center
- Scene safety
- Volunteer muster points
- Next level ICS training
- Continue to focus on job at hand
- Continue to expect the unexpected
- BAA Medical Command Changes
In Remembrance

Martin Richards

Krystle Campbell

Lingzi Lu

Sean Collier