BOSTON PUBLIC HEALTH COMMISSION

OFFICE OF PUBLIC HEALTH PREPAREDNESS

Planning & Operations ● Preparedness & Coordination ● Training & Outreach

2013 Boston Marathon

Emergency Support Function 8 (ESF-8)
Public Health and Medical Planning, Response, and Recovery Operations (April 15 – April 26)

Final After-Action Report / Improvement Plan

December 20th, 2013

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ADMINISTRATIVE HANDLING INSTRUCTIONS

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INCIDENT OVERVIEW

Incident Name	2013 Boston Marathon
Incident Dates	Monday, April 15th – Friday, April 26th, 2013
Scope	This was a real-world series of events that fully tested the response capabilities of regional public health and healthcare agencies.
Mission Area(s)	Prevention, Protection, Mitigation, Response, and Recovery
PHP & HPP Capabilities	Community & Healthcare System Preparedness Community & Healthcare System Recovery Emergency Operations Coordination Emergency Public Information & Warning Information Sharing Mass Care Medical Surge Public Health Surveillance Responder Safety & Health Volunteer Management
Threat or Hazard	Terrorism / Improvised Explosive Devices
Scenario	The explosions at the finish line of the Boston Marathon on April 15th, and the subsequent manhunt and shelter in place request issued on April 19th, had significant impacts on the healthcare system within the Boston area. The consequences of the Boston bombings to the Boston area healthcare system are explored in depth in this report.
Sponsor	Boston Public Health Commission (BPHC)

Participating Organizations

Local, state, and federal government agencies are represented in this report, as well as numerous public and private public health and healthcare partners. A full list can be found in *Appendix A: Participating Organizations.*

EXECUTIVE SUMMARY

At 2:49pm on Monday, April 15th, two explosions occurred 13 seconds apart on Boylston Street near the finish line of the 117th Boston Marathon. It became the first successfully executed terrorist attack on American soil since September 11, 2001 and was instantly breaking international news. In the end, three individuals lost their lives as a result of the bombings. 282 people were injured. One officer was killed in the line of duty. And an entire region of Massachusetts was significantly impacted as law enforcement searched for suspects.

First responders, healthcare institutions, volunteers, civilians, and countless others who responded in the moments, hours, days and weeks that followed the tragic events worked tirelessly, and provided the community, Commonwealth, and nation with a sense of reassurance in the face of a horrific act. The response efforts on scene by members of Boston EMS, Boston Police, Boston Fire, National Guard soldiers, trained volunteers, and bystanders were extraordinary. The rapid evacuation of patients and distribution to area hospitals did not happen by accident. The fact that every patient transported from the scene that day survived is a testament to the years of coordinated operational response planning of many agencies across disciplines and jurisdictions. This planning is the reason there were pre-deployed resources, an integrated public health and healthcare response infrastructure, and human services coordination in the aftermath of the bombings.

Photo by Darren McCollester, Getty Images

This After Action Report extends beyond the immediate response, and focuses on the collective public health and healthcare planning leading up to the Boston Marathon and coordination after

the bombings. While the coordination is ongoing to support the survivors and their families, this report focuses primarily on the initial weeks following the bombings.

Purpose

The purpose of this report is to provide a comprehensive overview and analysis of the Emergency Support Function 8 (ESF-8) Public Health and Medical Services response and recovery efforts, which includes human services operations for the 2013 Boston Marathon and the subsequent Boston bombings. The entirety of the ESF-8 response was analyzed. Strengths and areas for improvement were identified and corrective actions are recommended.

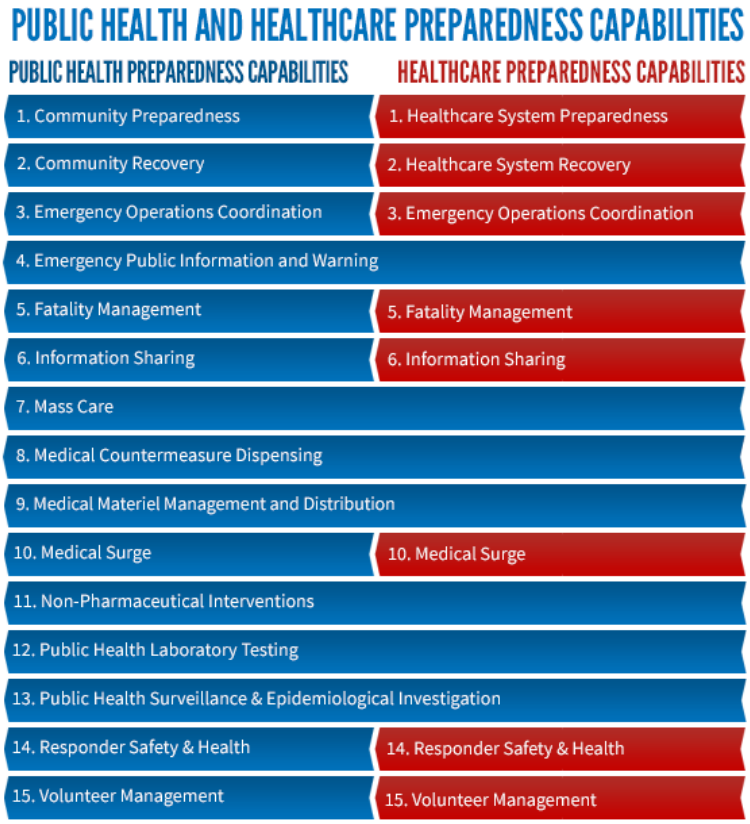
Scope

The Boston Marathon is a large-scale real-world event that requires analysis on an annual basis. This year, the marathon turned into a full-scale tactical operational response to a bombing event. The response included not only the initial mass casualty incident response to those injured by the explosions at the finish line, but the subsequent investigation and manhunt that was being conducted in parallel to ongoing response and recovery efforts, which were further complicated during a shelter in place request on Friday April 19th.

This report focuses on the public health, healthcare, and human services response to the entirety of the incident, in alignment with ESF-8, with a particular emphasis on the recovery efforts and public health's role as it relates to mass care and human service efforts within Emergency Support Function 6 (ESF-6). It addresses the associated response operations of the Boston Public Health Commission (BPHC) as the public health authority for the City of Boston, BPHC's Office of Public Health Preparedness (OPHP) as the lead for ESF-8 coordination, and the combined efforts of multiple organizations. As is the case every year, planning efforts were underway in the months leading up to the marathon. And while recovery operations continued for months after the bombings, this report will focus primarily on the events of April 15th, the day of the bombings, through April 26th, the day the City of Boston's Medical Intelligence Center (MIC) demobilized as a Multi-Agency Coordination Center (MACC) managing response and recovery efforts, and transitioned to a virtual activation. Events leading up to and following this time frame will be referenced as appropriate for context, such as the planning efforts that typically go into the Boston Marathon and the overall ESF-8 preparedness efforts, as well as the ongoing long-term human and social services provided beyond April 26th.

Non-public health and healthcare partners will be discussed only to the extent that they overlapped with the overall healthcare system response operations. Many organizations involved in the response, including public safety agencies and hospitals, have held their own debriefings and will produce their own reports addressing tactical elements and lessons learned specific to their response.

Additionally, while the Boston Athletic Association (BAA) is the lead organizer of the marathon, the role of the BAA will only be addressed here as it specifically relates to ESF-8 planning and preparedness and the coordinated response efforts undertaken jointly by healthcare and BAA leadership.



Structure

This report is structured according to the two principal federal guidance documents for public health and healthcare preparedness: the Centers for Disease Control and Prevention's Public Health Preparedness (PHP) Capabilities and the U.S. Department of Health & Human Services Assistant Secretary for Preparedness & Response's (ASPR) Healthcare Preparedness Program (HPP) Capabilities.

The ten capabilities selected for inclusion in this report are as follows:

1. Community & Healthcare System Preparedness (#1)
2. Community & Healthcare System Recovery (#2)
3. Emergency Operations Coordination (#3)
4. Emergency Public Information & Warning (#4)
5. Information Sharing (#6)

6. Mass Care (#7)
7. Medical Surge (#10)
8. Public Health Surveillance (#13)
9. Responder Safety & Health (#14)
10. Volunteer Management (#15)

Definitions for the aforementioned capabilities and associated functions are included within Appendix B to provide context, while associated response task areas are paraphrased for the purposes of space. Those areas that were deemed to not be directly or significantly associated with the response were intentionally excluded.

Throughout the report, capabilities from PHP and HPP guidance that are related have been combined, as are the associated functional areas and response tasks, for the purposes of eliminating redundancy and streamlining the document.

Reference numbers are used throughout the document to tag the observations and recommendations associated with each capability. The Improvement Plan (IP) located in Appendix D contains a consolidated list of all observations and recommendations.

Methodology

This report was developed and edited over a six-month period in close collaboration with dozens of stakeholders representing public health, EMS, healthcare, and human services organizations at the local, state, and federal levels.

The authors reviewed thousands of e-mails from the day of the bombings and the weeks that followed, examined the full response logs of emergency systems such as WebEOC, conducted over 40 hours of interviews with key stakeholders, and collected additional data associated with the response. These data include ambulance transport times, hospital patient counts, public health surveillance information, and the types and quantities of social services provided.

Through interviews and follow-up surveys, hundreds of pages of information were collected, sorted, edited, reviewed, and summarized within this report.

Results

Within this report, there are 154 observations and 210 recommendations. Fifty-five percent (55%) of observations made were classified as “areas for improvement,” and the number of

recommendations made indicate that even for those areas identified as "strengths", there was still room for improvement.

Overall, the public health and healthcare system response was both efficient and effective. The number of areas for improvement identified does not indicate a flawed response. Rather, it highlights the nature of large scale incidents, where those analyzing the response objectively will generally find numerous areas that can be built upon, restructured, or reinforced in the name of enhancing overall response capabilities.

Number	Capability	Observations	Strengths	Areas for Improvement	Recommendations
1	Community & Healthcare System Preparedness	10	8	2	10
2	Community & Healthcare System Recovery	10	2	8	12
3	Emergency Operations	32	15	17	47
4	Emergency Public Information & Warning	22	10	12	28
6	Information Sharing	13	2	11	24
7	Mass Care	27	11	16	40
10	Medical Surge	12	7	5	12
13	Public Health Surveillance	4	2	2	4
14	Responder Health & Safety	11	4	5	10
15	Volunteer Management	13	8	5	23
	Total	**154**	**69**	**83**	**210**

After Action Report observations and recommendations, broken out by strength and area for improvement.

Dissemination

The intended audience for this report is the Boston Public Health Commission, as the lead agency for the City of Boston for Emergency Support Function 8 (ESF-8), emergency medical services, healthcare, human service, and public safety agency partners that may benefit from the observations and analysis contained herein. It may be disseminated within the broader community of emergency management and public health professionals as a means of sharing lessons learned and best practices. It is not currently intended for public dissemination, and will maintain its For Official Use Only (FOUO) designation unless downgraded by the appropriate parties.

Major Strengths & Areas for Improvement

The major strengths and areas for improvement highlighted below were identified as common themes throughout the course of developing this report. For the purposes of the executive summary, three (3) were chosen from each category to demonstrate where the City of Boston's ESF-8 response was successful in providing health and human services to the public and survivors and where additional efforts will be required to strengthen integrated healthcare system preparedness and response systems. These areas should be considered priorities for the dedication of organizational and resource support to sustain and improve the ESF-8 infrastructure in the future.

Major Strengths

The three major strengths identified in this report are as follows:

1. Medical Intelligence Center Operations

The City of Boston's Stephen M. Lawlor Medical Intelligence Center (MIC) was designed and developed to serve as a centralized hub for information sharing and coordination within the healthcare community during times of emergency. It is unique within the United States in its role as a health and medical multi-agency coordination center (MACC), and played a critical role in ESF-8 response and recovery actions during the Boston Marathon and following the bombings.

On the morning of April 15th, the MIC was staffed and operational in order to provide situational awareness to public health, healthcare, and public safety partners within the City of Boston and surrounding communities. Representatives from BPHC's Office of Public Health Preparedness, Boston EMS, and the Conference of Boston Teaching Hospitals were assigned roles within the Incident Command System (ICS) structure for the day. This structure proved critical to facilitating coordination across healthcare partners and with external agencies following the bombings. As the incident expanded and enhanced information sharing became necessary, the MIC served its function as the ESF-8 MACC by regularly disseminating situation briefings. Twenty-two (22) situation briefings were disseminated to a wide audience during the MIC's twelve-day activation. These reports provided timely information to partners on the number of patients at area healthcare institutions, the range of services being organized and offered by city, state, federal, and private partners, and the impact of heightened security and disruptions in public transportation on healthcare system operations.

The MIC housed partners from the American Red Cross (ARC), Massachusetts Department of Public Health (MDPH), and U.S. Department of Health & Human Services (HHS), which further enhanced information sharing and allowed for information and resource needs to be more closely collected, vetted, and addressed. The invaluable nature of this collaboration and co-location was evident again on April 19th, when residents of Boston and surrounding communities were requested to shelter in place, creating logistical challenges around staffing, security, and transportation for area hospitals, pharmacies, and specialty care providers.

Many areas of MIC operations were successful and provided a level of coordination and communication within ESF-8 that has continuously improved within the City of Boston. However, there are still areas identified for improvement. One of these was the need to identify additional staff, including BPHC personnel, which can serve within the ESF-8 ICS when the MIC is activated. This is especially significant during extended activations where maintaining appropriate staffing levels becomes an operational challenge. Recommendations were made related to technology improvements and revisions to standard operating procedures. Some of these changes were prioritized as this AAR was being prepared and have already been addressed or have been added to work plans to improve future responses.

Despite these opportunities for improvement, the coordination led by the MIC facilitated an integrated response among a number of public health, healthcare, and public safety partners. The MIC's coordination of situational awareness, resources, and human services across ESF-8 partners played a major role in the city's overall emergency response and recovery. This allowed for a host of services to be provided, thereby enhancing the city's overall response. Lessons learned will continue to inform enhancements to the capacity and capabilities of the MIC and those who staff it, as the OPHP further refines its role as the coordinator of ESF-8 operations.

2. Behavioral & Mental Health Service Coordination

The amount and type of behavioral and mental health services that were required within the City of Boston and surrounding communities as a result of the bombings were unprecedented in the region's history. Within hours of the bombings, public health and emergency management leaders recognized that a high level of support would be required for staff at healthcare institutions, public safety agencies, impacted communities, and the general public. While many organizations maintain internal or contracted employee assistance programs

(EAPs) or peer support, these resources had to be supplemented rapidly. Many agencies have contracts with a limited pool of providers, and the required scale of support necessitated a much higher, centralized point of coordination.

Partners were convened from local, state, and federal government agencies, as well as nongovernmental partners, to begin building an integrated mental health response. Hotlines were set up through Boston City Hall at the Mayor's 24 Hour Constituent Service Hotline (Hotline), Massachusetts' 211 alert system, and the Substance Abuse and Mental Health Services Administration (SAMHSA). Resources were posted on websites and disseminated through traditional and social media outlets. The MIC became the central location for coordinating group behavioral health sessions within the community and matching resources for deployment. Mental health support was provided by a group of partners from BPHC, the Massachusetts Department of Mental Health, Riverside Community Care, the ARC, and a Mental Health Response Team from the U.S. Department of Health & Human Services, which deployed 21 individuals to Boston from April 17th – 26th. Staff receiving care was from hospital emergency departments, public and private ambulance services, police departments, BPHC, area schools and businesses, and volunteers and staff from the BAA. Members of the general public were directed to a host of coordinated services provided by the City of Boston and partner agencies, including online resources, hotlines, and community drop-in centers.

In total, the MIC assisted with the coordination of 207 sessions that provided over 600 hours of service to thousands of people. This facilitated effort provided valuable insight into how to effectively deliver mental health services during future emergencies. Integrating mental health support with on-scene incident command, for example, is one potential way to provide improved care.

Along with the successes, there were also areas for improvement, notably how ESF-8 can work to support first responders in the field who require not only behavioral health support, but physical support such as food and water provided through respite centers. Additional areas for improvement are noted throughout the AAR and addressed within the improvement plan.

Given the size and scope of the overall recovery operation, the ability of the City of Boston to respond to the psychological needs of the community was a significant strength and should

continue to be developed to further enhance the coordination of the vast mental health resources that the region has to offer.

3. Human and Social Service Provision

As the lead agency within the City of Boston for supporting ESF-8 efforts, BPHC was responsible for coordinating not only the provision of human and social services to the community, but also to the survivors of the bombings and the families of those who had been killed. Following the attacks, partners immediately coordinated to establish a community drop-in center at the Boston Park Plaza Castle where family reunification support, counselors, food, and shelter were available. Public messaging related to support services was disseminated through the media and the Mayor's Hotline. These initial efforts included organizing counseling support to be deployed at vigils and similar community events throughout the city. As the recovery continued, outreach and services expanded to include support for displaced residents and businesses in and around Copley Square during the eventual re-entry phase.

In the days that followed the bombings, BPHC provided the general public with access to drop-in centers and behavioral health resources. Additionally, BPHC and the ARC coordinated the logistics of a Family Assistance Center (FAC) for the survivors of the bombings who had received medical care at regional healthcare institutions. By leveraging partnerships within the Boston Health Resilience Network, BPHC's OPHP was able to secure space and support for the FAC through the support of the Seaport Hotel and World Trade Center. Here, survivors and families were able to access a wide variety services from BPHC, the ARC, the FBI, the Massachusetts Office of Victim Assistance, and the Massachusetts Attorney General's Office, among others. Despite the presence of many local, regional, national, and international media outlets stationed in and around Boston, the work being performed at the FAC was kept out of the media spotlight, ensuring privacy and discretion for those seeking services.

Mayor Menino made it clear very early on that providing services to the survivors of the bombings and their families was a high priority for BPHC and the City of Boston. OPHP helped to coordinated donations from across the world and in partnership with local, state, and federal partners, BPHC provided direct support for survivors not only during their hospitalizations but also throughout their subsequent rehabilitations and long-term recovery. BPHC coordinated with city agencies, the ARC, and other partners to support survivors with

the healing process by hosting a private vigil for them in Copley Square before it was reopened to the general public, organizing multiple private dinner events with the mayor, and establishing ongoing support groups.

Even with all of this success, there were many areas for improvement noted, such as formalizing a FAC plan and enhancing the coordination of services into an ESF-8 recovery plan. These improvements have been incorporated into a work plan to be used internally by BPHC and externally with the array of public and private partners that support human service and mass care during a response.

Primary Areas for Improvement

The three primary areas for improvement identified in this report are as follows:

1. Family Reunification

Family reunification was collectively identified by the public health and healthcare communities as an issue requiring closer examination and improved protocols going forward. Reunification involves reuniting families with loved ones receiving treatment at medical facilities and with relatives that may have suffered fatal injuries. During incidents involving fatalities, reunification requires coordination with law enforcement and the Office of the Chief Medical Examiner (OCME), who serve as the leads.

For the past several years, the Metro Boston Emergency Tracking System (ETS) has been utilized to track patients, and has been widely recognized as an innovative means of addressing the challenges associated with tracking patients during mass casualty incidents. For the Boston Marathon, the system is used to track not only registered runners through the BAA who receive medical treatment, but to track members of the general public who are evaluated at one of the several medical tents deployed along the course route and/or transported by an EMS unit to an area hospital. An incident is created within the ETS that is then integrated into EMS's on-scene operations and hospital emergency departments. This process allows for the real-time tracking of patients by location and by name for those who are runners uploaded into the system prior to the race.

Following the bombings, tracking efforts were halted on-scene due to several factors. First of all, because the explosions happened in such close proximity to the main medical tent at Copley Square, volunteers who were assisting with patient tacking were evacuated. Also, the acuity of the patients necessitated their rapid evacuation from the scene prior to being entered

into the tracking system. The same situation existed at the receiving hospitals – many patients were so severely injured, there simply was not enough time to properly enter them into the system before they were rushed to an operating room. To collect patient information, hospital emergency managers were asked to send current patient information to the Conference of Boston Teaching Hospitals' coordinator at the MIC at regular intervals on the day of the bombings and in the weeks that followed.

Public health officials deployed at the community drop-in center at the Boston Park Plaza Castle and the Mayor's Hotline at Boston City Hall were tasked with facilitating family reunification for individuals searching for loved ones. Patient information was tracked through the MIC to support family reunification, increase understanding of the public health impact of the bombings, and aid in the provision of social services. In certain instances, reunification was complicated due to inter-facility transfers of patients and the hospitalization of members of the same family at different locations.

OPHP has identified several areas to address in this area. This includes establishing a formal continuity plan for information collection from healthcare partners when existing systems become unavailable, and identifying how Health Insurance Portability and Accountability Act (HIPAA) concerns can be addressed to support response and recovery. Addressing these areas has been a major priority since the bombings. After action meetings have resulted in plans for technology enhancements and revisions to family reunification protocols. Efforts to educate public and private partners about the role that the MIC can play in reunification will continue. Raising awareness about this capability could alleviate requests to the healthcare system, which was overwhelmed by inquiries from individuals and organizations searching for patients. Additionally, during the after action review process stakeholders identified the need for enhanced coordination with law enforcement and OCME regarding how patient information can and should be managed in the event of a mass fatality incident.

2. Mental Health Incident Command Integration

While the coordination and provision of mental health resources through the MIC was well executed, issues were identified related to how support agency staff deployed to the field was able to integrate into the MIC command system. Additionally, a more formal process for ensuring a shared consistency in mental and behavioral health approaches was identified as a

need, highlighting the importance of establishing shared concepts of operations amongst providers for future responses.

With services being coordinated through the MIC, it was acknowledged that in the future, consideration should be given to integrating a behavioral health specialist into the ICS structure of the MIC. This position would triage requests and appropriately match these with the resources being deployed. The behavioral health specialist would also help determine how best to allow providers to support a variety of scenarios, including vigils, drop-in centers, and psychological aid for first responders. In order to address this need, individuals serving in this role will need to be pre-identified and provided with the proper training in advance. A properly integrated behavioral health coordinator would help address assignment and communication issues that arose once providers were deployed to various sites throughout the city.

Overall, improving the collection of behavioral and mental health resources is a longer term need that must be addressed. Having a better understanding of the level and type of care that organizations and individuals can provide will mitigate the possibility of assigning people to assist in a capacity that is outside of their level of training or comfort.

Efforts related to addressing these gaps are already underway, including an *All-Hazards Psychological Trauma Coordination* project that is being managed by OPHP with support from U.S. Department of Homeland Security funding. Additionally, existing groups, such as the Boston Healthcare Preparedness Coalition and the Boston Health Resilience Network, are working to develop discipline-specific mental health partnerships to better coordinate and address behavioral and mental health needs.

With behavioral and mental health support playing such a significant role in the overall response and recovery efforts for responders, community residents, businesses, and survivors, more work needs to be done in the future to better integrate the many providers of care into a coordinated response system.

3. Formalized Emergency Support Function 8 (ESF-8) Recovery Plan

The events surrounding the bombings were unlike anything that the city or region had ever experienced in terms of the incident being a terrorist event, and the subsequent manhunt leading to Boston and surrounding communities effectively being shut down. As the

observations and recommendations put forth in this plan highlight, many elements of the response and recovery were successful and can be directly attributed to years of preparedness training and planning with a wide range of public and private partners. The bombings highlighted the need to enhance short- and long-term recovery planning for ESF-8.

During the marathon response, short term recovery operations included the establishment of community drop-in centers, the opening of the Family Assistance Center (FAC) at the Seaport World Trade Center, and the increased staffing of the Mayor's Health Line to help coordinate donations, human services, and information flow. Mental health resources were deployed throughout the city, and healthcare system partners were involved in regular updates to assess recovery needs. As the recovery progressed, more targeted resources were needed for the most acutely impacted institutions and individuals as the large networks that had been established and created to meet the short term recovery needs slowly disbanded.

In order to enhance future responses, lessons learned from the bombings will need to be applied within an "all-hazards" framework, to prevent focusing too heavily on the specific response associated with this particular event. In any recovery plan following an incident with significant impact on the public health and healthcare systems, there will likely be a need for community drop-in and reception centers, responder health and safety, and an FAC to support those most directly impacted. All of these recovery and support service activities do not end within a specified timeframe following an incident. There is a need for structured demobilization and transition plans that address the ongoing coordination efforts required of ESF-8 response partners, inclusive of the tracking of staffing requirements, resource needs, communications processes, and the reconstitution of impacted services.

While the bombings themselves did not impact the city's healthcare infrastructure in the way a major natural disaster could, they did highlight the coordination required for both short and long term recovery, and the challenges associated with transitioning from one to the other.

To address some of these issues, roles and responsibilities associated with recovery operations need to be further clarified to coordinate the public health response to an event. Programs and staff within BPHC will be better integrated into the recovery infrastructure to ensure that essential services and daily operations can continue while recovery phases shift from short- to long-term. This will be tested through regularly scheduled drills and table top exercises with those who would be most relied upon during recovery efforts. Resources and partnerships will continue to be inventoried and built upon through additional staff training

and the expansion of coalitions and networks, such as the Boston Health Resilience Network. It is a priority for OPHP to coordinate with BPHC leadership as well as healthcare system partners to ensure that the lessons learned from the Boston Marathon response are examined and addressed appropriately in order to further strengthen the public health and healthcare systems within the City of Boston.

Photo by Charles Krupa, Associated Press

PHP & HPP CAPABILITY 1:

COMMUNITY & HEALTHCARE SYSTEM PREPAREDNESS

Overview

The City of Boston's public health and medical community has a long history of coordination and cooperation in emergency preparedness and response. Through the years, coalitions have been built and systems have been established that address many of these preparedness capabilities.

Through the strategic functional areas of OPHP, the health and medical communities of Boston are continuously engaged in planning and preparedness efforts through a variety of forums, while opportunities for collaboration with new public and private sector partners are sought out and formalized through the Boston Health Resilience Network (BHRN). In addition to OPHP, the City of Boston maintains a robust emergency management infrastructure which regularly brings together large audiences of emergency response stakeholders to engage in planning efforts, trainings, and exercises.

Boston EMS Pre-Marathon Briefing
Photo by Boston EMS

The overall successful response to the Boston Marathon was the result of years of planning, training, exercising and overall collaboration from hundreds of stakeholders. For public health and healthcare partners, a shared understanding of protocols, situational awareness tools, and available resources allowed for an integrated response with a common operating picture. This collective capability has steadily improved over time. The leveraging of the Medical Intelligence

Center (MIC) provided a hub for information to be managed and disseminated across the healthcare system. It should be noted that the annual planning that goes into the events surrounding the Boston Marathon, and the continuous cycle of lessons learned and corrective actions from past years, was invaluable in ensuring various public and private partners within the healthcare system were well positioned to respond to the events of April 15th and the ensuing week.

For the broader response and recovery, established partnerships through groups such as the Conference of Boston Teaching Hospitals, the Boston Healthcare Preparedness Coalition, and the Boston Health Resilience Network, allowed for efficient information sharing and access to resources to assist with ongoing recovery efforts.

PHP Function 1.1 – Determine risks to the health of the jurisdiction.
HPP Function 1.2 – Coordinate healthcare planning to prepare the healthcare system for a disaster.

Analysis

Each year, the Boston Marathon is referred to as a "planned disaster," that stresses the healthcare infrastructure and requires significant amounts of coordination across disciplines and jurisdictions. Overall operations for the Boston Marathon are managed by the Boston Athletic Association, with significant support from the City of Boston and the area public safety agencies.

Year	Runners*	Max. Temp	Incident Totals	Transport Totals	Hospital Totals	Incidence Rate	Transports (as % of Incidents)
2010	23,126	61	1,320	42	68	5.71%	3.18%
2011	24,349	61	1,324	55	87	5.44%	4.15%
2012	22,485	87	2,181	241	260	9.70%	11.05%

Figure 1.1 – Comparison of Boston Marathon runner and treatment data, 2010-2012.
Sources: Boston Athletic Association, Boston EMS
**Note: Number of runners denotes those who were registered and physically ran the day of the race.*

It has co-medical directors, the public safety medical director for Boston, and a BAA medical coordinator who is responsible for overall logistics. Years like 2012 saw far higher injuries and patient transports than other years, due to the excessive heat, which stresses both the runners and the crowd's health. Medical tents along the route and at the finish line experienced a patient surge, which led to additional triage locations established outside the medical tents. Hospital emergency departments also experienced a surge of patient transports from the overwhelmed medical tents.

Prior to the Boston Marathon each year, a significant amount of work is undertaken by numerous agencies to analyze the operations and lessons learned of past years, and to put into place any corrective actions to influence operational plans that coordinate the response infrastructure. Past patient data is reviewed, and weather contingency plans are put in place. Hazards are assessed through outlets such as the Boston Regional Intelligence Center, and individual institutions scale up staffing levels and operations accordingly to meet the demand of the event. OPHP participates in medical planning sessions with the Boston Athletic Association and the broader healthcare community to coordinate planning operations specific to the healthcare community and to engage in a marathon-specific hazard analysis to determine the potential impacts to the system during the event. In preparation for the event, hospital protocols are reviewed, anticipated surge times are planned for, additional resources are provided, staffing is increased, and main points of contact are established for the day of the race.

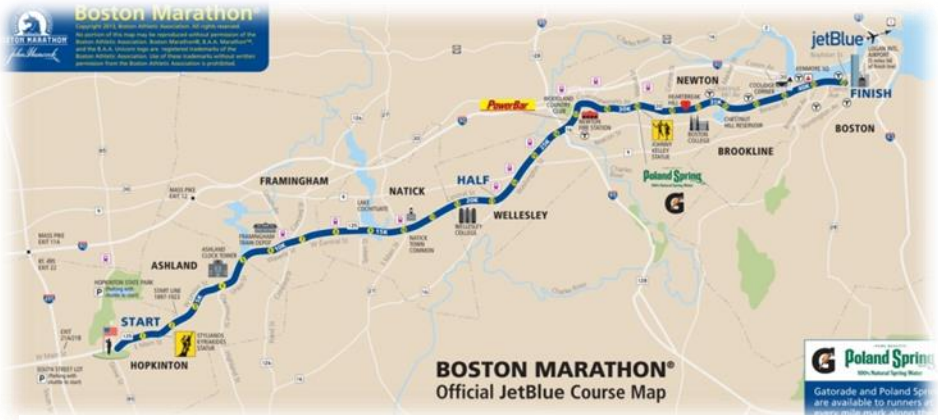


Figure 1.2 – Boston Marathon official course map, showing the last 1.7 miles that run through the City of Boston.

As the marathon is already a "surge" event for the city in terms of patients, significant resources have to be deployed in advance to prevent hospital emergency rooms from being overburdened, and overall public safety and hospital operations require expansion to sustain response capabilities within the City of Boston beyond the marathon. On the course, this includes medical tents along the route managed by the BAA, the ARC, and local EMS providers, the finish line

medical tents in Copley Square, and the pre-deployment of special operations and ambulance units to assist with patient transportation where necessary. Strong pre-planning efforts and positioning of resources created an infrastructure that was able to not only handle the race related surge, but shift to handle the unexpected mass casualty incident.

Observations & Recommendations

Observation 1.1 (Strength) – Pre-planning and coordination through the Boston HPC and the MIC led to improved outcomes following the bombings.

> Recommendation 1.1.1 - Continue to identify additional stakeholders who can/should be included in the emergency management process.

Observation 1.2 (Strength) – Relationships with the BAA continue to be a strength and provide for enhanced planning and response efforts.

> Recommendation 1.2.1 - Continue to engage in all medical and public safety planning sessions with the BAA to ensure continued coordination.

PHP Function 1.2 – Build community partnerships to support health preparedness.

Analysis

The public health and community infrastructure within the City of Boston benefits from long-standing relationships that have been established and nurtured over the course of many years. This includes coalitions, workgroups, and partnerships associated with emergency preparedness and response. The Boston Public Health Commission has deep roots within the neighborhoods of Boston, and through its Community Initiatives Bureau works closely with neighborhood groups, faith based organizations, and more. The

Figure 1.3 – OPHP's "Whole Community" approach to preparedness.

Office of Public Health Preparedness has leveraged these partnerships to more closely include these groups in preparedness efforts, fostering the *"Whole Community"* approach endorsed by the Federal Emergency Management Agency (FEMA).

During the marathon, pre-established notification distribution groups were utilized to provide ongoing situational awareness to partners, which also assisted in the broader dissemination of information throughout the healthcare, education, and business sectors. Additionally, organizations that had previously signed up to participate as members of the Boston Health Resilience Network (BHRN) were contacted to provide resource support during the recovery phase. Most notably the Seaport World Trade Center provided full support for the Family Assistance Center that was established days after the bombings to support victims and their families.

Observations & Recommendations

Observation 1.3 (Strength) – The Boston Health Resilience Network (BHRN) was leveraged to disseminate information to the community and to provide physical resources for incident response and recovery support.

> Recommendation 1.3.1 – Continue to solicit membership to the BHRN that supports human services, as they may need to be called upon during a public health emergency.

Observation 1.4 (Area for Improvement) – During the recovery, it was noted that there was not full awareness of all of the mental health resources that could have been made available.

> Recommendation 1.4.1 – Establish an inventory of mental health resources and points of contact.

PHP Function 1.3 – Engage with community organizations to foster public health, medical, and mental/behavioral health social networks.
HPP Function 1.1 – Develop, refine, or sustain Healthcare Coalitions.

Analysis

As the lead for ESF-8 for the City of Boston, the Office of Public Health Preparedness maintains responsibility for the coordination of health and medical response efforts and building the partnerships and systems that allow for integrated planning and operations. As mentioned, these partnerships were leveraged to disseminate public information and overall situational awareness through a variety of pre-established networks, including the healthcare system, and education, business, and hospitality sectors. For the healthcare system, this included members of the Healthcare Preparedness Coalition, Massachusetts League of Community Health Centers, Massachusetts Long-Term Care Mutual Aid Program, and others who have long-standing established relationships with OPHP.

Figure 1.4 – Boston Healthcare Preparedness Coalition website.

Marathon related information was shared with these partners prior to April 15th, to enhance institutional planning efforts, and to establish protocols for how to operate during the event. The activation of the MIC, the stationing of a coordinator from the Conference of Boston Teaching Hospitals, and the use of web-based resources such as WebEOC and EMTrack for patient information all contributed to establishing a common operating picture for the event, and helped facilitate the streamlined response following the bombings and in the days that followed.

Observations & Recommendations

Observation 1.5 (Strength) - Work undertaken to develop the Boston HPC allowed for easier coordination throughout the healthcare system.

Recommendation 1.5.1 - Sponsor more site visits with healthcare partners with OPHP representatives to better understand more ESF-8 stakeholders and enhance collaboration with the MIC.

Observation 1.6 (Area for Improvement) – A better understanding the emergency operations of home care, dialysis clinics, university student health centers, and mental health providers could have improved information sharing and a better anticipated potential needs from those individual institutions.

Recommendation 1.6.1 – Continue to solicit healthcare membership to the HPC that represents these entities.

HPP Function 1.3 – Identify and prioritize essential healthcare assets and services.

Analysis

Ensuring continuity of care was a primary concern to the healthcare community throughout the course of the response and recovery. For the Boston Public Health Commission, essential services such as emergency medical services, homeless services focused on shelters, and methadone dispensing were maintained through the activation of continuity of operations plans, and the re-organization of logistics to facilitate these efforts.

Law enforcement presence was enhanced at Boston hospitals.
Photo by Stan Honda. AFP

For the hospital sector, the designation of the bombings as a terrorist event carried with it added security, as local, state, and federal law enforcement agencies descended upon many of the facilities as part of heightened measures.

The challenges associated with continued care were felt acutely during the shelter-in-place request of Friday, April 19th during the extensive law enforcement manhunt for the suspected bombers. The shut-down of a major urban area carried with it logistical issues associated with staffing, transportation, and overall patient care. The complete shut-down of the MBTA bus and rail network within Boston and the impacted surrounding communities made shift changes at hospitals and other institutions difficult for those who rely solely on public transportation. The shelter request and associated travel ban created some confusion about the designation of

"essential" employees for public health and healthcare, and how those living in the shelter-in-place zone or employed within the shelter-in-place zone should respond. Additionally, questions arose as to how to manage current patients who were scheduled to be discharged.

Many of these issues were addressed through ongoing coordination with hospitals and health care entities. Representatives from the Conference of Boston Teaching Hospitals and the Massachusetts Department of Public Health staffing the Stephen M. Lawlor MIC worked to provide ongoing and updated guidance to institutions related to employee safety, patient care, and the overall transportation and security situation as the events of the day unfolded.

While the events of April 19th were unprecedented in many ways, there were many lessons learned that can be applied to future emergency events in which similar challenges will likely occur.

Observations & Recommendations

Observation 1.7 (Strength) - Hospitals along the Boston Marathon route were coordinated with in advance of the race to train on ETS, and coordinate EOC and Emergency Department contacts for the 24 hours leading up to the marathon.

> Recommendation 1.7.1 – Establish profiles of different healthcare organizations to better understand the unique challenges associated with neighborhoods and populations.

PHP Function 1.4 – Coordinate training or guidance to ensure community engagement in preparedness efforts.
HPP Function 1.5 – Coordinate training to assist healthcare responders to develop the necessary skills in order to respond.

Analysis

The City of Boston maintains a robust system for coordinating the training and exercise activities of members within the healthcare community. The DelValle Institute of Emergency Preparedness (the DelValle Institute), a program within the Office of Public Health Preparedness in close collaboration with Boston Emergency Medical Services (EMS), has trained over 28,000 individuals from the public safety, healthcare, and emergency management communities since its inception in 2003 through classroom and on-line deliveries. Courses cover a wide-spectrum of

emergency preparedness topics for broad audiences, and have helped to facilitate enhanced partnerships and planning efforts across not only the City of Boston's infrastructure, but also for regional, state, and federal partners. Many of the courses, exercises, and conferences sponsored by the DelValle Institute over the years have covered topics closely associated with the marathon response, including mass casualty incident management, mental health support, and continuity of operations planning.

Figure 1.5 – DelValle Institute Learning Center homepage.

In addition to training through the DelValle Institute, many hospitals promote and maintain strong emergency management which manage planning, staff training, integration with public health and safety partners, and exercises to test capabilities. Coordination capabilities amongst hospital emergency planners and the city are regularly tested, as they were recently in November of 2012 during Urban Shield Boston, a full-scale 24 hour exercise that included activation of the MIC and the emergency operations centers of a number of area hospitals, and tested areas associated with information sharing, hospital surge, and public safety coordination.

Prior to the marathon, specific trainings and just-in-time trainings were conducted with area hospitals, primarily related to the use of the Emergency Tracking System deployed to the finish line and area hospitals in support of patient tracking and family reunification efforts. The hardware and software systems are reviewed, as well as standard operating guidelines for use. Specific training is also provided to Boston MRC members who are recruited to assist Boston EMS with patient tracking at the medical tents.

At a higher level, regular targeted efforts are made to engage organizations, families, and individuals within the communities and neighborhoods of Boston to promote emergency preparedness and resilience. This work, while already significant prior to the marathon, will continue as a cornerstone of community preparedness in the future. Through BPHC Health Resilience Network and targeted community outreach partnerships, the City of Boston will continue to become more resilient.

These efforts, while they cannot all quantitatively be tied to the response efforts for the marathon, helped to establish the infrastructure, relationships, and shared understanding within the community and across the healthcare and public safety networks, and undoubtedly contributed to enhanced response efforts. Lessons learned from this experience will continue to be evaluated and worked into trainings and exercises that will continue to test and better prepare response partners throughout the ESF-8 network.

Observations & Recommendations

Observation 1.8 (Strength) – The education and networking opportunities provided through the DelValle Institute for Emergency Preparedness over the years were identified by stakeholders as key factors that helped facilitate a more seamless response.

> Recommendation 1.8.1 – Continue track trainings offered to capabilities and that support response scenarios.
>
> Recommendation 1.8.2 - Continue Boston HPC Training & Exercise workgroup to engage stakeholders in identifying essential training opportunities.

Observation 1.9 (Strength) - The DelValle Institute provided ETS trainings for hospitals, EMS, and volunteers prior to the marathon to ensure designated users were familiar the equipment and software, and to troubleshoot technical issues.

> Recommendation 1.9.1 - Formalize a web-based training for ETS that can be used to support marathon operations.

Observation 1.10 (Strength) – New family reunification protocols between the BAA and OPHP enhanced operations during the marathon. These included only allowing family members into

tents if a patient had been inside for over 40 minutes, or was going to be transferred to a hospital.

Recommendation 1.10.1 – None.

PHP & HPP CAPABILITY 2:

COMMUNITY & HEALTHCARE SYSTEM RECOVERY

Overview

The Boston Marathon required a level of community recovery that had never before been experienced in the City of Boston. While there was not a significant amount of destruction to public health and healthcare systems that required structural rebuilding, the ability of the community to recover was heavily dependent on the public health and medical resources that were provided. The ability to "return to normal" resulted from the tireless work of countless individuals who supported the survivors of the attacks, the residents and businesses impacted directly by the damage, and the community in general, which experienced the direct and indirect trauma of a terrorist attack.

President Obama speaks at the Cathedral of the Holy Cross in Boston on April 18th.
Photo by Kevin Lamarque, Reuters

On April 18th, an interfaith service was held at the Cathedral of the Holy Cross in Boston to begin the healing process within the city. Attended by Mayor Menino, Governor Patrick, and President Obama, the service spoke to resilience of the City of Boston and all of its impacted communities. On this same day, a Federal Emergency Disaster Declaration (FEMA-3362-EM) was received by the Commonwealth of Massachusetts to make federal funding available to support emergency work related to the response and recovery.

Within the community, public health played a significant role in clearing the designated crime scene for public access and working with City Hall to provide resources and behavioral health

support to the residents and businesses returning to Copley Square following the FBI's return of control of the area back to the City of Boston. Donations management and coordination was a large part of the recovery efforts, as individuals and corporations began to flood city agencies with offers of assistance. Through the Mayor's Hotline and the MIC, resources were collected, offers of assistance were vetted, and offers were matched where appropriate. For individuals, the establishment of the One Fund became the preferred avenue for donations of financial support.

Within the healthcare system, the City of Boston worked closely with emergency managers at area hospitals and management within other healthcare response organizations to ensure that individuals who were in the field providing direct care to victims, families, and those otherwise impacted, were receiving the follow up attention and care necessary to continue with their jobs. Additional coordination was required with local and state officials to ensure area hospitals were provided with the information needed to apply for FEMA reimbursement funds following the Emergency Disaster Declaration.

Also, areas for improvement were identified that, had the extent of the damages been greater or the duration of the impact longer, would have become major issues. This primarily includes the impact that would have been felt had access to medicine through pharmacies and other channels been disrupted longer, and had transportation closures further complicated the delivery of home health, dialysis, and other services.

The Boston Marathon was an incident that required a level of recovery within the community related to health and human services for a period of time that exceeded most previous planning efforts. The need for organizations to re-assign staff for long term case management, and to operate ongoing assistance centers, highlighted many areas for improvement related to long term recovery coordination that will be addressed in the future.

Overall, it is undeniable that the response efforts will lead to even will lead to even stronger relationships, systems, and procedures associated with community and healthcare system recovery in the future.

PHP Function 2.1 – Identify and monitor public health, medical, and mental/behavioral health system recovery needs.
HPP Function 2.1 – Develop recovery process for the healthcare delivery system.

Analysis

Early in the response on April 15th, assessments related to longer term recovery for the city were already underway. It was recognized that there would be a significant mental health services needed within the community and for first responders and receivers that were directly engaged in the response. Following the manhunt and shelter request on April 19th, this need expanded to surrounding communities, such as Cambridge and Watertown. Members of the U.S. HHS Public Health Service team, some of whom had recently deployed to the Sandyhook elementary school incident in Connecticut in December of 2012, provided guidance and expertise to local officials as to how best target impacted populations following the incident.

Events like vigils were tracked and monitored to determine support services that could be provided, and a resource branch within the operations section of the Medical Intelligence Center (MIC) was established to track requests for services as they were being requested in the community or from families, and to organize donations that began coming in from different businesses and community groups.

The MIC was also in contact with hospital and healthcare entities multiple times a day throughout the response and recovery phases, while bureaus of the Boston Public Health Commission were leveraging their networks within the community to identify areas where they could provide support services. Healthcare partners were made aware of what support services could be provided to them and were monitored to try and anticipate any needs that may arise.

At-risk populations were at the foremost concern, especially those within the community that were directly impacted and traumatized by the events of the 15th and 19th. This included the neighborhood in Dorchester where the Martin family resided, and the MIT campus following the

death of one of their officers. While response efforts unfolded on many fronts throughout the Boston region, OPHP served as the lead coordinating body for health and medical related support services and worked closely with the Massachusetts Department of Public Health's Emergency Preparedness Bureau to ensure there was a streamlined effort for the metro Boston region.

In terms of donations management offers began coming into the City of Boston from a number of businesses and corporations, as well as the general public, within hours of the bombings. While the One Fund ultimately became the preferred avenue to direct individual offers of financial support, the Mayor's Hotline, Mayor's Health Line, and the MIC worked to track offers of assistance from organizations, and shared those offers with victim social service providers that were working with the impacted families. A vast majority of them were related to healthcare and mental health support, all of which were tracked, triaged, and, where necessary, vetted prior to being shared with victim support services.

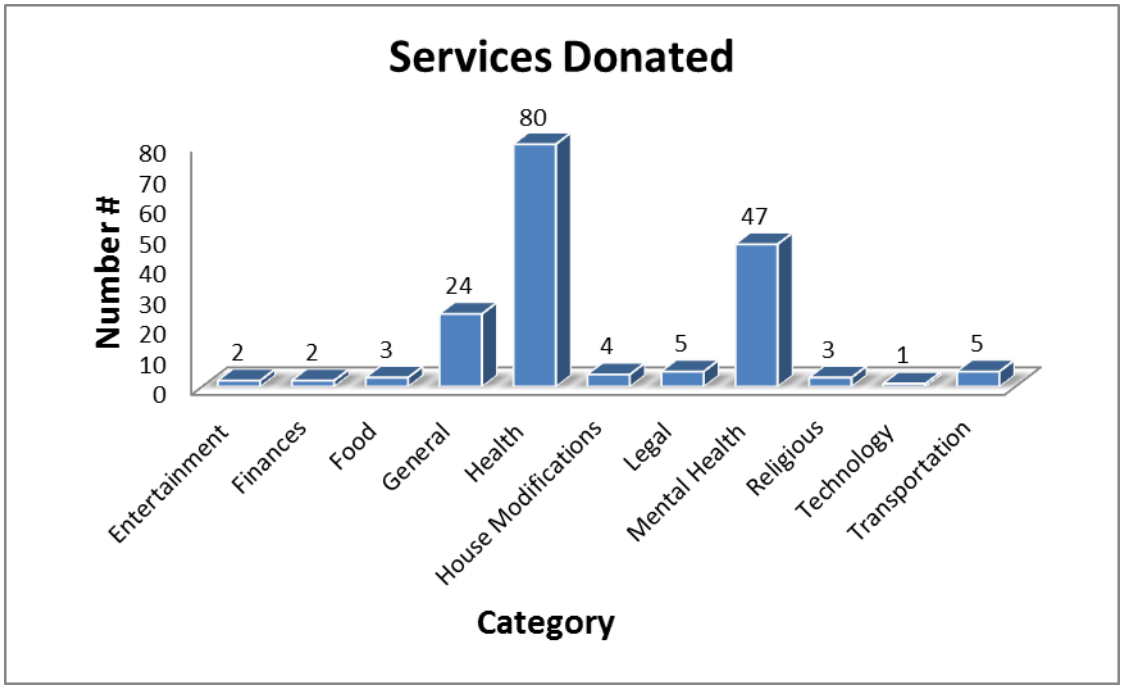


Figure 2.1 – Services donated and tracked through the Medical Intelligence Center.

While donations were invaluable in providing needed support and resources to victims and their family members, there was no official channel for the public and organizations to donate through initially prior to the One Fund's creation. This at times created various versions of offers that had

been received, vetted, shared, and closed out, an issue that will be addressed as part of recovery planning going forward.

Observations & Recommendations

Observation 2.1 (Strength) – MIC staff were able to leverage pre-established partnerships to identify at-risk populations and those who may require support with long-term recovery.

> Recommendation 2.1.1 – Continue to develop more comprehensive community and sector based profiles through GIS and data analysis.

Observation 2.2 (Area for Improvement) – The MIC was eventually able to successfully establish a process to track requests coming in throughout Boston for resources and services, but this could have been done sooner.

> Recommendation 2.2.1 – Build more formal SOPs for how to take in, track, and dispatch resources during incidents that require a broad response.

Observation 2.3 (Area for Improvement) - There is currently no established process for managing health and human service donations. This includes how to vet offers of service for reliability, and filter out donations that may be unnecessary or inappropriate.

> Recommendation 2.3.1 - Develop an SOP for donations management for ESF-8.

PHP Function 2.2 – Coordinate community public health, medical, and mental/behavioral health system recovery operations.

Analysis

The MIC, in coordination with the Mayor's Hotline and Mayor's Health Line served as the facilitation hub for healthcare provider and community resource needs. Requests that were made for support services, such as behavioral or mental health, were routed directly to the MIC or forwarded by partner agencies within Boston. Similarly, resources that were being offered to the city, as well as donations that were coming in from public, private, and individual entities were tracked and matched within the operations of the MIC. When requests were made, they were tracked, prioritized based on existing available resources, and closed out.

Copley Square crime scene prior to re-opening to the public.
Photo by Michael Naughton, Metro

Information related to support services was pushed to the public via press releases, website updates, and messaging to partner organizations. For public health specific resources, this was done through BPHC webpage and media advisories, while additional support services and resources for businesses and community partners was managed by City Hall through press releases, the cityofboston.gov website, and the deployment of a mobile city hall to Copley Square. This is all discussed in further detail within *Capability 4: Emergency Public Information & Warning* and *Capability 7: Mass Care.*

A significant part of the community public health recovery piece revolved around the efforts of BPHC Office of Environmental Health, who, during the re-entry phase following the handover of Copley Square from the FBI to the City of Boston on April 22nd, was responsible for clearing area buildings for re-occupancy, and clearing the site for environmental hazards. There was an awareness early on of the need for specialized clean-up efforts at the site, including that of blood and law enforcement markings that had settled into the pavement and sidewalks during the preceding week that required peroxide scrubbing. Environmental Health officials contacted an outside vendor to assist in the clean-up following the release of the site to the city, and worked with partners from Boston Fire, Inspectional Services, and the Department of Public Works through the night of 22nd to have the site cleaned and cleared for a private vigil that was held on the evening of the 23rd for survivors and their families.

Part of the re-entry process also included working with area businesses and residents to return them to properties, and from a human services perspective, providing individuals with mental

health support as they made that transition. To that end, BPHC worked with Riverside Community Care to provide teams of mental health professionals at the Hynes Convention Center and Boston Public Library while other city services arranged the provision of other essential transition services. BPHC staff was able to provide an additional level of emotional support to those returning to their home or business for the first time since the attacks.

Observations & Recommendations

Observation 2.4 (Area for Improvement) – It became difficult over the course of the recovery to obtain information to track the status of the mental health response from the multiple organizations delivering services.

Recommendation 2.4.1 - Establish and train on procedures to coordinate and track the status of the various entities delivering services.

Recommendation 2.4.2 - Provide training to mental health providers and MIC staff.

Observation 2.5 (Area for Improvement) – The volume of resources being coordinated and made available through multiple channels created inconsistency in information provided to the public.

Recommendation 2.5.1 – Have regularly scheduled check in with BPHC Communications, OPHP/MIC, Mayor's Hotline, and Mayor's Health Line to ensure the same updated information sheets related to resources are being provided to members of the community.

Observation 2.6 (Area for Improvement) – There was confusion amongst the parties involved in the site clean-up at Copley Square regarding timelines, expected actions, available resources, and overall incident command.

Recommendation 2.6.1– Ensure that the Office of Environmental Health is included in overall operations from the very beginning of any incident where it is anticipated their services will be required. This could be done through including a representative at the MIC.

Observation 2.7 (Area for Improvement) – The ability to secure a specialized vendor for site clean-up was based upon pre-existing personal relationships, and not established protocol. Lacking the arrangements made, the clean-up could have taken much longer without the proper

available resources, and the area may not have been ready to open for the private vigil on April 23rd or to the general public on April 24th.

> Recommendation 2.7.1 – Work with Environmental Health, Inspectional Services, Boston Fire, and City Hall to determine who should house an emergency contract with vendors who can provide specialized resources to assist in emergency decontamination and hazard clean-up.

PHP Function 2.3 – Implement corrective actions to mitigate damages from future incidents.

Analysis

It was noted that the healthcare demobilization process for the incident response will require additional thought and consideration for future events. The scope and complexity of the event, and the number of stakeholders involved in the response and recovery process, created challenges in scaling down operations and ensuring continuity. The MIC did release a formal demobilization and transition plan to the healthcare community on April 29th, outlining how elements of the recovery would be managed for the following month period of time, including information sharing, resource management, and management responsibilities for ongoing functional areas such as mental health and community support.

While there are still recovery efforts underway as this report is being compiled, the process for constructing a formal after action report began in mid-May to ensure that key elements of the response were captured before much time passed. As this report shows, almost every capability and functional area associated with healthcare system preparedness and response was touched upon in some way during the week of April 15th and beyond. Community feedback was collected through an exhaustive series of interview sessions with key stakeholders and the analysis of questionnaires. Various sectors that are partnered with on a regular basis, including education, business, and hospitality, were provided with information related to the ongoing response and recovery efforts, and offered the opportunity to comment on the healthcare response overall as it related to their specific sector or institution. The development of this report, through drafts, reviews, and edits from key stakeholders, has yielded a corrective action plan that will be shared throughout the public health and healthcare community, and ultimately lead to enhanced protocols and procedures for future incidents.

Observations & Recommendations

Observation 2.8 (Strength) – The effort undertaken by the healthcare community to produce this after action report was significant, and produced a series of recommendations and corrective actions that will only enhance healthcare preparedness, response, and recovery capabilities within Boston.

Recommendation 2.8.1 – Disseminate, as appropriate, findings of this report to identified stakeholders, and work collaboratively to ensure follow-up on action items.

Observation 2.9 (Area for Improvement) – There exists a need for a more formal demobilization and transition process within BHPC and the larger healthcare community, as operations return to normal.

Recommendation 2.9.1 – Identify demobilization roles and responsibilities, and outline a process for transitioning from short term to long term recovery operations.

Observation 2.10 (Area for Improvement) – While there was not extensive physical damage within the community that required the recovery of the healthcare system, many areas were highlighted that could have become issues had the extent of the damage been worse, or had the implementation of certain orders (i.e. shelter in place) been extended for longer.

Recommendation 2.10.1 – In conjunction with state and local partners, continue to support recovery actions within the healthcare sector.

Recommendation 2.10.2 – Educate non-healthcare partners how public health recovery and reconstitution efforts are managed.

PHP & HPP CAPABILITY 3:

EMERGENCY OPERATIONS COORDINATION

Overview

On April 15th, the City of Boston's Medical Intelligence Center (MIC) was activated to coordinate the public health and healthcare infrastructure for the Boston Marathon and to support any information or resource needs that may present themselves to partner institutions or key stakeholders.

The MIC was created in 2008 to serve as a location specifically dedicated to the coordination and response needs of the City of Boston's healthcare infrastructure, which is home to some of the most advanced and diverse institutions in the world. At the time, nothing of its kind had been developed within the United States, and even today there is nothing that quite replicates the purpose, function, and capabilities of the MIC.

The MIC was, and continues to be, built upon the principles of ICS in terms of its operations and staffing infrastructure. While the MIC is not an emergency operations center, it helps coordinate resources and response management during incidents where there is a public health emergency that directly impacts the healthcare infrastructure. As a 24/7

View of the second explosion from the finish line.
Photo by David L. Ryan, Boston Globe

intelligence center, the MIC provides a hub for information sharing and situational awareness for partner agencies, and is a trusted source for them to rely upon during events within the city that may impact their individual operations.

During the events of April 15th and the following weeks, the MIC was not only the central hub for information management and dissemination, but served as the operational coordinating arm for response and recovery issues including family assistance, donation management and assignment, resource sharing facilitation, and mental health provision. Beginning on April 17th, the MIC shifted to a Level 1 activation, designated by the presence of external agencies called in to support operations, including the Massachusetts Department of Public Health, the American AMERICAN RED CROSS, and the U.S. Department of Health & Human Services. Additional agencies were represented within the MIC over the course of the subsequent weeks to coordinate services as well.

This collaboration helped ensure that there was an ongoing, transparent, and accountable response process in place for healthcare partners and community members to tap into to address the significant needs associated with the response. The activation of the MIC, the sustained staffing through multiple operational periods, and the ability to draw in and coordinate partner agencies to address recovery needs allowed for a more coordinated response and recovery process.

During interviews with key stakeholders for this report, a veteran hospital emergency manager commented, “Looking back on what we used to do and what we do now, it is night and day”. While there will always be areas to improve upon, this statement reflects the work and dedication of countless people throughout the City of Boston and the healthcare infrastructure that have helped to build a system and the relationships that allow for an almost seamless response when major emergencies occur.

PHP Function 3.1 – Conduct preliminary assessment to determine needs for public activation.
HPP Function 3.1 – Healthcare organization multi-agency representation and coordination with emergency operations.

Analysis

As part of the planning process for the 2013 Boston Marathon, it was determined that the MIC would be activated for the duration of the race, along with the MEMA State Emergency Operations Center, the MDPH Department Operations Center, and various other local, state, and federal command centers located in the field. Due to the nature of the event, hospital emergency departments were also carrying additional staff, and hospital emergency managers had activated their emergency operations centers at seven Boston hospitals (including Children's) and two non-Boston hospitals for the race. Much of the coordination for how these entities would interface, and the types of information that would be shared, were determined during the preliminary medical planning meetings held with the BAA as discussed earlier. The MIC would be at a Level 2 "High" activation, indicating that the center would be physically staffed with representatives internal to the City of Boston, which included the Office of Public Health Preparedness and Boston EMS. Incident command was used, and assignments were given for a MIC manager and planning and operations sections. A communications plan was established for connectivity with staff assigned to the medical tents along the route and at the finish line.

On Friday, April 12th, a Situation Brief was sent out from the MIC to healthcare partners and other stakeholders, outlining the planned activities of the MIC, the operational periods, the ICS staffing infrastructure, and overall operational objectives, which focused on providing support for the Emergency Tracking System, family reunification, and general support to the ESF-8 community. Information also included any security, weather, or transportation information that could impact healthcare operations. Historical data from past years and a course map were included for reference.

Observations & Recommendations

Observation 3.1 (Strength) – The initial MIC/ICS forms (201, 202, and 203) that were disseminated by the MIC were well organized and well received by healthcare partners, and allowed for organized communications during the marathon, and better prepared the system for the eventual response following the blasts.

> Recommendation 3.1.1 – Continue to gather feedback from stakeholders on how to continuously improve the information dissemination process.

Observation 3.2 (Strength) – The activation of the MIC for the marathon, and the pre-positioning of resources and staff let to a more successful and timely response within the healthcare system.

Recommendation 3.2.1 – Continue to open and operate for major planned events within the City of Boston.

HPP Function 3.2 – Assess and notify stakeholders of healthcare delivery status.

Analysis

Immediately following the finish line blasts at 2:49pm, the MIC received an emergency notification of the incident over the 800MHz radios that were assigned to staff at the MIC and in the field. Also within the MIC, the Boston EMS representatives were following radio traffic over the tactical channels to try and obtain situational awareness. While the cause of the event and impact was still unknown, the MIC sent out a significant event alert at 2:51pm, notifying emergency managers at hospitals, stating "A large explosion has been reported outside of Medical Tent A, prepare for unexpected injuries to report."

Office of Public Health Preparedness staffs the Medical Intelligence Center while President Obama addresses the bombings.
Photo by Nicole Naude

Boston EMS command staff on scene at the first blast site initially estimated 40 casualties, with a similar number being reported from the second blast site shortly thereafter. By 2:53pm, CMED had sent an MCI Notification over the disaster radios at hospital emergency departments. At 2:59, a severe alert was sent out via the HHAN network from the COBTH coordinator staffed at the MIC, stating "Explosion near

Medical Tent A. EMS will be using red wristbands for patients. Multiple casualties reported". This notification reached 175 confirmed end users.

It was clear very early on that there would be a significant impact on the healthcare system within the City of Boston based upon updates from the scene. Institutions were advised to continue using the WebEOC event created for the Boston Marathon, and HHAN alerts continued to go out to provide pertinent updates. At 4:16, a notification was sent out to COBTH hospitals informing them that transports from the scene had ceased for the time being and that a further surge should not be expected. This notification allowed hospital emergency rooms to better manage operations knowing that the surge had ended.

Notifications continued throughout the following weeks to healthcare institutions to provide updated situational awareness and a common operating picture. These are covered in further detail within *Capability 6: Information Sharing*.

Operational pre-planning with the healthcare community and the establishment of formal MIC operations prior to the explosions was necessary to effectively support response partners following the blasts. Had so much work not gone into the planning phases, and had operations not been stood up, not only would information sharing and situational awareness during those first critical hours have been extremely challenging, but the ongoing response and recovery operations would not have had a solid infrastructure from which to operate within the MIC.

Observations & Recommendations

Observation 3.3 (Strength) – The presence of Boston EMS uniformed staff within the MIC allowed for real-time updates from the field and connectivity to other public safety information which helped provide better situational awareness to healthcare partners.

Recommendation 3.3.1 – Designate the EMS position in the MIC as being part of the minimum staffing in the MIC Operations Plan during planned activations and real world responses.

Recommendation 3.3.2 – Reinforce with healthcare partners locally and within the state that real time on-scene information has to be vetted and confirmed to ensure inaccurate information is not released and widely disseminated.

Recommendation 3.3.3 - Formalize the process for vetting information.

Recommendation 3.3.4 - Develop a template for types of information to be included in situation briefings and notifications including language to address unknown, uncertain, and/or unconfirmed information.

Observation 3.4 (Strength) – The presence of the COBTH coordinator as the Hospital Coordinator in the MIC allowed for a central point of contact for Boston hospitals during the entirety of response and recovery efforts, which better facilitated information sharing and resource requests.

Recommendation 3.4.1 – Ensure that the Hospital Coordination Unit Leader position is staffed within the MIC during planned activations and real world responses.

Recommendation 3.4.2 - Ensure that there is additional capacity to support the healthcare system response.

Observation 3.5 (Strength) – Healthcare partners noted that the MIC provided them with timely and accurate information throughout the response through the use of WebEOC, HHAN alerts, MIC Advisories, Situation Briefs, and the 24/7 availability of OPHP staff.

Recommendation 3.5.1 – Continue to refine information sharing methods and protocols to provide stakeholders with information that enhances situational awareness.

Recommendation 3.5.2 – Refine distribution lists to ensure accuracy and accountability regarding who receives information from the MIC.

Recommendation 3.5.3 - Prior to planned events, remind partners of information privacy policies for MIC advisories and alerts, and the FOUO designation for MIC SitBriefs.

Observation 3.6 (Area for Improvement) – News spread through social media was often inaccurate, which contributed to confusing during the events of April 15-19.

Recommendation 3.6.1 – Work to use aggregating software to pre-determine what sites and keywords/topics should be tracked.

Recommendation 3.6.2 – Within ICS, build into the Situational Unit a process for having visibility on information that is collected.

PHP Function 3.2 – Activate public health emergency operations.

Analysis

The existence of the MIC and the operational pre-planning that preceded the Boston Marathon allowed for response efforts to expand when necessary following the explosions. Staff from OPHP had already been identified to staff certain operational sections, and a majority of healthcare emergency response partners were already assigned to work on April 15th as part of expanded operations.

Years of integrated ICS training and planning with partner agencies and a strong level of familiarity with one another's operations and response capabilities allowed for multi-agency healthcare representation to take place at the MIC, and for partners to feel comfortable in sending staff to link into operations. Priorities and objectives changed quickly, making it difficult to know exactly which positions to activate and what to prioritize, but following ICS protocols it was possible to execute a flexible response when the marathon shifted from a planned event to a tactical response operation.

Observations & Recommendations

Observation 3.7 (Strength) – OPHP personnel in the field and staffing the MIC had sufficient ICS and EOC operational training to be able to perform their duties the day of the marathon prior to and following the explosions. Levels of ICS training were met for those serving within a management capacity within the MIC.

Recommendation 3.7.1 – Continue to train staff to levels where they can serve in command and general staff positions within the MIC and ICS.

Observations 3.8 (Area for Improvement) – Radios were not disseminated to all OPHP field staff, including those at medical tents along the route, and at the BAA family reunification station.

Recommendation 3.8.1 – Ensure all locations with OPHP staff are outfitted with an 800MHz radio.

Observation 3.9 (Area for Improvement) – There were delays in getting accurate incident information from the MIC to OPHP staff in the field.

Recommendation 3.9.1 – Establish a more formal structure for MIC to field operations, and develop communications contingency plans to ensure all staff are provided with real-time situational awareness.

Observation 3.10 (Strength) – The ability to quickly bring in various representatives from external agencies helped to support a more coordinated ESF-8 response.

Recommendation 3.10.1 – Further develop the formal MIC staffing chart to include additional non-OPHP staff from external agencies, and train internal/external staff on the new structure.

Recommendation 3.10.2– Before deploying any external partner to the MIC, hold a briefing with command staff to establish a process for managing requests and resources from the agency being represented.

Observation 3.11 (Area for Improvement) – Given the length of the response and the need for staff to perform various functions within the MIC, it was determined that some staff were not fully trained in how to operate in their positions.

Recommendation 3.11.1 – Continue to seek opportunities to provide OPHP and potential MIC staff with cross-training for multiple positions.

Recommendation 3.11.2 – Develop revised Job Action Sheets (JAS) that will assist assigned staff with performing their ICS roles.

Recommendation 3.11.3 – Conduct regularly scheduled drills to run staff through various scenarios to increase comfort with performing in certain roles.

Observation 3.12 – (Area for Improvement) – A number of technology and functionality issues were identified within the MIC that will require immediate attention.

Recommendation 3.12.1 – Contract out the reassessment and fixing of MIC equipment, including internet and phone jacks, sound systems, presentation abilities, and the A/V room.

Recommendation 3.12.2 – Work with phone service to ensure the main MIC line can bounce and/or have redundancy so the line is always open.

Recommendation 3.12.3 – Ensure assigned laptops are configured for printer connectivity, "I" share drive access, and have access to all necessary networks and systems prior to staff beginning a shift in the MIC.

Recommendation 3.12.4 – Ensure there is always a representative from IT available to be dispatched to the MIC for technical support and troubleshooting.

Observation 3.13 (Area for Improvement) – During the response, security procedures for the MIC and access rights should have been more strict to ensure employee safety, site security, and confidentiality of operational decisions and protected health information.

Recommendation 3.13.1 – Work with BPHC security to provide physical security presence during activations.

Recommendation 3.13.2 – Build out enhanced security guidelines within the MIC SOG.

Observation 3.14 (Strength) – Following the establishment of the UCC at the Westin Copley, representatives from OPHP were present with public safety officials and assisted with providing situational awareness from hospitals through connectivity with the MIC.

Recommendation 3.14.1 – Build into MIC Concept of Operations (ConOps) how to ensure that public health is represented within UCCs, and the expected roles and responsibilities.

Observation 3.15 (Area for Improvement) – Initially on April 15th, it was difficult for family members of Boston EMS and BPHC staff to confirm the safety of loved ones, which led to an influx of calls to EMS dispatch operations and individuals staffing the MIC, at times diverting resources and attention from the response at hand.

Recommendation 3.15.1 – Establish a pre-determined phone line within the MIC for staff families to contact in the event of a major emergency, and be sure to include in all communications plans and information dissemination.

Observation 3.16 (Area for Improvement) - The MIC manager was directed to assist with operations management at Boston Common following the suspension of the race and diversion of runners.

Recommendation 3.16.1 - Always staff a Deputy MIC Manager for planned and real world events, to ensure there is necessary chain of command redundancy.

Observation 3.17 (Strength) – Being accompanied by uniformed Boston EMS staff assisted BPHC with access issues in the field.

Recommendation 3.17.1 – Determine what type of badging / credentialing public health officials need for on-scene access from traditional public safety partner agencies.

Recommendation 3.17.2– Provide BPHC staff involved in a response have the resources and communications tools they require to maintain connectivity.

Observation 3.18 (Strength) – BPHC leadership, many of whom are responsible for the provision of essential healthcare services within Boston, were able to maintain program and service delivery continuity (homeless services, sheltering, methadone clinic) during the events of the 15th and the shelter request on the 19th.

Recommendation 3.18.1 - Work with BPHC programs to build out more comprehensive COOP plans so preparedness is enhanced internally.

Observation 3.19 (Area for Improvement) - BPHC leadership could have received information related to the response and roles and responsibilities in a more coordinated manner.

Recommendation 3.19.1 – Establish enhanced communications protocols between executive leadership, the MIC, and senior managers to ensure continuity of information.

Recommendation 3.19.2 – Conduct regular senior leadership and program manager emergency communications drills through the Everbridge emergency alert system.

PHP Function 3.3 – Develop incident response strategy.

Analysis

Beginning on April 17th, the MIC shifted to a Level 1 high activation, indicating the presence of external partners supporting operations in the MIC. This included the Massachusetts Department of Public Health, the AMERICAN RED CROSS, and the U.S. Department of Health & Human Services, all of whom were present to support the coordination of messaging and delivery of healthcare and human services within the Boston area.

The fact that the response extended for numerous 12-16 hour operational periods over the course of several weeks created challenges associated with staff continuity and ensuring operational staff was cared for properly with sufficient food, rest, and breaks.

Observations & Recommendations

Observation 3.20 (Strength) – MIC Situation Briefs shifted objectives to meet the demands of the events on the 15th and 19th, and continued to plan out for future operational periods as the response carried on.

> Recommendation 3.20.1 – Consider developing draft objectives for various scenarios that will help facilitate the types of operational areas that require consideration during a response.

Observation 3.21 (Area for Improvement) – There were times when, due to the nature of the response, operational period briefings were delayed or cancelled.

> Recommendation 3.21.1 – Have the MIC manager ensure that pre-scheduled briefings are given the highest priority in order to review operational plans and answer questions from staff.
>
> Recommendation 3.21.2 – Ensure transition briefings are held when any command/general staff positions need to be relieved or will be absent from operations for any extended period of time.

Observation 3.22 (Area for Improvement) – Given the length of the activation and the intensity of the response, keeping staff fed and hydrated was at times overlooked.

Recommendation 3.22.1 – Ensure all operational periods have a food unit leader assigned in the MIC with the responsibility for procuring food and drink for morning, afternoon, and evening shifts.

Recommendation 3.22.2 – Identify in advance Boston Health Resilience Network partners who are capable of providing and delivering food to staff during extended operations.

Observation 3.23 (Area for Improvement) – The intense and stressful nature of the event on OPHP staff working within the MIC required additional employee check ins both at home and on the job. Supervisors checked in with staff regularly, additional check ins may have been beneficial.

Recommendation 3.23.1 – Send out regular (daily) updates to all staff collectively checking in, and providing any updates related to staffing, operations, resources for stress management, and assessing any personal or professional needs, including transportation assistance. Have supervisors check in with staff individually to assess needs.

PHP Function 3.4 – Manage and sustain the public health response.
HPP Function 3.3 – Support healthcare response efforts through coordination of resources.

Analysis

The MIC was physically activated from April 15th through April 26th, which allowed for an ongoing and sustained health response to take place in terms of both information sharing and resource coordination with response partners.

The inclusion of representatives from the Conference of Boston Teaching Hospitals, the Massachusetts Department of Public Health, the ARC, and others helped to facilitate information flow as events unfolded and new information became available that needed to be shared or acted upon. This was the case when there were requests for blood bank deliveries and the transfer of amputation kits to certain area trauma centers on April 15th, and when guidance was needed from area healthcare partners during the shelter request on April 19th.

The intensity and length of the response highlighted the need for the training of additional staff that could serve within the ICS structure of the MIC, to both prevent staff burn out and to create additional redundancy when there are transportation, access, or safety issues for staff getting in and out of work. This also highlighted the need to build out more formal plans and protocols associated with staffing and resource sharing for both short and long term recovery operations within the healthcare system.

Observations & Recommendations

Observation 3.24 (Strength) – The activation of the MIC to a Level 1 high physical level for the two weeks following the bombings, and the presence of multiple outside agencies, allowed for an ongoing coordinated response through the facilitation of internal meetings, conference calls with external stakeholders, and the integrated development of ongoing operational plans.

Recommendation 3.24.1 - None.

Observation 3.25 (Strength) – The presence of MDPH at the MIC allowed for ongoing coordination of healthcare response efforts that extended beyond the City of Boston, and gave the MIC access to MDPH personnel and technology resources, including conference call lines.

Recommendation 3.25.1 - More formally build out the role of MDPH within MIC operations.

Observation 3.26 (Strength) – The MIC and MDPH were able to provide information that assisted with the coordination of resources to area hospitals, including the delivery of blood and amputation kits to area hospitals.

Recommendation 3.26.1 - None.

Observation 3.27 (Area for Improvement) - There was confusion within and amongst hospitals related to the formal processes for resource requesting and sharing.

Recommendation 3.27.1 - OPHP will coordinate with hospitals through the Healthcare Preparedness Coalition working groups to address these issues.

Observation 3.28 (Area for Improvement) – The administrative management of scheduling and setting up meetings and conference calls became distracting and burdensome for managers, and the ability to track all of the activity became difficult.

> Recommendation 3.28.1 – Expand the Planning Section to assign an individual to attend all meetings held on site at the MIC to ensure accurate notes are taken and follow-up actions are performed.

Observation 3.29 (Area for Improvement) – While staffing the response and recovery operation was successful, it was identified that had there been full 24 hour operational periods, redundancy of staff availability and competency in certain positions would have been a serious challenge.

> Recommendation 3.29.1 – Identify other external partners with proper ICS training and healthcare system familiarity to potentially provide staffing support within planning and operations.

PHP Function 3.5 – Demobilize and evaluate public health emergency operations.

Analysis

The MIC formally demobilized on Friday, April 26th, from Level 1high activation to a Level 3 virtual activation with on-call duty officer support for all stakeholders. Conversations began early on within the MIC as to how the response would ultimately demobilize and operations would return to normal. Similar decisions were being made at area hospitals whose EOCs had also been activated at various levels during the response and recovery process. As was noted, the response phase within the hospitals lasted for weeks beyond the initial event. A formal demobilization and transition plan for healthcare and medical response was sent out by the MIC on April 29th, outlining the areas of responsibility that would continue for the coming month.

E-mail related to the response and recovery was archived in tagged folders within the MIC e-mail account, and all documentation related to the response was archived within the appropriate section of the OPHP share drive for secure access. The volume of information and communications that were generated during the response from countless sources was unparalleled in the City of Boston, and the ability to organize, analyze, and interpret much of that information has been the basis for this report. The records include a minute by minute account of

response efforts undertaken by numerous agencies and individuals and the story of how events unfolded and were managed.

It has been generally viewed, by City of Boston officials, the media, emergency management experts, and national and international commentators, that the response efforts within Boston and surrounding jurisdictions the week of April 15th were successful. While much of that success lies in the nature of the event, and the necessary pre-positioning of significant resources throughout the region, a great deal also lies in the years of coordinated operational response planning undertaken by so many across disciplines and jurisdictions.

The volume of lessons learned from this incident will be addressed for years to come, and will only further refine and improve planning and response efforts throughout the healthcare delivery system within the City of Boston.

Observations & Recommendations

Observation 3.30 (Strength) - The MIC provided a central location to coordinate demobilization efforts amongst healthcare partners.

Recommendation 3.30.1 - None.

Observation 3.31 (Area for Improvement) – There was some confusion related to what healthcare EOCs were operational, and to what levels, during the weeks that followed the response.

Recommendation 3.31.1 – As part of daily check-ins with healthcare partners, perform a roll call of EOC operations, activation level, staffing contact information, and hours of operation.

Recommendation 3.31.2 - Utilize situational awareness tools (WebEOC) to assess levels of operations at healthcare EOCs.

Observation 3.32 (Area for Improvement) – A more formal demobilization process needs to be established for all emergency responses, including SOPs for collecting and archiving information for use during AAR planning.

Recommendation 3.32.1 – Have all sign-in sheets pre-positioned in the MIC for proper, standardized sign-in for all shifts.

Recommendation 3.32.2 – Keep a call log next to the main line at all times to track all incoming phone traffic in a more systematic way.

Recommendation 3.32.3 – Build out more detailed training for the Documentation Unit Leader to understand specific roles and responsibilities associated with record collection and archiving.

PHP CAPABILITY 4:

EMERGENCY PUBLIC INFORMATION & WARNING

Overview

As a large scale international event, the Boston Marathon requires a significant amount of coordination amongst many departments and agencies, as well as coordinated messaging to the public related to the event. Traditionally, these types of public information and alerts are related to security measures for the event, traffic advisories, transportation and parking impacts, and other types of information that would limit normal day-to-day activity along the course route.

Boston Mayor Thomas Menino address the media at the Westin Copley. Photo by Justin Lane, EPA via Landov

Following the explosions at the finish line, the need for timely and accurate public information and risk communications to the public and healthcare network was critical. For the City of Boston, the Mayor's Press Office is the overall public information lead, though public information officers and communications offices from many city departments played a significant role, including those from Boston Police, Boston Fire, Boston EMS, and the Boston Public Health Commission. During the initial response, and throughout the course of the marathon response and recovery process, there were frequent public alerts, warnings, and notifications to the public and various stakeholders.

The first media advisory from the Mayor's Press Office on April 15th announced a press conference at 4:30pm with the Mayor to address the events of the day from the Unified Command Center at the Westin Copley Plaza Hotel. Two additional advisories were sent on the 15th, one announcing a second press conference at 6:00pm, and the other providing information related to the opening of the Park Plaza Castle as a resource and information center for runners and the public. The security perimeter of the established crime scene was provided, and phone numbers for the FBI and the Mayor's Hotline were given as resources for the public to provide tips related to the incident and to field concerns about friends and family members, respectively. The Mayor's Hotline at City Hall was activated and staffed early on in the response to serve as a central hub for the public to call for information, and to provide assistance with family reunification as information became available from the area hospitals through the Medical Intelligence Center (MIC). This type of regular interaction with the press and the public occurred throughout the days and weeks that followed, announcing services for residents and businesses within the impacted area, resource centers for the general public, pertinent transportation and security updates, and information related to the One Fund for the victims and their families.

From the healthcare perspective, BPHC Office of Communications assumed the lead role for providing information related to human services, including behavioral and mental health counseling. The Mayor's Health Line (MHL), located within BPHC's Community Initiatives Bureau, was activated and staffed with clinically trained counselors to provide trauma support to callers, which initially helped alleviate call volume from the Mayor's Hotline at City Hall. The MHL also expanded coverage for evening and weekend hours to help respond to marathon-related calls, and provided staff with frequently asked questions (FAQ) and a host of other resources.

Through these channels and others, additional behavioral and mental health resources were announced to the public, including the American Red Cross' 24/7 Disaster Distress Helpline, Riverside Community Care through the State Department of Mental Health, and the Substance Abuse and Mental Health Service Administration (SAMHSA). Social media was leveraged to further push out information to the public, including how people could find loved ones via the ARC' "Safe & Well" and Google "Person Finder" sites, and even information related to vigils being held throughout the neighborhoods of Boston. This information was also posted on BPHC and City of Boston website home pages and was updated regularly as new information became available. Outside of Boston, Riverside Community Care provided behavioral health support to those calling from outside of the city, which helped alleviate potential stress on the city's trauma counseling and support capacity for residents. This was a critical point of collaboration, as the

Boston Marathon is an international event that had a significant geographic impact far outside the City of Boston proper.

Additionally, measures were taken to formally reach out to journalists and members of the media to encourage them to take advantage of counseling support services, and information was widely disseminated regarding how to support children following traumatic events.

Given the terrorist nature of the incident and the subsequent fear and confusion it caused amongst the general public, especially during the shelter-in-place request implemented on Friday, April 19th, public information and risk communication went exceedingly well. The public received regular updates, helping to alleviate volume stress on call centers and healthcare facilities. Resources were proactively coordinated and communicated to the appropriate audiences with the aide of various media outlets, and critical transportation and security information was regularly shared.

While there were of course areas for improvement that have been identified to further strengthen this capacity, the public information function within Boston assisted the overall response and recovery operation tremendously.

PHP Function 4.1 – Activate the emergency public information system.

Analysis

Since the Boston Marathon is a pre-staged event, a number of public information officers were already active for the day, and some were on scene in and around the marathon finish line. Following the explosions, a Unified Command Center was established at the nearby Westin Copley Place hotel, which served as a de-facto Joint Information Center to communicate updated information and advisories to the media and public.

The PIO for the Health Commission was in communication early on with the Executive Director, and he correctly anticipated that most press calls for the day would be going through the Mayor's Office and Boston Police. This was similar to what transpired on April 19th during the shelter-in-place request, when a majority of communications focused on information sharing with response entities as opposed to media calls about impacts on the healthcare system. The Mayor's Press Office coordinated with the appropriate public information officers to collect information required for media advisories being sent out by City Hall.

Observations & Recommendations

Observation 4.1 (Strength) – In the immediate aftermath of the bombings, most public information officers for the City of Boston were either already on scene or notified of the events that had occurred and were able to mobilize quickly.

Recommendation 4.1.1 – Determine if there is an appropriate means to send out immediate emergency alerts through the entire PIO network.

PHP Function 4.2 – Determine the need for a joint public information system.

Analysis

As stated, the Unified Command Center served as a de-facto Joint Information Center where press conferences were held with key government and public safety officials following the event. The Mayor's Press Office, as the lead for the city, was in communication with public information officers from other departments and agencies regarding consistent messaging, review and approval of information prior to dissemination.

For ESF-8, the MIC was in regular communication throughout the response and recovery process with BPHC Executive Office and Office of Communications in order to relay information being collected from the health and healthcare communities that could be disseminated more broadly where appropriate. Regular Situation Briefs were also disseminated by the MIC to a wide network, which allowed stakeholders, such as hospitals, to regularly receive information. This strategy may have helped alleviate some initial call volume from the general public coming into BPHC and City Hall.

It was acknowledged that a more formal system for bringing together press officers for either a physical or virtual activation might further enhance situational awareness and the ability to better coordinate public information efforts. Nevertheless, the robust public information network within the City of Boston and everyone's distinct understanding of their roles and responsibilities helped facilitate an effective response.

Observations & Recommendations

Observation 4.2 (Strength) – Well trained and engaged public information officers throughout the City of Boston were able to understand their roles and responsibilities and execute on behalf of their individual departments and the City of Boston.

Recommendation 4.2.1 – Continue to seek opportunities to expose PIOs to emergency response and risk communications through trainings and inclusion in drills, table-top, functional, and full-scale exercises.

Observation 4.3 (Strength) – The Unified Command Center provided a central location for senior officials to gather and brief the media on events, and for entities such as the MIC to relay information to.

Recommendation 4.3.1 – Determine how to best address any health and medical public information needs working through a Unified Command Structure where ESF-8 is incorporated.

Observation 4.4 (Area for Improvement) – PIOs took responsibility for their specific areas without direct guidance or the establishment of a formal physical or virtual Joint Information Center.

Recommendation 4.4.1 – Work with PIOs and partners at City Hall to determine options for formally establishing protocols and procedures for a JIC to ensure all major response parties are coordinated in terms of actions and public information.

Recommendation 4.4.2 – In instances where a physical JIC is not established, station a representative from BPHC's Communications Office at the MIC.

Observation 4.5 (Area for Improvement) – Some public information staff were initially assigned to City Hall and the Mayor's Hotline to assist with overall operations. In light of the recent attacks, assurances that City Hall was a safe venue to report to would have been beneficial for those responding.

Recommendation 4.5.1 – Establish plans to treat all personnel who respond during an emergency as "emergency responders", and ensure proper safety protocols are followed

and necessary information is provided to individuals before asking them to physically respond.

Observation 4.6 (Area for Improvement) – The approval process for vetting and dissemination of public information was at times unclear. While PIOs generally released information in a timely and accurate manned, a more formal process for approving public messaging would be beneficial.

Recommendation 4.6.1 – Establish in advance the types of public messaging that require different levels of review and approval prior to dissemination.

PHP Function 4.3 – Establish and participate in information system operations.

Analysis

During all pre-planned events such as the Boston Marathon, traditional media outlets are followed in addition to the operational systems put in place to facilitate information sharing. On the day of the marathon, live televised news coverage of the event ceased as of 2:00pm, nearly an hour before the first explosion on Boylston Street. As of 2:00pm, operations centers began to primarily monitor field radio traffic and platforms such as WebEOC, so when the explosions occurred, there was not a direct televised feed from the scene for situational awareness until media outlets began broadcasting.

During the initial response, the Mayor and all senior city and public safety officials convened at the Unified Command Center to coordinate messaging to the public. For healthcare and human service issues, BPHC's Executive Director and the Office of Communications served in both a supporting and lead role, in conjunction with the Mayor's Press Office, to disseminate information.

Given the uncertainties associated with the event, rumor control proved to be a challenge, especially immediately after the explosions. Social media messaging triggered a flurry of incoming and outgoing phone traffic from the MIC that primarily focused on the status of healthcare facilities and the threat of additional attacks. The Conference of Boston Teaching Hospitals (COBTH) coordinator located at the MIC worked with hospitals and law enforcement to stay on top of and dispel or confirm reported information. The presence of uniformed EMS staff at the MIC also provided real-time field information that could be confirmed and used,

when cleared and appropriate, to better inform healthcare partners of situational awareness. This is discussed further in *Capability 6: Information Sharing.*

Observations & Recommendations

Observation 4.7 (Strength) – The regular release of public information via press conferences and media releases/advisories allowed for timely and accurate information to be shared with healthcare partners, which enhanced overall situational awareness with all response partners.

Recommendation 4.7.1 - None.

Observation 4.8 (Strength) – The MIC successfully worked with healthcare partners to monitor and verify the accuracy reported information.

Recommendation 4.8.1 – Work to develop a means to follow social media sites within the MIC using aggregator systems to highlight keywords and topics.

Recommendation 4.8.2 – Include within the planning section's situation unit a Standard Operating Guide (SOG) for how to monitor and report on social media during emergency activations.

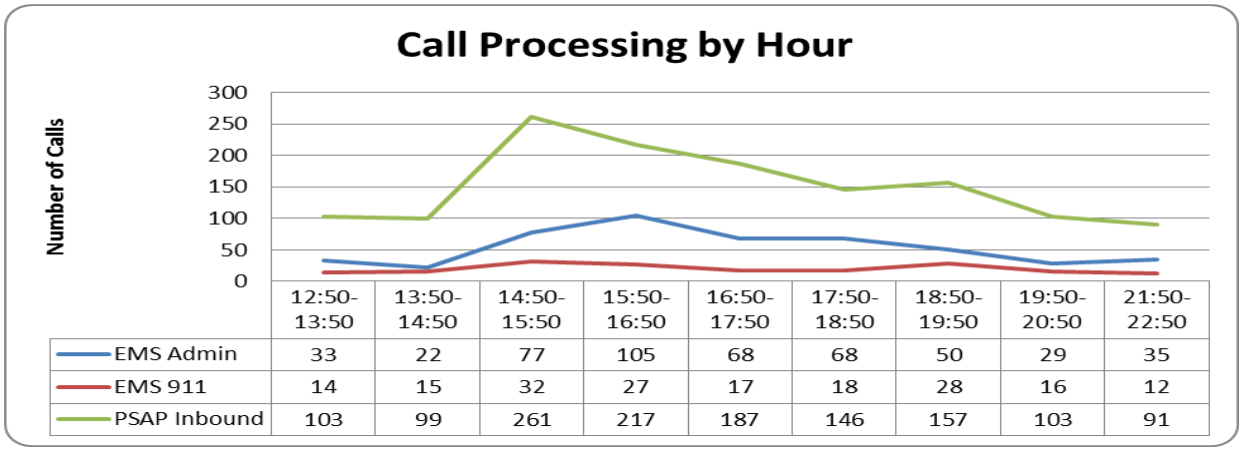
PHP Function 4.4 – Establish avenues for public interaction and information exchange.

Analysis

Very early on in the response, members of the public were able to contact the city for information using previously established channels. As a 24/7 operation, the Mayor's Hotline was already staffed at a holiday level (4-5 call takers). Immediately following the bombings, the Director of Constituent Services began requesting additional staff report to work to assist with the anticipated increase in call volume to the hotline, which was advertised as a resource for information. Additional hotline staff and trained volunteers began arriving at City Hall's call center without a formal recall. By early evening, the hotline was fully staffed at twenty-six (26) stations, and overflow workrooms to take incoming calls from the public were set up. BPHC, through pre-established protocols, dispatched twelve (12) staff to support the operation. The

Mayor Thomas M. Menino formally announced the 617-635-4500 hotline number to the public at a 6:00pm press conference held at the Unified Command Center.

At the Mayor's Hotline, caller information was initially recorded using a pen and paper system. However, a process was created within thirty minutes to formally track caller information utilizing Google Docs. Information initially tracked using paper was later uploaded into the master file. Call takers took the names of individuals, the name of the person they were looking for, and contact information. Callers were informed that they would be called back only if a loved one was matched to the incoming hospital patient data that the MIC was gathering. As the health authority for the City of Boston, BPHC sent representatives to the hotline to return constituent calls for patient matches, informing callers of what hospital were treating a loved one. This occurred with an estimated 26 callers. Directing the public to the Mayor's Hotline helped to alleviate emergency call volume within the city, which can be seen below, where 911 calls (PSAP) tripled in the hour following the bombings and remained at significantly higher levels until about 8:00pm.



	12:50-13:50	13:50-14:50	14:50-15:50	15:50-16:50	16:50-17:50	17:50-18:50	18:50-19:50	19:50-20:50	21:50-22:50
EMS Admin	33	22	77	105	68	68	50	29	35
EMS 911	14	15	32	27	17	18	28	16	12
PSAP Inbound	103	99	261	217	187	146	157	103	91

Figure 4.1 – City of Boston emergency 911 call volume on April 15th.
Source: Boston EMS

Accurate and timely public messaging helped significantly to alleviate uncertainty. Talking points were developed immediately and updated as new information from public safety officials and the Unified Command Center became available.

People looking for loved ones were encouraged to check social media websites such as Facebook, Twitter, the ARC Safe & Well, and Google People Finder and to continue attempting phone calls despite disrupted cellular service. Callers to the Mayor's Hotline were informed that

there were a relatively limited number of people injured and that very few runners were among those hurt by the blasts. Requests for reunification support – from callers locally, nationally, and internationally – increased over the course of the day and evening. In response, a triage system was put into place where only immediate friends and family member inquiries were tracked for matching and callbacks. As call volume and hold times increased, a recorded message highlighting these key points was played on the 4500 line for those on hold.

By the following day, the Mayor's Hotline had established a regular volunteer schedule of call-takers that helped facilitate better call management. This schedule, in combination with receiving early warning on April 19th of the impending city shelter-in-place request, allowed the call center to be sufficiently staffed to meet the public demand for information. Initially at the call center, check-ins, information gathering, and trend identification was conducted on an ad-hoc basis, in light of the urgency to respond to constituents. As the week continued, however, city officials worked to revise talking points and check-in with staff at the call center on a more regular basis.

During the shelter-in-place on April 19th, hotline staff fielded inquiries about travel restrictions, including calls from healthcare and home health providers. In general, healthcare employees were advised to contact their supervisors, and community members requiring immediate assistance were advised to call 911.

In total on April 15th, the Mayor's Hotline responded to more than 8,500 calls, a ten-fold increase over traditional weekday volume of 700-800 calls and more than twenty times the average weekend day volume of 300-400 calls. In the 10 days following the marathon, over 20,000 calls were received. This strained the infrastructure in place and the capacity of the call-takers to keep up with call volume. Challenges resulting from increased call volume were already being address in the wake of winter storm Nemo in January 2013, and the marathon attack placed renewed urgency on addressing these issues.

In addition to managing call intake, the Hotline worked to continuously update support services that were being made available to the public, including resources for behavioral and mental health. This information was proactively pushed out through Twitter and City of Boston web-feeds to reach as large an audience as possible. The Hotline also offered referrals to other support services, including community drop-in centers, the Family Assistance Center (for victims and their families only), and the Mayor's Health Line.

The Mayor's Health Line was activated to take incoming calls from individuals seeking mental health counseling and resource support. After the Family Assistance Center ceased physical operation on April 26th, the Mayor's Health Line assumed this additional responsibility (discussed further in *Capability 7: Mass Care)*. The activities and staffing of both the Mayor's Health Line and 4500 Hotline was coordinated by leadership from City Hall and BPHC. In total, over 250 marathon related calls were fielded by the MHL. Despite the occasional gaps in information, Hotline and Health Line staff believed that, providing the public with direct lines of communication to city government helped reduced public anxiety. In the two weeks following the bombings, the MHL extended its hours of operation to include later evenings and weekend service to better serve the public.

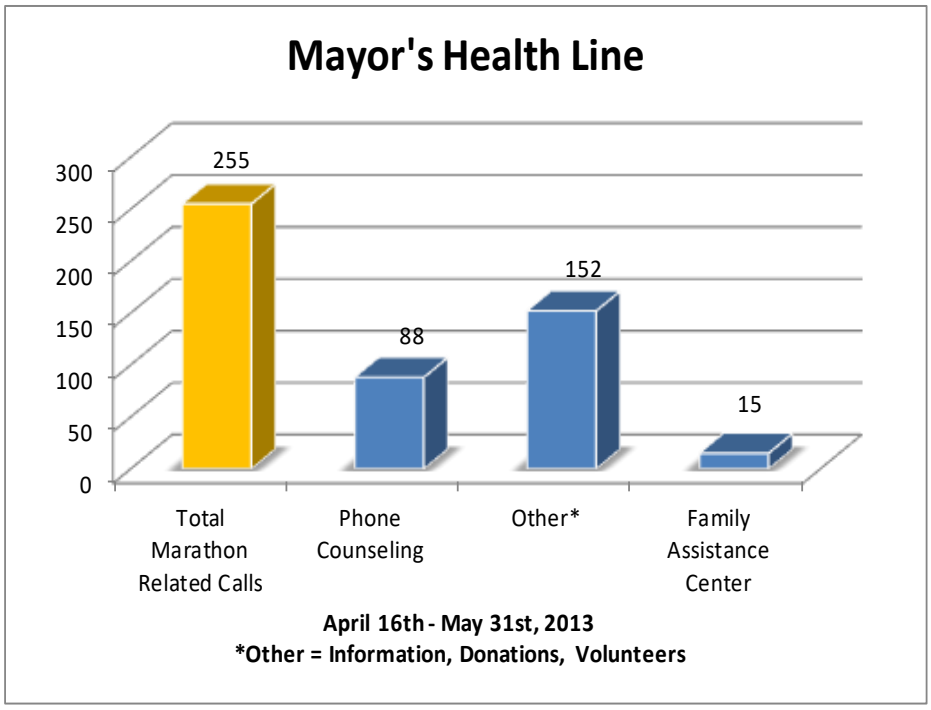


Figure 4.2 – Call volume at BPHC Mayor's Health Line, April 15th – May 31st, 2013

It was observed by both the Mayor's Hotline and Mayor's Health Line that there were noticeable trends in the types of calls received, which could help better inform future surge operations. Calls early on were mostly associated with family reunification, then shifted towards mental health support and resource requests, then to donations, and finally to inquiries related to lost wages, re-entry to the crime scene for residents, and business recovery. Staff observed that call volume tended to spike when press conferences were held throughout the week of the 15th.

Observations & Recommendations

Observation 4.9 (Strength) – Promoting the Mayor's Hotline to the public via press releases, media briefings, and social media and activating the Mayor's Health Line for information and resource referrals gave the public direct access to city services and helped alleviate any confusion about where inquiries should be directed. The hotlines also provided a resource for those who did not want to go to a community drop in center.

Recommendation 4.9.1 – As a trusted source of information for public, the Mayor's Hotline should be formally built into all plans and incorporated into drills and exercises.

Recommendation 4.9.2 – Ensure that staff and volunteers at public hotlines are appropriately trained to receive calls from distraught individuals.

Observation 4.10 (Area for Improvement) – While the call centers provided needed services and information, having multiple hotlines within Boston led to information gaps between call centers.

Recommendation 4.10.1 – Explore options for better coordinating multiple lines when there are surge operations and a need to disseminate large amounts of information to the public.

Observation 4.11 (Strength) – The Mayor's Hotline was well-prepared to increase capacity in response to the marathon bombings. Staff knew their assignments and was familiar with processes, protocols, and the technology, reducing the need for training in these areas. Emergency log-in information was posted on all work stations.

Recommendation 4.11.1 – Through procurement of additional VOIP phones by the Mayor's Hotline, increase the capacity of call takers to beyond 26 work stations.

Observation 4.12 (Strength) – The use of Google Docs allowed for a more flexible and nimble response by those working the Hotline, which eliminated the need to create a formal incident within the CRM system.

Recommendation 4.12.1 - None.

Observation 4.13 (Area for Improvement) – Call takers were not prepared for the emotional intensity involved in many of the calls, due to the circumstances of the event and the departure

from the types of calls traditionally handled. All staff was offered counseling through employee assistance programs in the following week.

Recommendation 4.13.1 – Through OPHP, provide full-time Hotline and Health Line staff and designated support staff with baseline Psychological First Aid (PFA) training to offer a level of emotional preparedness and resilience.

Recommendation 4.13.2 – OPHP should consider Hotline and Health Line staff as first line responders, and offer them the same initial support that was being coordinated and offered to other responders and institutions in the days following the attacks.

Observation 4.14.1 (Area for Improvement) – Call taker scripts could have been improved upon by sharing better real-time information with staff.

Recommendation 4.14.1 – Look into the possibility of having a liaison from the Mayor's Hotline at either the Boston EOC or MIC, where appropriate, to facilitate the transmission of information back to call centers.

Recommendation 4.14.2 – Do a daily check-in with all active call centers to ensure talking points and protocols are uniform and being followed.

Observation 4.15 (Area for Improvement) – Coordination between the MIC and BPHC's representative at the Mayor's Hotline allowed for patient data to be verified and shared with callers looking for loved ones at area hospitals.

Recommendation 4.15.1 – While receiving and compiling data took time due to the nature of the event, overall, the process of having a liaison at City Hall did work well. This process should be codified in plans and procedures if it will likely be used again in the future.

Recommendation 4.15.2 – A formal family reunification plan that incorporates the Mayor's Hotline and BPHC staff and outlines how information may be shared with the public should be developed.

Observation 4.16 (Strength) – BPHC was able to provide staffing support to the Mayor's Hotline by utilizing BPHC's Public Health Response Team (PHRT) and recruiting additional volunteers as necessary. This allowed the call center to be sufficiently staffed during the initial response.

Recommendation 4.16.1 – Develop a formal process for identifying who from public health can serve at the Mayor's Hotline in scenarios where members of the PHRT may not be available or where significant additional support is required beyond what the PHRT can provide.

Recommendation 4.16.2 – Develop a better system of information sharing between the Mayor's Hotline and Mayor's Health Line to ensure consistent messaging.

Observation 4.17 (Area for Improvement) – Some staff members from the Mayor's Health Line experienced excess fatigue as a result of stress associated with the response efforts.

Recommendation 4.17.1 – Ensure all Mayor's Health Line staff are properly trained in psychological first aid and triage counseling prior to being assigned to work with traumatized callers.

Recommendation 4.17.2 – During extended operations, engage in an assessment process to anticipate ongoing public demand and the resources available to meet the needs to ensure proper levels of staffing.

Observation 4.18 (Area for Improvement) – Staffing capacity at the Mayor's Health Line was a challenge given the nature of the response that took away from the Health Line's ability to conduct traditional daily operations.

Recommendation 4.18.1 – Revisit Continuity of Operations Planning for the Mayor's Health Line to assess staffing capacity and the ability to support large city-wide responses without sacrificing day-to-day continuity.

Observation 4.19 (Area for Improvement) - Vulnerable populations did not necessarily receive shelter-in-place requests in a timely manner.

Recommendation 4.19.1 – Work with PIOs to develop strategies for reaching speakers of languages other than English during emergencies.

Observation 4.20 (Area for Improvement) – There were instances where recognized professional materials for support services were not leveraged without internal editing, at times creating stress amongst response staff.

> Recommendation 4.20.1 – Review all pre-scripted materials currently on file at BPHC, and develop a process for quickly editing or approving the use of external materials during times of emergency in a way that still highlights BPHC as the lead agency.

PHP Function 4.5 – Issue public information, alerts, warnings, and notifications.

Analysis

The marathon itself and the immediate response did not present any critical health information that needed to be disseminated directly to the public outside of overarching behavioral and mental health resources for trauma support. A vast majority of the alerts related to health and safety the day of the marathon and in the days and weeks that followed were sent out to healthcare and public safety partners via MIC advisories and alerts, the Health & Homeland Alert Network (HHAN), the Department of Public Health, and direct engagement with stakeholders. Regular transportation and security updates were provided to healthcare partners, especially during the day of the attack, and on Friday, April 19th, when public transportation was shut down and many hospitals implemented enhanced security measures following state and local advisement. These alerts are discussed in further detail *Capability 6: Information Sharing.*

Information related to the treatment of blood-borne pathogens victims with shrapnel injuries was disseminated by BPHC's Infectious Disease Bureau via a MIC Alert and is discussed in further detail in *Capability 13: Public Health Surveillance*.

Observations & Recommendations

Observation 4.21 (Strength) – On the day of the marathon, and during the shelter-in-place on April 19th, timely notifications were disseminated to the public and the healthcare sector via multiple channels to ensure situational awareness.

Recommendation 4.21.1 – Work with local media outlets to disseminate messages that clarify who "essential" personnel are during emergencies. This distinction has a huge impact on healthcare delivery within the city.

Observation (Area for Improvement) 4.22 – There were instances where recognized professional materials for support services were not used without internal editing, at times creating unnecessary stress amongst response staff.

Recommendation 4.22.1 – Review all pre-scripted materials currently on file at BPHC, and develop a process for quickly editing or approving the use of external materials during times of emergency in a way that still highlights BPHC as the lead agency.

PHP & HPP CAPABILITY 6: INFORMATION SHARING

Overview

The Boston Marathon is an annual event that requires a significant amount of information coordination amongst local, state, federal, and private sector partners. The 26.2 mile course runs through eight separate jurisdictions, each with their own healthcare and public safety needs, and culminates in downtown Boston's Copley Square, where field medical tents are established to help prevent a medical surge at area hospitals.

Prior to the marathon each year, during medial planning meetings, the process for sharing health-related information and data is established between the Boston Athletic Association (BAA), hospitals, ambulance services, and public health authorities, including BPHC and MDPH. This includes electronic platforms that will be activated to support real time information sharing such as WebEOC, the Health and Homeland Alert Network, and the EMTrack system that is utilized to assist with patient tracking and family reunification.

For the marathon, three (3) separate WebEOC platforms were set up with events boards, where stakeholders could directly view and post updates related to the event. These were run by the Boston Office of Emergency Management, the Massachusetts Emergency Management Agency, and the Massachusetts Department of Public Health. Each platform is administered separately, with different audiences who have varying levels of viewing and posting access. The Medical Intelligence Center (MIC) had all three WebEOC platforms up and running for regular monitoring. For pertinent events posted on either the MEMA or MDPH boards that were not noted on the City of Boston board (e.g. alerts from the MA State Police), the message was copied to inform healthcare partners.

Following the bombings, this system created a degree of confusion, as the three platforms contained real-time information for different audiences. Sometimes, the same information was shared multiple times with the same parties. Other times, important information was missed due to the volume of transactions. WebEOC and HHAN Alert records and timestamps were reviewed

line by line during the construction of this after action report, the most pertinent of which are noted within *Appendix B: Incident Events Summary Table.*

All of these systems were operational and functioning starting the morning of the marathon on April 15th. Institutions were provided with the necessary log-in information to inform their situational awareness, and troubleshooting issues had been identified and resolved in advance.

Marathon runners are stopped along the course route.
Photo by Yoon S. Byun, Getty Images

The day of the marathon, hospital Emergency Operations Centers logged-in to the City of Boston's WebEOC and announced their activation on the Health Log. System checks were performed on EMTrack. Radio drills were conducted between the MIC and medical tent field operations. Conference calls amongst regional healthcare providers were overseen by MDPH, and provided updated bed availability at hospitals. The notifications that preceded the bombings were from WebEOC, which alerted stakeholders that BAA medical stations 1, 2, 3, and 4 had closed as of 2:25pm. An MDPH HHAN Alert requested a bed count from hospitals at 2:48pm.

Following the bombings, information sharing and situational awareness from the scene was conducted primarily through eyewitness accounts from OPHP field staff and from monitoring tactical radio channels of EMS representatives at the MIC. A high "red" alert was posted to the City of Boston's WebEOC at 2:51pm, and CMED alerted hospital emergency departments of a mass casualty incident via disaster radio at 2:53pm. A HHAN alert was issued at 2:59pm, which was immediately followed by phone calls and e-mails from hospitals seeking to verify the cause of the incident and to ascertain if there were any other suspected devices.

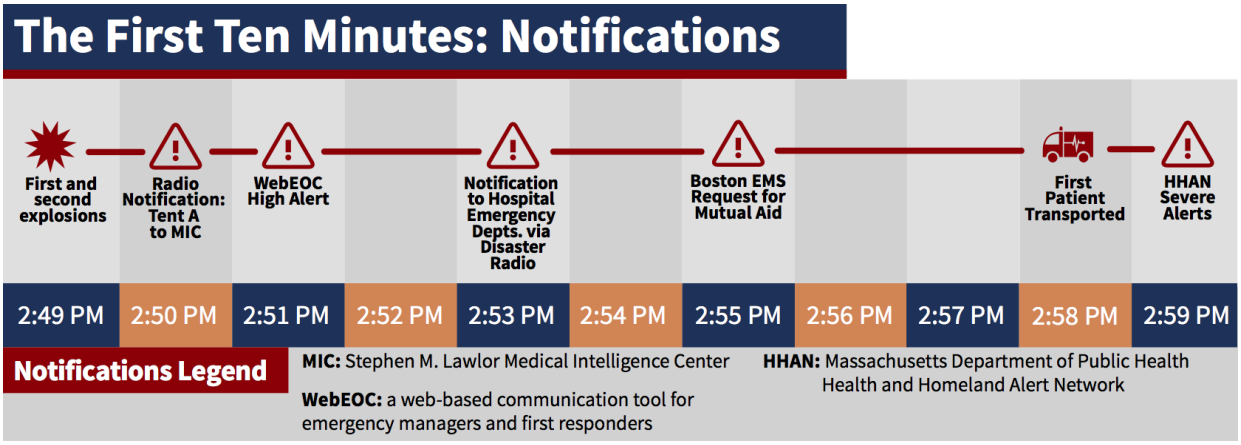


Figure 6.1 – Timeline of emergency notifications following the bombings.
Graphic by BPHC's Office of Public Health Preparedness, with data provided by Boston EMS.

Boston EMS incident command estimated the number of injured patients at the scene, but no confirmed information could be shared with partner agencies who were looking for verified updates. Maintaining accurate situational awareness in the field was difficult. Along the race route, in fact, some of the best information came to medical tents through social media and pagers.

Family reunification was an immediate need following the attacks, as BAA and OPHP staff was quickly inundated with requests for information outside of Medical Tent B on St. James St., and hospital emergency departments were overwhelmed with callers and visitors looking for loved ones. In some instances, representatives from foreign consulates even visited hospitals to see if any citizens of their respective nations were present, a matter further complicated by the fact that hospitals do not ask for nationality of patients. Reunification efforts were also complicated by the decision to suspend patient tracking operations on scene and by the disruption of cell service shortly after the bombings. Additional stressors at area hospitals, including lockdowns and continued security threats, made reunification efforts even more challenging.

On-scene fatalities required working with the Office of the Chief Medical Examiner to alert next of kin. In one instance, family members of a deceased individual were receiving treatment at areas hospitals for their own injuries, making it all the more challenging to contact them. This difficulty highlights the need for increased coordination in the future with OCME about how information can and should be shared.

PHP Function 6.1 – Identify stakeholders to be incorporated into information flow.

Analysis

The MIC has various pre-defined distribution lists that it utilizes on a regular basis to disseminate advisories, alerts, and situation updates. Many of these lists encompass representatives from Boston's healthcare and public safety sectors, but there are also numerous points of contact for public and private sector institutions and professional organizations that often assist with the broad dissemination of information.

Following the attacks, information was shared via multiple channels. The various WebEOC platforms could be viewed by those with access. The HHAN distribution lists from Conference of Boston Teaching Hospitals (COBTH) and MDPH sent updates that allowed broader dissemination to partners throughout the Commonwealth. And the MIC alerts provided timely information to healthcare partners. Individuals and organizations requesting information or inclusion on a distribution list were vetted and responded to on an ad hoc basis. This included formal requests from the Boston Regional Intelligence Center (BRIC), FBI, HHS, and numerous others, to ensure they had access to all of the information that was coming out of the MIC.

A for Official Use Only (FOUO) designation was applied to all materials disseminated from the MIC, with every communication containing a reminder that information was not to be shared. Only authorized sources were able to receive information from the MIC.
As the events unfolded, a schedule was established early on for regular SitBriefs to be disseminated by the MIC. Additional MIC Advisories and HHAN alerts notified stakeholders of pertinent updates and of any ongoing coordinating efforts taking place, such as conference calls. In total, twenty-two SitBriefs were disseminated by the MIC from April 15th through April 26th, and weekly SitBriefs were disseminated thereafter.

The coordination and information sharing overseen by the MIC was widely regarded as successful, as it kept broad sectors within the community aware of events and helped to maintain a common operating picture.

Observations & Recommendations

Observation 6.1 (Strength) – The MIC SitBriefs were well received by stakeholders, and provided a level of continuity for ongoing information sharing.

Recommendation 6.1.1 – Continue breaking information down into sections, i.e. transportation, security, etc.

Recommendation 6.1.2 – Establish a better method of highlighting new information in SitBriefs.

Recommendation 6.1.3 – Send out MIC staffing and communications plan as part of all SitBriefs.

Observation 6.2 (Area for Improvement) –All individuals assigned to work at the MIC should be appropriately informed of the documented information and non-disclosure policies for the MIC.

Recommendation 6.2.1 – Ensure any staff assigned to work in the MIC has signed a formal non-disclosure agreement prior to working.

Recommendation 6.2.2 – As part of all operational briefings, review information sharing protocols and procedures with all staff, including what can and cannot be disseminated via e-mail and Situation Briefs.

Observation 6.3 (Area for Improvement) – The MIC distribution list continued to expand as events unfolded, creating a larger and larger audience that became difficult to manage.

Recommendation 6.3.1 – Conduct a complete review of all distribution lists and permission rights for each platform, including MIC e-mail, Everbridge, the HHAN, and WebEOC, to ascertain of who has access to what information.

Recommendation 6.3.2 – Establish sector-specific distribution lists within the Everbridge alert system.

PHP Function 6.2 – Identify and develop rules and data elements for sharing.

Analysis

Prior to the marathon, information sharing protocols and procedures were established, as they are for every event. These protocols primarily concern the use of the Emergency Tracking System

(discussed later) and the uploading of runner data into the software platform that is used in field operations and at hospital emergency departments.

When standard operations were suspended due to the acuity of the event, public health and hospital officials were forced to develop a system for sharing information as quickly as possible to assist with family reunification efforts and to obtain a common operating picture. As the public health authority for the City of Boston, BPHC is empowered to serve as the conduit for collecting patient information during emergency events. At 6:23pm, a HHAN alert was sent out asking points of contact at receiving emergency departments to send patient information to the COBTH coordinator at the MIC, who compiled updated lists in various formats and sent this information to BPHC officials located at the Mayor's Hotline in City Hall. Representatives at the hotline made calls back to family members seeking hospital locations of loved ones.

Because some patients were treated at hospitals outside of Boston, MDPH put out a request via the HHAN to have all receiving hospitals within Massachusetts send updated information to the MIC in order to consolidate information in one location.

Handling information subject to the Health Insurance Portability and Accountability Act (HIPAA) was a presented a challenge as the initial marathon response transitioned into long-term recovery operations. While collecting information allowed the MIC to monitor response status and provide continuously updated information to key stakeholders, hospital authorities began expressing concerns about the type and frequency of information being requested. To mitigate concerns, BPHC General Counsel's Office drafted a letter that was sent to hospital executives, providing reassurances as to the purpose of the ongoing information requests and the federal statutes that allowed for such requests. All information was coordinated through the MIC, and only pre-identified individuals had access to any patient data to ensure data was protected.

Efforts have already been undertaken with coordinating bodies and hospital legal departments to better address concerns associated with patient information sharing during emergencies, and additional security protocols have been put into place around the receipt of e-mail and faxes containing patient data.

Observations & Recommendations

Observation 6.4 (Area for Improvement) – There was confusion between hospitals, emergency managers, and public health officials as to the process for sharing patient data in the hours and days that followed the attacks.

> Recommendation 6.4.1 – In conjunction with hospital emergency managers and general counsel offices, develop a protocol for sharing patient data during response and recovery operations that outlines what data elements will be shared, the mechanisms for sharing, and the frequency of updates.

PHP Function 6.3 – Exchange information to determine a common operating picture.
HPP Function 6.1 – Provide healthcare situational awareness that contributes to the incident common operating picture.

Analysis

Prior to the marathon and after the bombings, mechanisms were put in place to coordinate and share information with healthcare partners to establish an up-to-date common operating picture. As mentioned, this process was achieved using three WebEOC platforms, the EMTrack system, and regularly scheduled conference calls with local, state, and federal partners.

WebEOC was employed by a variety of response agencies on an ongoing basis to provide a continuous stream of updates to users. Updates on the MEMA WebEOC board were monitored for any security, transportation, or other updates that were not posted to the Boston board and flagged as significant events. At pre-determined times, information was consolidated by the MIC and disseminated through SitBriefs, which were posted in the City of Boston WebEOC file library. Immediately following the attacks, verifiable information from the field was difficult to obtain, and the MIC began receiving a high volume of calls from hospitals trying to ascertain if there were additional explosive devices. Rumor control regarding hospital evacuations and unattended suspicious packages became a significant issue that continued for days.

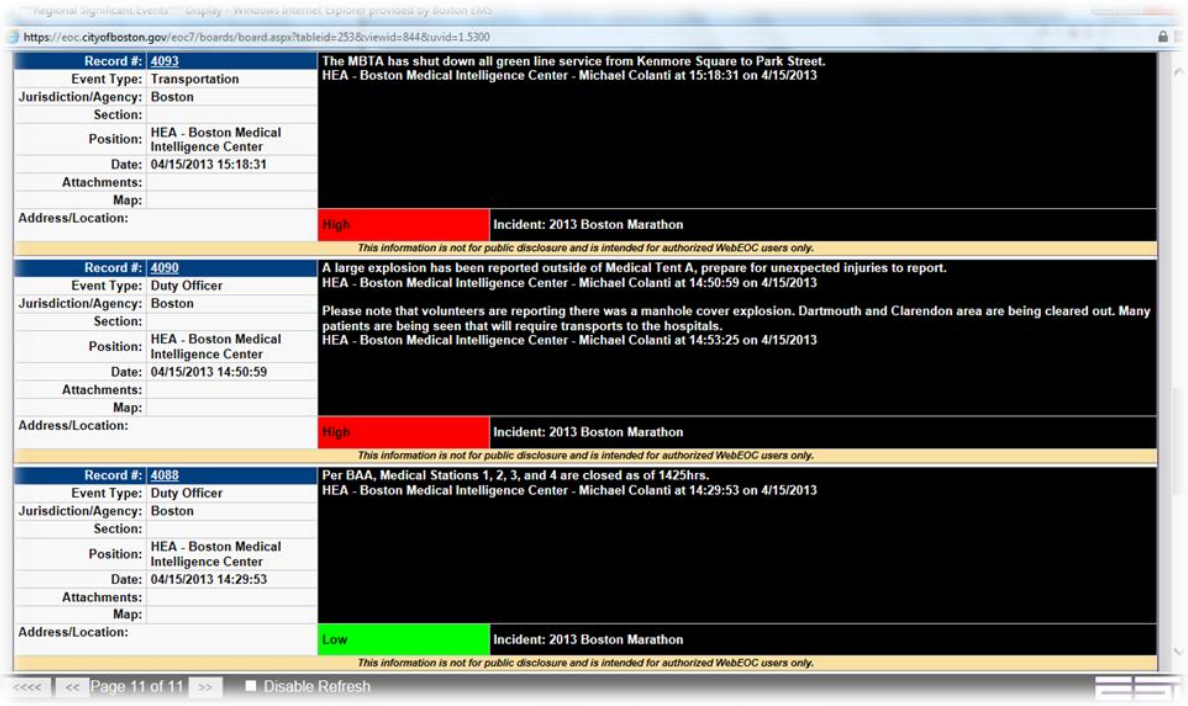


Figure 6.2 – Screen shot of City of Boston WebEOC alert at 2:50:59pm, one minute following the bombings. Posting reads "A large explosion has been reported outside of Medical Tent A, prepare for unexpected injuries to report."

The Massachusetts Department of Public Health assumes the lead for bed reporting during major events and emergency responses through the HAvBED (Hospital Available Beds for Emergencies and Disasters) system, which is linked to the WebEOC portal. Hospital facility and staffing updates during the week of April 15th, including the shelter reqeust on April 19th, were coordinated through the MIC, where representatives from MDPH collected information and provided guidance on facility operations and staffing. This was especially significant during the shelter request, as there was initial confusion about how hospitals should manage patient intake and discharge in the sheltered areas and about what the impact would be to staffing as public transportation was suspended. These issues were clarified by the afternoon of the 19th with guidance from MDPH to all area hospitals, which outlined how patients should be managed and who could be classified as "essential" personnel during the shelter reqeust. This issue is discussed further within *Capability 10: Medical Surge*.

In addition to information and data that required sharing, the patient tracking element of the response was significant unto itself. The Metro Boston Emergency Tracking System (ETS), which is used for patient tracking during the marathon, had an event created for the marathon within its EMTrack software system, and uploaded limited runner information in coordination with the Boston Athletic Association, including name, age, and gender. This allowed for all registered runners to have their bib barcodes pre-entered into EMTrack to facilitate easier search queries.

This baseline amount of information, managed through the MIC with support from OPHP personnel at the finish line medical tents, allows BAA family reunification staff to provide accurate information as to the whereabouts of runners and non-runners that may require medical attention. Each hospital is aware of transports and patients coming to their institution, but not to others within the system.

When on-scene patient tracking ceased soon after the blasts, this process, per ETS protocols, was to continue at area hospitals as patients were received. The loss of cell service meant that all information being captured in the minutes following the blasts was batched, disrupting real-time information and creating batches of information that was entered in the system hours and days later. Overall, the tracking of patients was complicated by a number of factors, and in some instances was not possible for patients that did not have identification on their person when they arrived at hospitals.

Observations & Recommendations

Observation 6.5 (Area for Improvement) – WebEOC provided a valuable platform for information sharing amongst partners and contributed significantly to providing a common operating picture. However, there was confusion from healthcare partners as to which platforms to monitor and how information was being vetted.

> Recommendation 6.5.1 – Work with City of Boston, DPH, and MEMA representatives to highlight user issues related to software use.

Observation 6.6 (Area for Improvement) – Outside of WebEOC, there was difficulty maintaining connectivity with other operations centers, including the MEMA State Emergency Operations Center (SEOC) and the later UCC within the Westin Copley.

Recommendation 6.6.1 – Continue to seek ways to better integrate information sharing from the MIC into other information and operation centers, including the Boston Regional Intelligence Center (BRIC).

Recommendation 6.6.2 – Assign an OPHP staff member to the BRIC on a part time basis to improve coordination with the law enforcement and healthcare systems.

Observation 6.7 (Area for Improvement) – It was discovered that only one Boston community health center had access to WebEOC during the response, as other health center accounts had been suspended due to lack of use.

Recommendation 6.7.1 – Work with the Mass. League of Community Health Centers to get all health centers active accounts, and ensure proper training and regular testing of system use.

Observation 6.8 (Area for Improvement) – The healthcare community should be made aware of CBRNE detection levels on-scene as soon as possible.

Recommendation 6.8.1 – Ensure the MIC, as the medical information hub, is connected to on-scene Chemical, Biological, Radiological, Nuclear, & Explosive (CBRNE) and HazMat teams, and provide hospitals with this critical information.

Recommendation 6.8.2 – Develop protocols for the Massachusetts Civil Support Team (CST), MDPH, and federal partners to provide sample data to BPHC through the MIC.

Recommendation 6.8.3 – Integrate regular site-monitoring updates into SitBriefs for planned events and emergency responses.

Observation 6.9 (Area for Improvement) – Establishing on-scene ETS operations highlighted some technology and protocol areas that need to be strengthened for future uses.

Recommendation 6.9.1 – Develop a more comprehensive “ETS Field Guide” for volunteers if they are alone on the course to avoid troubleshooting calls coming to the MIC.

Recommendation 6.9.2 – Work with Boston EMS to better train private ambulance

services on how to set up equipment and troubleshoot issues.

Recommendation 6.9.3 – Bring multiple computers to each medical tent station (or use wireless tablets) to mitigate connectivity or software issues.

Observation 6.10 (Area for Improvement) – Non-acute patients, or those who seek treatment outside of a hospital, are not traditionally tracked in the Emergency Tracking System.

Recommendation 6.10.1 – Through the Boston Healthcare Preparedness Coalition, determine if ETS should be rolled out to partner healthcare agencies, and if it would be cost effective and operationally useful.

Observation 6.11 (Area for Improvement) – The process of entering patients into EMTrack took too long for some of the hospitals to support family reunification in a timely manner following the bombings.

Recommendation 6.11.1 – Develop a faster alternative ETS process that can be used in conjunction with EMTrack in the first few hours of an incident. Information gathered through the alternate process would be incorporated into EMTrack once time permits.

Observation 6.12 (Area for Improvement) – There were issues related to how sensitive information was stored, how it was shared, and how information overall was disseminated via different devices.

Recommendation 6.12.1 – During briefings, ensure planning section is reminded to blind copy all recipients. The length of recipient lists can inhibit the ability of readers to access pertinent content and allow users to "reply all" when dealing with potentially sensitive information.

Recommendation 6.12.2 – Reinforce with healthcare partners locally and within the state that real time on-scene information has to be vetted and confirmed to ensure inaccurate information is not released and widely disseminated.

Recommendation 6.12.3 - Formalize the process for vetting information.

Recommendation 6.12.4 - Develop a template for types of information to be included in situation briefings and notifications including language to address unknown, uncertain, and/or unconfirmed information.

HPP Function 6.2 – Develop, refine, and sustain redundant, interoperable communications systems.

Analysis

Communications interoperability is always a critical element of event planning and emergency response, and it has been a consistent strength within the ESF-8 community. Hospitals and health centers are always notified of emergency events transpiring within the city and when a WebEOC incident is created that they can track. Additionally, OPHP conducts regular radio drills with community health centers to maintain familiarity with the equipment and processes.

For the marathon, a number of communications and situational awareness tools were established in advance of April 15th to ensure connectivity and redundant communications between field operations and the MIC and amongst all healthcare providers. This included WebEOC, EMTrack for situational awareness of patient tracking, and a MIC healthcare distribution list for rapid dissemination of situational briefings and relevant advisories.

Hospital emergency managers were provided with event and log-on instructions for the WebEOC platforms in advance, and the MIC monitored all three WebEOC platforms, sharing information with field responders and healthcare EOCs where appropriate.

The MIC itself coordinated the deployment of Motorola 800MHz radios to OPHP staff operating in the field for regular communications, and radio tests were conducted the morning of April 15th. The initial communication from the finish line to the MIC came over the radio, and allowed for an alert to be posted to hospital emergency mangers within one minute of the blasts. The use of these radios also proved critical information when cell service was disrupted within the city and there was no other means of reaching field personnel.

Additionally, the presence of Boston EMS uniformed staff within the MIC gave staff the ability to maintain situational awareness through the tactical radio channels that were being monitored This ability proved helpful in confirming certain types of information that were appropriate to push out immediately to area healthcare providers.

Observations & Recommendations

Observation 6.13 (Strength) - 800MHz radios that were deployed to the field and set-up in the MIC worked in real-time prior to (during tests) and following the blasts, allowing for a continuity of situational awareness, especially during the 20-30 minute window where cell service was overloaded.

Recommendation 6.13.1 - None.

PHP CAPABILITY 7:

MASS CARE

Overview

The public health community within Boston and the Commonwealth collaborated to deliver a complex set of services to support mass care during the response and recovery to the bombings. In the hours and days that followed the initial transport and treatment of victims at area hospitals, human and social service providers expanded to provide coordinated support to the broad scope of victims of the attacks. In this context, it refers to not only those severely injured and their family members, the families of those who died on scene, those less severely injured who left the scene on their own, uninjured runners, impacted organizations, public safety agencies, and the general public.

The attacks displaced countless people who lived and worked within the Copley Square area and thousands of runners along the course route who were unable to reach the finish line to meet family members, collect their possessions, and be brought back to the town of Hopkinton where the race originates. For runners halted along the course in Kenmore Square and Boston Common or diverted to adjacent communities, there was an immediate need to provide support services and consider sheltering options. The Red Cross was able to deploy canteen trucks to these locations to provide basic food and water resources, and BPHC sent representatives to the Common to help coordinate runners being able to leave the scene and be reunited with their belongings. For sheltering, the Red Cross worked with the towns of Brookline and Newton to assess the possibility of setting up shelters for runners in those towns, and provided resources to the City of Boston to establish a drop-in center for affected individuals at the Park Plaza Castle near the Boston Common. There, some runners were able to receive their possessions, while the remainder of their belongings were available at Boston Police Headquarters in the following days after the crime scene had been swept for evidence and items were screened and cleared.

Spearheaded by the BPHC and other city agencies, the Park Plaza drop-in center was open by 7:30pm on April 15th to provide basic human services such as shelter, mental health support, and family reunification. Once the dislocations of the first days were resolved, the center was shifted

to a more modest space at the Boston Office of City Year. It moved later to an easily accessible BPHC location.

Given the nature of the incident, it was recognized immediately by the behavioral and mental health organizations that there would be significant short- and long-term mental health needs for the greater Boston community. Providers with the capacity to address wide scale human service and mental health needs put relevant staff on stand-by, and following an in-person meeting with key stakeholders on April 16th, the MIC ultimately worked with the bureau of Child, Adolescent, and Family Health to coordinate available social and human service supports with a host of local, regional, state, and federal partners. This effort included deploying teams of trauma counselors to public safety agencies, area hospitals, universities, and community events, such as vigils, church services, and commemorative races that were being organized.

Considerable support was provided to the residents and businesses of Copley Square during the re-entry phase of the recovery, which occurred after individuals went through a relocation process that took place first at the Hynes Convention Center and then at the Boston Public Library. Mental health clinicians from the U.S. Department of Health & Human Services, Riverside Community Care, the Massachusetts Department of Mental Health, and other organizations fielded requests for care, identified needs, and matched resources as well as possible to assist the community. In total, the MIC and these service providers coordinated over 200 individual and group counseling sessions throughout greater Boston, with over 600 contact hours provided and thousands served.

The BPHC also worked with the American Red Cross to establish a Family Assistance Center (FAC) at the Seaport World Trade Center in South Boston. The FAC, identified as an early need in the recovery process, provided confidential and consolidated human and social services from a wide range of agencies for immediate victims of the bombings and their families. Using the Red Cross' aviation FAC model, partners from the FBI, Massachusetts Attorney General's Office, Massachusetts Office of Victim Assistance, and other organizations provided case management services to the victims.

Offers of assistance and donations were vetted by the MIC, in conjunction with the Mayor's Health Line, Mayor's Hotline, and other partners, and sent to case managers and social workers at hospitals and the FAC. Following the closure of the FAC at the Seaport World Trade Center, the FAC was moved to BPHC's main office on Massachusetts Ave. In the months that have followed, BPHC has continued to work closely with the One Fund and other partners to sustain

services for survivors. Activities since the formal closure of the FAC have included the development of the 4/15 Connection; the establishment of a support group through Spaulding Rehabilitation Hospital; the dissemination of regular newsletters from BPHC to survivors making them aware of events and opportunities; and the provision of ongoing support as requested at community events.

As part of mass care operations, the hospital liaison at the MIC, most frequently a representative of the Conference of Boston Teaching Hospitals, helped support hospitals during the recovery. This coordination and ability to provide guidance was especially important when the shelter-in-place request created challenges for hospitals related to staffing, transportation, and patient discharge.

Through the activation of hotlines, community drop-in centers, and websites, the public was provided easy access to supportive services, which allowed the mass care component of the response and recovery operation to be successful. Under Mayor Menino's leadership, the rapid organization and deployment of resources sent a clear message that the city was there to support the community healing process.

For longer term mass care operations, BPHC worked with Spaulding Rehabilitation Hospital in Boston to coordinate support groups for survivors. Behavioral health specialists from BPHC oversaw the group sessions and taught coping mechanisms to help treat the symptoms of trauma, such as Post Traumatic Stress Disorder (PTSD), that many survivors experienced. This level of support will continue into 2014 with groups for those with both physical and mental health needs.

Nevertheless, stakeholders have identified several areas where there is room for improvement in future practices. This feedback is addressed in the observations and recommendations included within this section.

PHP Function 7.1 – Determine public health role in mass care operations.
PHP Function 7.2 – Determine mass care needs of the impacted population.

Analysis

Due to extensive pre-planning that takes place annually for the marathon, there were already considerable medical resources available on-scene and at emergency departments to handle the

surge of patients (discussed further in *Capability 10: Medical Surge*). In response to other anticipated needs associated with mass care, city officials worked quickly to staff up the Mayor's Hotline at City Hall to receive inquiries from the public and to open a community drop-in center for runners and family members to go to. The Red Cross immediately began encouraging people to use its "Safe & Well" website as a resource for family reunification. Not long after the explosions, the Red Cross hotline began fielding calls from town police and fire departments, which highlighted the urgent need for support services for first responders.

Community Support

There were several events, memorials, and vigils taking place throughout the city where mental and behavioral health resources were deployed. For these, clinicians were deployed as individuals or in groups of up to five to meet the needs of the event. BPHC staff helped to maintain a list of these events in order to determine what types of resources needed to be assigned to each, and the Child, Adolescent, and Family Health (CAFH) bureau helped to coordinate and manage a large volume of individuals and events requiring support and assistance. This response required a degree of flexibility, as requests for support came in from parts of the community that were not anticipated. To manage staff, regular briefing sessions were held by the CAFH bureau to update clinicians about community events and deployment of staff. For larger organizations looking for mental health support within the community, the MIC served as a central location to track requests and deploy resources from certain partner agencies, such as the U.S. Health & Human Services mental health team.

In the early days of the response, much work was done to identify organizations and populations that would need to be proactively reached out to in order to offer support services. This included businesses and residents in the impacted area in Copley Square, marathon volunteers, nearby schools, and many others. Following the identification of the suspects and the ensuing police search for their whereabouts, the need for support expanded to additional vulnerable populations. This included the Islamic community (as the suspects were identified as Muslims from the Chechnya region of Russia), those who attended school with the suspects in Cambridge, and the general public in Watertown, many of whom were evacuated from their homes during the manhunt. These populations, according to providers, were more likely to exhibit risk factors associated with longer term trauma recovery, and were targeted by groups like Riverside Community Care for outreach efforts.

Observations & Recommendations

Observation 7.1 (Strength) – The ability of BPHC and partner agencies to mobilize and deploy resources quickly to various sites in and around Boston provided valuable community support in the wake of tragedy, yet could be improved upon with more central coordination.

Recommendation 7.1.1 - Ensure that the MIC is aware of all BPHC deployments, and is able to maintain situational awareness of resources.

Observation 7.2 (Strength) – Counseling was provided to a wide audience, including runners, survivors, and the general public. Outreach was conducted at community drop-in centers, as part of neighborhood vigils and memorials, in Copley Square during the re-entry process, and at public safety agencies throughout Boston.

Recommendation 7.2.1 - Establish a more formal means for collecting data to track support services provided.

Observation 7.3 (Area for Improvement) – The drop-in center at the Park Plaza Castle perhaps had too broad of an initial role, which ranged from serving trauma victims and assisting in family reunification to helping runners find lost items.

Recommendation 7.3.1 – As part of ongoing response and recovery planning, determine how to properly establish support centers, and what scope of services can and should be provided at a site.

Recommendation 7.3.2 - Develop protocols for the early establishment of a family assistance center.

Observation 7.4 (Area for Improvement) – Re-locating the drop in center from the Castle to City Year was confusing for providers and may have been confusing for those seeking services.

Recommendation 7.4.1 - Develop a means to pre-identify facilities that could be used as community drop-in centers, with the understanding that these sites may need to operate for several days or weeks.

Recommendation 7.4.2 - Utilize existing relationships with media outlets to ensure the location of the drop-in center is disseminated to the public.

Observation 7.5 (Area for Improvement) – Identification badges and signage advertising "support services" as opposed to "mental health services" was more likely to attract people..

Recommendation 7.5.1 – Within FAC protocols, include reference for how to identify support services staff.

PHP Function 7.3 – Coordinate public health, medical, and mental/behavioral health services.

Analysis

The nature of the Boston Marathon bombings led to an extraordinary response from the behavioral health, mental health, and social and human services sectors throughout Boston and the Commonwealth. Due to the volume and wide-range of support services provided, the following analysis is organized by functional areas within the mass care capability.

Mental Health

As Boston is an urban area that must manage the impact consequences of violence in the community on a daily basis, the Boston Public Health Commission is a trusted partner in working with community members in need of counseling or trauma support services. However, the widespread and immediate need for behavioral and mental health support that resulted from the bombings exceeded that of any previous emergencies the city had faced. The unprecedented number of individuals and organizations impacted by the events surrounding the marathon required an equally unprecedented response. Massachusetts, and Boston in particular, is fortunate to have a wide network of behavioral and mental health organizations and departments that, under normal circumstances, are aware of one another but do not necessarily have to work collectively.

This wealth of experience was highlighted the day of the attacks, when a number of organizations began activating their own internal protocols for putting staff on standby, assessing resources, and fielding calls from those in the community who know them. Early on, Riverside Community Care, the contracted behavioral and mental health care provider for the Massachusetts Department of Mental Health, began notifying its trained team of 1,000 clinicians across the state to assess availability and begin preparing for requests. The Boston Emergency Services Team (BEST), which provides 24 hour emergency psychiatric services to individuals, families, and organizations in the Boston area, began reaching out to hospital emergency

departments to assist in clearing out individuals that had been admitted for psych issues to make room for the pending medical surge.

In the days that followed, calls began coming in to providers from multiple channels highlighting the need for a coordinated response to ensure resources and requests were being properly triaged and matched with the appropriate organization. Riverside, for its part, began working with employees of businesses that had been impacted while also supporting the mental health needs of those living outside of Boston.

Throughout the mental health community, the surge of calls and requests for assistance occurred in the days following the two major events – the first being the bombings and the second being the shelter-in-place request. Traditionally during major emergencies, individuals from the general public will call for support when the incident has passed and the environment is safe. In cases where there are deaths, there is also a surge in those seeking support following services and burials. For first responders, there tends to be a lag in seeking support as compared to the general public. For those who suffer from chronic mental illness that may have been triggered after the attacks, the BEST team estimated a 30% jump in those seeking services in the weeks following the marathon. This was supported by the BPHC's observation of the calls coming into the Mayor's Hotline, which included many from individuals for whom the marathon events had triggered behavioral health issues.

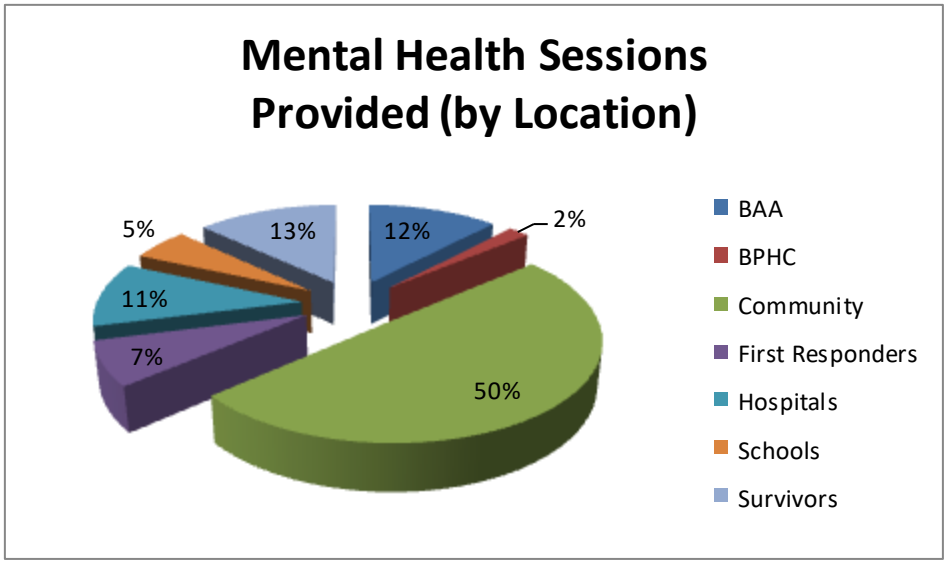


Figure 7.1 – Percentage breakdown of the 207 mental health sessions coordinated by the Medical Intelligence Center.

As previously noted, it is possible to have several assets at your disposal but not know how to use them properly. It was therefore important that assets and activities be closely coordinated through regular conference calls, updates from providers, and wide representation of

partners at the MIC. MDPH communicated closely with the Massachusetts Department of Mental Health to mitigate any new response systems being created.

For organizations seeking support, providers agreed to funnel all requests through the MIC, where matching and scheduling could take place, overall situational awareness could be maintained, and requests could be officially logged in and closed out.

In regards to community events and vigils that were supported by non-BPHC entities, which are discussed below, it was noted that the mental health competency required for comfortably and effectively working in crowded settings is a unique skill set, and some mental health volunteers did not have these skills. This was a common theme that was highlighted by a number of response agencies. Going forward, it is imperative that mental health professionals serving in any type of community support role have appropriate training and are comfortable and cable performing what is asked of them.

The "Stay Strong Boston" campaign to screen for mental health was launched on April 22nd and coordinated through SAMHSA, Link2Health Solutions, and Mass211. Through the campaign, resources were advertised, including the 24/7 disaster distress hotline, and 100,000 wallet cards were produced and distributed through BPHC, community partners such as Watertown Savings Bank, and at community events such as the Run to Remember and Boston Red Sox games.

Healthcare System Support

Within hospitals, significant resources were dedicated to case management for survivors and the provision of support services. Much of this work was conducted by in-house social workers and patient advocates, in coordination with on-scene representatives from the FBI and Attorney General's Office. The presence of multiple providers, at times, created confusion between the services being coordinated within hospitals and through other outlets such as the MIC and the Family Assistance Center. Established networks among area hospitals, as facilitated by organizations such as the Conference of Boston Teaching Hospitals (COBTH), allowed for information to be informally shared as to how institutions were managing patient care and support services. The presence of the COBTH coordinator at the MIC provided a central conduit to collect and aggregate information and to push out any notifications, updates, or resources.

One example of these supportive resources in action involved a group from Team Semper Fi and the America's Fund, which are non-profit organizations that have traditionally supported wounded and critically ill veterans both emotionally and financially as they return home from the battlefields of Afghanistan and Iraq. Before the Boston bombings, Team Semper Fi worked exclusively with military hospitals throughout the United States, but in the hours that followed the bombings, several Team Semper Fi members who are amputees arranged a visit to Boston hospitals treating survivors of the marathon attacks. With the support of senior leadership within the City of Boston, the Office of Public Health Preparedness worked with hospitals to coordinate these visits throughout the city. The inspirational encounters that resulted were lauded by the hospitals, the national media, and most importantly, the survivors. Due to the overwhelming success of their visits in the weeks following the bombings, Team Semper Fi has established a new mentor program called America's Fund Mentors- Bringing Hope to Boston.

Members of Semper Fi organization interviewed at Boston EMS headquarters. Photo by Matthew Matosic.

In addition to the provision of patient care and human and social services, there were a number of other areas within the healthcare system that required support during the week of April 15th. Two significant examples of this need involved the closure of pharmacies during the shelter request and the ability of home health nurses to access patients during the shelter request and during the period when Copley Square was still an active crime scene.

Family Assistance Center – Seaport World Trade Center

The establishment of the Family Assistance Center (FAC) for survivors and their families was a critical part of the public health response, as it brought together a variety of agencies to coordinate social and human services. It provided a single physical location where survivors could go to receive guidance on social and financial assistance in a way that complemented the help lines that had been set up to support this population. Led by the Boston Public Health Commission with logistical support from the American Red Cross, the FAC housed representatives from the U.S. Attorney General's Office, Massachusetts Attorney General's

Office (AGO), the Massachusetts Office of Victim Assistance (MOVA), the Federal Bureau of Investigation (FBI), Children's Disaster Services, the Registry of Motor Vehicles, and the U.S. Department of Health and Human Services.

View of the entrance to the Seaport World Trade Center

Within the City of Boston, a formal plan for FAC operations did not exist outside of the work the Red Cross traditionally does with aviation responses at Logan Airport, where an aircraft experiences an emergency or crash, and information and support services are provided to the families of those on the passenger manifest. On April 17th, representatives from the Red Cross, MOVA, AGO, FBI, and other partners met at the MIC to develop a plan for creating the FAC. By that evening, a location had been secured by BPHC, and the FAC began operating on April 18th at the Seaport World Trade Center Hotel. The Seaport, a member of OPHP's Boston Health Resilience Network (BHRN), provided space, food, and daily logistical support that made the FAC not only possible but very successful.

The FAC allowed supporting agencies to forgo visits to individual hospitals by offering assistance to survivors in one location. FAC staff worked closely with OPHP to provide information directly to the hospitals, and the FBI's representative at the FAC helped to disseminate information to victim advocates at hospitals. To ensure privacy for those seeking services, a determination was made to keep the location and phone number out of the media, a strategy that was ultimately successful.

The Red Cross brought in management and volunteers from around the country, many with disaster response experience, to assist in setting up the FAC. BPHC's General Counsel Office developed a standard intake form that allowed for information to be shared amongst all partners, which reduce the paperwork burden for those seeking assistance. Upon arrival of a client, American Red Cross staff verified that an individual was a victim or a family member by cross-referencing hospital patient lists provided by the MIC. Once a client's status was confirmed, the visitor was assigned a behavioral health specialist to assess their needs and to begin the case

management process. Chaplains were also on-site and available to provide services to anyone requesting them.

Pastoral Care	Information and Referral	Relocation Assistance
Victim Compensation	Therapy Dogs	Clothing
Child Care	Food Expenses	Legal Assistance
Tax Benefits/Extensions	Veterans Affairs	Mental Health
Referral	Benefit Information	Transportation
Provision of Medications	Crisis Intervention	Health Insurance
	Financial	Lodging

Figure 7.1 – Listing of human and social services provided at the Family Assistance Center.

Each day, at the beginning and end of operations, briefings were held with all staff to review any new issues that had arisen and any updates pertaining to victim compensation that was being managed through the One Fund. The AGO worked with the FBI and MOVA to distribute funds to victims and to coordinated with BPHC on efforts related to the One Fund. On April 23, OPHP conducted an investigative and support services briefing at the FAC. It was facilitated by Dr. Barbara Ferrer, the BPHC's Executive Director, with Mayor Thomas M. Menino, Police Commissioner Edward Davis, Boston FBI Supervisory Agent-in-Charge Richard DesLauriers, and Massachusetts Attorney General Martha Coakley presenting.

The Seaport FAC was suspended on Friday, April 19th during the shelter request and formally shut down on Friday, April 26th. Its successful operation spoke volumes to the amount of planning that has occurred in recent years within the City of Boston and of the types of collaborative partnerships that made it possible. Those served were genuinely appreciative of the coordinated efforts and of the services made available following such an extraordinary tragedy.

Family Assistance Center – Boston Public Health Commission

On Friday, April 26th, the FAC relocated operations from the Seaport to the BPHC's Headquarters at 1010 Massachusetts Ave. The BPHC's Community Initiatives Bureau was charged with coordinating the transitioned response, while the CAFH bureau oversaw ongoing case management for survivors. The Mayor's Health Line also continued to be operational during this time, providing support services to survivors, their families, and the general public.

The Red Cross was physically co-located at the FAC with BPHC personnel, which proved beneficial in providing not only continuity of support services, but mental health support for BPHC staff who were working directly with survivors and their families.

Operationally, the Mayor's Health Line and Mayor's Hotline continued receiving calls from social workers, hospitals, doctors, providers, and families, which at times created confusion regarding what resources were being offered, and how calls were being triaged, tracked and closed out. MOVA's website provided a central location to send victims and families to for resources, and additional victims assistance and FBI information was disseminated regularly. Telephone scripts were developed to help staff at the FAC and Mayor's Health Line provide appropriate information with a level of comfort to those calling. As was noted previously, Mayor's Hotline staff, was able to identify trends in calls, such as requests for more specific types of support services, which were documented and addressed. Regular communication and meetings with BPHC, MOVA and the FBI allowed for resource and information needs to be identified and addressed.

While the FAC was undeniably beneficial to survivors and their families, its prolonged operation presented unforeseen staffing challenges. Dedicating so many mental health and trauma experts to serve marathon survivors strained valuable resources that would have normally been able to support victims of other types of community violence. Clinicians at the FAC were also unsure of how long they would be pulled away from their traditional full-time roles. This uncertainty speaks to the need for an organized and coordinated long-term recovery process that addresses how to effectively transition support services when dealing with issues related to mass care.

Overall, FAC operations were very successful and met the needs of those whom it was established to serve. However, the City of Boston, through BPHC, would stand to benefit from using this response as an opportunity to build formal protocols and procedures for how to establish a FAC in the future. Establishing formal procedures for a FAC will support the Red Cross' desire to expand its aviation FAC model into a more general "all-hazards" approach. Longer term recovery planning that includes transition protocols for managing human and social support services for individuals requiring extended care is a challenge that must also be addressed.

Observations & Recommendations

Observation 7.6 (Strength) – Having the MIC serve as a central physical location for health and human service response partners allowed for enhanced coordination of information and resource deployment.

Recommendation 7.6.1 – In the future, ensure all resource collection and updated information is coordinated through a single City of Boston entity and re-distributed back out to call centers to have accurate, updated information across all systems.

Recommendation 7.6.2 – Identify which external "coordinating agencies" (e.g. the Red Cross) and functions need to be organized by the MIC in order to eliminate duplication of services and information.

Recommendation 7.6.3 – Further clarify roles for ESF-8 response partners who may work in the MIC through updating the MIC Standard Operating Guide.

Recommendation 7.6.4 – Have support agencies send consistent representatives to the MIC to maintain continuity and reduce need for re-orienting new staff.

Observation 7.7 (Strength) – The MIC was able to help provide resources to meet the short term behavioral and mental health needs of healthcare partners, including hospital emergency department personnel who cared for severely injured patients.

Recommendation 7.7.1 – Although the MIC was able to coordinate partners representing Region 4C (Boston) very well, it was noted that external partners may not know how to work as effectively with one another during an event outside of Boston.

Recommendation 7.7.2 - Identify where the needs for long-term mental and behavioral health support services may exist within the community.

Observation 7.8 (Strength) – State, and local partners were able to get in front of the mental health response and identify target audiences, which prevented there from being a lag in the delivery of services, and assisted in reassuring the public that assistance was available.

Recommendation 7.8.1 - None.

Observation 7.9 (Area for Improvement) – Mental health support staff were sent to the Mayor's Hotline at City Hall, but they were unable to integrate well into the response.

Recommendation 7.9.1 – In collaboration with the Mayor's Hotline, determine the best approach to integrate mental health support into their operations.

Observation 7.10 (Strength) – BPHC was well-suited to provide a strong level of case management for survivors and their families.

Recommendation 7.10.1 – Create a registry of "licensed clinicians" that identifies the types of scenarios these professionals are appropriately trained to handle.

Observation 7.11 (Area for Improvement) – While BPHC was able to provide a significant level of mental health services to the public, it was at times challenging meeting all of the needs as efficiently as possible due to the unpredictable nature of requests coming in.

Recommendation 7.11.1 –Designated a "Mental Health Coordinator" at the MIC to serve as a subject matter expert and assist with convening conference calls, managing deployment logistics, and providing situational updates to all stakeholders.

Recommendation 7.11.2 – Develop BPHC mental health "go teams" that can be deployed to community events and to assist with after-hour case management. Such a system will ensure that trained professionals are available to speak with impacted populations.

Observation 7.12 (Area for Improvement) – At times, when mental health personnel were deployed to a site, it was not clear who they were reporting to or how they were to fit into an incident command structure.

Recommendation 7.12.1 – Have all deployments centrally coordinated and tracked through the designated mental health point of contact at the MIC.

Recommendation 7.12.2 – Incorporate Incident Command System (ICS) concepts into statewide mental health plans.

Observation 7.13 (Area for Improvement) - Behavioral health system resources would have been strained had the needs of the community, responders, and businesses been greater.

Recommendation 7.13.1 – Establish an RFQ that pre-identifies proficient behavioral health providers that can be contracted with during emergency situations. Identify the potential range of needs that would have to be met for people of different ages, non-English speakers, and those with a history of trauma.

Recommendation 7.13.2 – Identify a means for coordinating messaging with employee assistance programs (EAPs), as many of these were called upon to support the community during the recovery.

Recommendation 7.13.3 – Create standardized and pre-approved literature for mental health counseling that takes advantage of accredited existing materials.

Recommendation 7.13.4 –Determine what the capacity for case management services is, and anticipate needs better prior to major emergencies.

Recommendation 7.13.5–Clarify roles of the BPHC's mental health support staff during prolonged deployments.

Observation 7.14 (Area for Improvement) – There was internal concern within the mental health provider organizations about the quality of the mental health supports that were deployed in the community. It was challenging to determine whether or not receiving entities were getting the proper type of support services they required.

Recommendation 7.14.1 – Develop a formal tracking system for encounters in the field so that data can be aggregated and analyzed in order to conduct an assessment of whether client needs are being met.

Recommendation 7.14.2 – Build a database of available mass care services that details what capacities exist in terms of personnel and training.

Observation 7.15 (Area for Improvement) – While FAC operations were successful overall, more work is required to streamline logistics with partner agencies in order to meet the needs of clients in an emergency.

Recommendation 7.15.1 – Work with the American Red Cross to incorporate principals from aviation FAC model to create an all-hazards FAC plan.

Recommendation 7.15.2 – Through a working group of key stakeholders, develop a formal FAC activation plan with partner agencies such as the Red Cross. This plan should outline protocols, roles, and expected responsibilities. A clear process needs to be developed for how community support and family assistance centers are activated and resourced following emergencies and how they support the task of family reunification.

Recommendation 7.15.3 – Develop a required agreement that may be approved in advance, about how all partners will share information to strengthen integrated efforts.

Observation 7.16 (Area for Improvement) – ARC staff from around the country working at the Family Assistance Center were not able to stay at the Seaport Hotel, creating issues with travel and coordination.

Recommendation 7.16.1 – Through the Boston Health Resilience Network, determine a way to allow staff to stay proximate to the FAC as part of any agreement to offer support.

Observation 7.17 (Area for Improvement) – The phone number for the FAC, which required 24/7 monitoring, was assigned to one individual who also serving in other roles. The FAC liaison role should have been more formalized and managed by someone with mental health and case management credentials.

Recommendation 7.17.1 - Establish a formal family assistance phone line that operates 24/7 and is staffed by a qualified individual.

Observation 7.18 (Area for Improvement) – No immediate overall debriefing or after action process was conducted following the closure of the FAC at the Seaport.

Recommendation 7.18.1 - Ensure debriefing process is included within a developed FAC plan.

Observation 7.19 (Area for Improvement) – After the FAC relocated to the BPHC's offices to share space with the Mayor's Health Line there was confusion among staff about what populations should be served(i.e. the general public versus survivors and family members).

Recommendation 7.19.1 - Develop protocols for how requests for service are triaged when a FAC is established.

Observation 7.20 (Area for Improvement) – When the FAC moved to BPHC, there was a lack of structure at times regarding the collection, vetting, and sharing of information.

Recommendation 7.20.1 – Determine a central coordinating entity to send out daily updated resource and information lists to all activated hotlines that may be serving the public during the recovery phase.

Observation 7.21 (Area for Improvement) – It was noted by healthcare partners (specifically home health and dialysis centers) that public transit closures, including "The MBTA's Ride," created challenges for patient/employee transportation.

Recommendation 7.21.1 – Establish a Transportation Working Group to address these matters.

Recommendation 7.21.2 – Create a map/database overlaying healthcare facilities and transportation infrastructure that could capture how employees get to and from work.

PHP Function 7.4 – Monitor mass care population health.

Analysis

Much of the support that was provided to survivors and the general public has already been covered as it related to the operation of the Family Assistance Center and availability of drop-in centers, online support services, and disaster hotlines.

As for the support of local, state, regional, and federal assets, much of this was coordinated through the MIC, where representatives from agencies with reach beyond Boston were stationed in order to coordinate ongoing needs as response and recovery efforts unfolded. For federal support, a determination was made early on at the Unified Command Center by federal, state, and local officials to formally request the deployment of a U.S. Health & Human Services mental health support team. This request was expedited by two factors. First, both FEMA Deputy Administrator Rich Serino and Assistant Secretary for Preparedness and Response Office

of Emergency Management Director Don Boyce were in Boston on the day of the attacks, which provided the city an immediate senior FEMA and HHS federal presence on-scene. Secondly, a FEMA disaster declaration is not required for HHS assets to either begin leaning forward or be deployed, and operational funds are covered directly by HHS through the Public Health Service Act.

An Incident Response Coordination Team (IRCT) "Light" was deployed on April 16th in support of FEMA Region I, the Commonwealth of Massachusetts, and the City of Boston, and continued operations through 7:00pm on Friday, April 26th. From the Crowne Plaza Hotel in Newton, MA, the IRCT coordinated the deployment assignments of the twenty public health service officers throughout Boston and the region.

Representatives from HHS were stationed at the MIC to provide information to the IRCT and to help generate and coordinate deployments. As part of the team, a mental health specialist is deployed to help establish tactical approaches in the field, and a clinician provides support for members of the team as a mental health provider. The experience of the team with past deployments, including the Sandyhook shooting in Newtown, CT, helped BPHC and MIC staff to prioritize mental health requests and match resources for deployments.

Ultimately, the HHS mission gravitated more towards supporting first responder agencies, first receivers at hospitals, and the Boston Athletic Association medical and volunteer staff. In total, through HHS, 487 individual encounters and 608 group encounters were conducted at a total of nineteen locations. An encounter is defined as a supportive contact lasting ten minutes or longer. The only disruption to the deployment was on April 19th, when operations were suspended due to the IRCT being located in Newton, one of the communities impacted by the shelter request. However, it was noted that HHS could have, and always can, provide field deployments as long as security escorts are utilized. The IRCT and mental health team demobilized on Friday, April 26th, and mental health support was consolidated back to local, regional, and state providers.

To meet ongoing mental health needs of the survivors, BPHC worked with Spaulding Rehabilitation Hospital to establish peer support groups that were facilitated by contracted behavioral health specialists. Sessions were held weekly over the course of ten weeks, and they were so well-received by attendees that additional sessions through the fall of 2013 and spring of 2014 were scheduled. This gave survivors an opportunity to share stories as they went through both physical and emotional rehabilitation. It was noted that this resource became even more

valuable in the months following the bombings, as survivors began to settle into their new realities and the long term recovery ahead of them.

The survivors' recoveries highlighted additional support challenges for clinicians working with individuals who had prior substance abuse or mental health issues. The ultimate, long-term goal was and continues to be assisting individuals in transitioning from the victim stage to the survivor stage and to give them the tools necessary to be empowered moving forward. To that end, BPHC will continue to provide coordinated support into 2014 for the survivor group, and will be establishing a separate group to focus on mental health needs.

One means of helping to facilitate this transition process came through a partnership between BPHC and Microsoft to establish an on-line support group through "Yammer", one of the company's newest platforms. Yammer is an online, private, and secure group discussion platform that is currently in use by survivors and families of the July 7, 2005 UK bombings as a way to remain connected and plan events such as memorials and anniversaries. After three months of discussions between various Microsoft/Yammer representatives and BPHC Bureaus and departments, a fully donated Yammer enterprise license was provided to survivors of the bombings, and the group officially launched on Wednesday, August 14. The group will be a place for survivors to ask questions, request/receive additional resources, connect with one another, and more. The platform will be administered by qualified BPHC representatives that have professional mental health credentials.

Observations & Recommendations

Observation 7.22 (Strength) – The deployment of the HHS IRCT and MHT allowed the MIC to coordinate deployments with immediately available resources while the overarching mental health response within the city was being coordinated.

> Recommendation 7.22.1 – Include within local plans what currently exists in terms of federal deployable assets, and how they could be quickly integrated into response operations on short notice.

Observation 7.23 (Strength) – Having mental health providers from outside of traditional employee assistance programs encouraged some first responders and hospital emergency department staff to take advantage of services where they otherwise may have been more reluctant.

Recommendation 7.23.1 – None.

Observation 7.24 (Strength) – HHS mental health team members felt that it was a valid mission and that the co-location of the IRCT and mental health team was beneficial to operations.

Recommendation 7.24.1 – Ensure that for any missions where federal assets are involved in the local response there is a local subject matter expert (in this case, for mental health) on site to assist with generating missions and matching deployments.

Observation 7.25 (Area for Improvement) – Mental health responders had varying levels of training comfort in dealing with particular audiences.

Recommendation 7.25.1 – Coordinate with state and federal partners to create a better process for identifying the qualifications of mental health responders and how their skills and training should be classified and matched for deployments.

Observation 7.26 (Strength) – Use of the MA Peer Support Network for first responders was beneficial, and assistance from the BPHC and state Departments of Mental Health and Public Health was helpful for behavioral and mental health monitoring.

Recommendation 7.26.1 - None.

Observation 7.27 (Strength) – The rollout of a Yammer support group was an excellent example of a successful public-private sector partnership that allowed survivors and their families to access information and updates at their convenience.

Recommendation 7.27.1 – Seek to build forums for large groups that require long-term peer support and information. Such outlets will help to alleviate the need for public organizations to continually reach out to survivors as information becomes updated.

PHP & HPP CAPABILITY 10:

MEDICAL SURGE

Overview

On an annual basis, the Boston Marathon is a real-world mass casualty event, with medical care supported by local, regional, and state public safety agencies, and several world class hospitals. The marathon is typically managed as a surge event, with medical stations lining the course and field medical tents positioned at the finish line. In 2012, due to excessive heat, the medical tents expanded beyond their traditional capacity, and secondary triage zones had to be established outside of the tents to manage patient volume. For the 2013 marathon, there was a medical surge at the finish line following the attacks and at hospital emergency departments throughout the City of Boston and in the metro area. The healthcare system's medical surge capability was again tested during the shelter-in-place recommendation on April 19th, as hospitals were unable to discharge patients for a period of time.

Figure 10.1 – Map of Boston's Level 1 trauma centers in relation to marathon finish line.

On April 15th, patients with life threatening injuries were rapidly transported by Boston EMS and a host of mutual aid providers to area hospitals, which ultimately lead to a 100% survival rate for those transported. The efficient distribution of patients from the scene, managed by Central Medical Emergency Direction (CMED) at Boston EMS Dispatch Operations, ensured that no hospital was overwhelmed by the volume of incoming patients.

Due to the nature of the event, there were initial challenges with scene management and patient triage and transport once the explosions turned the marathon into a tactical response operation. The Boston EMS Zone Commander on-scene advised those working inside Tent A to begin clearing out and discharging patients where possible, and to expect a surge of incoming patients from the field. Boston Athletic Association leadership assisted with issuing these directives from Boston EMS, which helped alleviate traffic in the tent and open up pathways for triaged patients to stage for ambulance transport. Due to concerns that there were additional explosive devices, patients were quickly triaged and loaded onto ambulances. Very early on in the process, a streamlined process was put into place to move patients through triage and loading as quickly as possible, based on initial medical assessments.

Ambulances stage at the rear of Medical Tent A at the finish line. Photo bu Boston EMS

Hospitals were successful in enacting their own internal emergency protocols to handle the incoming surge of patients. In total, 282 patients were seen at 25 area health care institutions.

The presence of six Level 1 trauma centers within two miles of Copley Square contributed to the rapid and successful medical surge response. However, years of pre-planning, trainings, and exercises within and throughout the healthcare and public health network created the relationships and protocols that allowed for a successful response. The Medical Intelligence Center was able to assist with situational awareness, patient reunification, resource coordination, and policy advisement during the response.

For hospitals, the Boston Marathon and the associated response was an event that lasted weeks beyond Marathon Monday. The ability of hospitals to manage the medical needs of the victims, provide employee assistance, and coordinate requests from a wide variety of response agencies was regarded as a major strength by hospital emergency managers during debriefings. That said, given the high acuity of the injuries, staffing constraints, and the need for specialized equipment and infrastructure protection, many hospitals expressed concern about capacity and capabilities had there been additional explosions.

A number of other healthcare system-related issues that were identified throughout the response, both on the day of the Boston Marathon and during the shelter-in-place request. The impact to home health providers, dialysis centers, health centers, pharmacies, and Health Commission treatment and service programs, all complicated efforts to ensure continuity of care for patients in the affected areas. To the extent possible, continuity was maintained by working with partner agencies to establish a common operating picture, providing guidance where requested or needed, and developing workarounds during fast-moving, highly fluid situations.

Shelter order posted on I-93 Northbound entering downtown Boston. Photo by The Associated Press

PHP Function 10.1 – Assess the nature and scope of the incident.

Analysis

As a result of its status as a pre-planned mass casualty event, human and physical resources are organized in advance of the Boston Marathon annually, through pre-established planning committees. These committees review data from past years, build the medical staffing infrastructure, and determine the hours of operation for medical stations along the route and at the finish line. Hospital emergency departments increase staffing for the day and free up space with the expectation of transfers of both runners and spectators from the course. The timeline

below shows a traditional year for the marathon, where from roughly 1:00pm – 3:00pm a large surge of patients comes through the finish line medical tents. However, due to the significant resources set-up in the field, this does not traditionally lead to an unmanageable amount of patients at the medical tents or in hospitals, with 2012 being an exception due to the unseasonably high temperatures on race day.

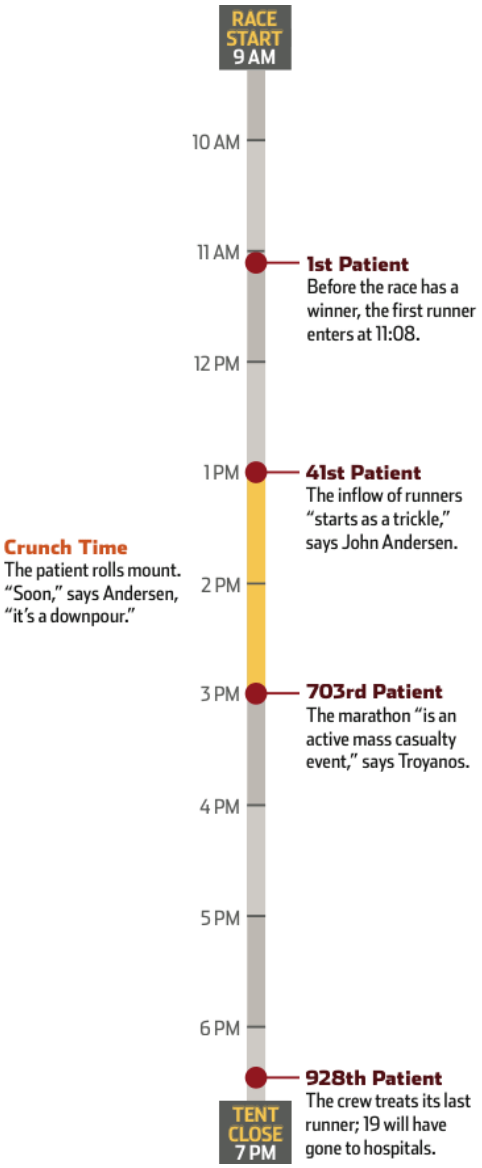


Figure 10.2 – Sample runner timeline demonstrating a typical patient surge during the Boston Marathon.
Source: Runner's World, May 2010

To support staff in the field and at hospital operations centers, the MIC was operational on the day of the marathon. The presence of the hospital coordinator from the Conference of Boston Teaching Hospitals (COBTH) at the MIC allowed hospital emergency managers to have a direct point of contact from the beginning of operations on April 15th and to maintain situational awareness following the bombings and throughout the course of the week.

In terms of healthcare system capacity, the Massachusetts Department of Public Health, through its Department Operations Center, requests and collects bed data on a pre-determined scheduled during the day of the marathon in order to provide real-time situational awareness as to each hospital's capacity.

The planning cycle for the marathon, and the collaborative process that prepares the City of Boston's healthcare infrastructure for the event, contributed significantly to the ability of on-scene responders and first receivers at hospitals to deliver rapid, life-saving care.

Observations & Recommendations

Observation 10.1 (Strength) – Medical assets from the City of Boston were properly pre-deployed and staged for the marathon.

Recommendation 10.1.1 - Use lessons learned from this report to inform future deployments.

Observation 10.2 (Strength) – Due to the efficient communication to hospital Emergency Departments and Emergency Managers, hospitals were able to enact protocols to be able to accept critical bombing patients.

Recommendations10.2.1 -None

HPP Function 10.2 – Coordinate integrated healthcare surge operations with pre-hospital EMS operations.

Analysis

Boston EMS Dispatch Operations

The on-scene treatment of patients and the rapid transport of the injured to Boston hospitals have been widely praised a. Following the blasts, Boston EMS field personnel quickly began estimating the number and types of injuries on-scene. Within three minutes of the initial explosion, Central Medical Emergency Direction (CMED) had notified hospital emergency departments of a Mass Casualty Incident (MCI) over the disaster radios. Shortly thereafter, a call was put out for mutual aid assistance from public and private ambulance providers through Boston EMS Ambulance Mutual Aid (BAMA), which led to ten service providers dispatching a total of 68 trucks and 135 personnel (including supervisors) to the scene. Nine of the ten mutual aid partners ultimately assisted with transporting patients.

As a result of the MCI declaration, protocols mandate that EMS responders treat the group of victims as one in an effort to achieve the greatest good for the greatest number of patients. To transport the patients, three separate loading zones were established within the impacted area, with the main loading zone located at the rear of Medical Tent A. Patient and vehicle access to

and from the scene, especially along Boylston St, was challenging due to the barricades that line the race route for security purposes. With three loading zones, CMED was responsible for managing and tracking patient distribution. Centralizing this function helped to maintain an overall common operating picture and to prevent any individual hospital from being overwhelmed with injured patients. Medical Tent A was cleared of occupants, and triage zones were established, including a temporary morgue for the deceased. Within eight minutes, the first patient was being transported to Mass. General Hospital, and within 60 minutes all critical patients had been transported from the scene.

Because of road closures in and around the event area, this incident was atypical of many other MCIs in that a relatively small number of patients were able to self-report to an emergency department for treatment. In total, 118 patients were transported from the scene by ambulance, with 75 by Boston EMS and 43 by a combined nine mutual aid ambulance partners.

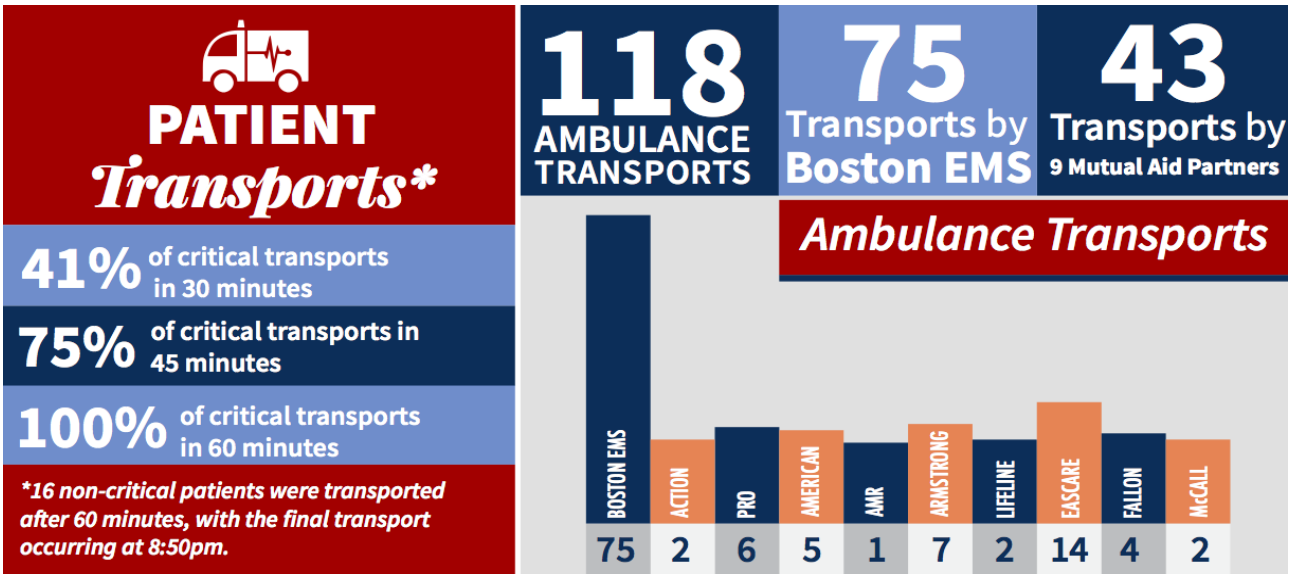


Figure 10.3 – Ambulance transports by provider.
Graphic by Office of Public Health Preparedness with data from Boston EMS.

Boston EMS representatives at the MIC were able to provide field data from tactical radio channels to the MIC manager. However, in the early minutes of the response, it was not possible to share reliable or accurate information with external healthcare partners and agencies that were requesting additional information as to the cause of the blasts, types of injuries, and estimated number of patients. This information gap resulted from on-scene responders needing time to assess the situation and communicate information from the field.

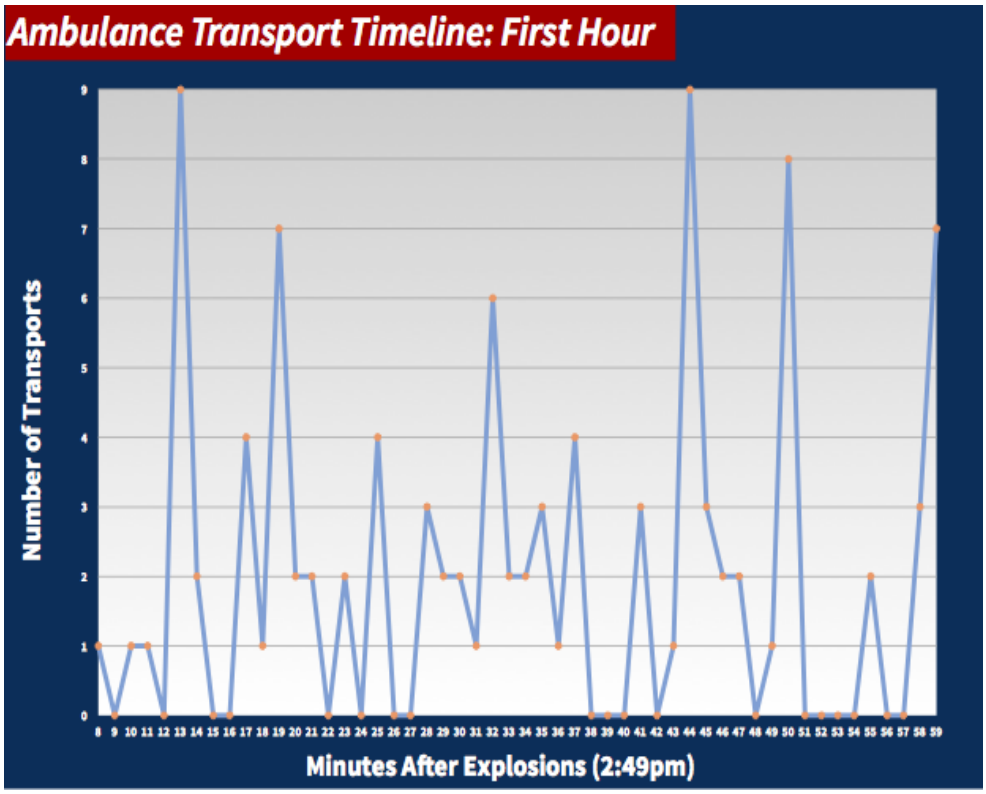


Figure 10.4 - Ambulance transport volume within the first 60 minutes.
Graphic by Office of Public Health Preparedness with data provided by Boston EMS.

Following the initial challenges gathering information from the scene, situational awareness was established with hospitals to let them know status updates and when patients had been cleared from the scene. OPHP staff also operated out of the Unified Command Center at the Westin Copley, which allowed for the sharing of a real-time, common operating picture with stakeholders.

It should also be noted that EMS (and other units) on scene had made the determination that there was no CBRNE element from the blasts, and it was noted by the safety officer on scene that patients would not have been transported so quickly had there been a suspicion of a biological or chemical agent. This determination on-scene was made independently by different response agencies, but not communicated to receiving hospitals.

One of the corrective actions identified by receiving hospitals involved the incomplete or non-existent information communicated about potential on-scene hazards such as chemical, biological, radiological, or nuclear contamination. While on-scene responders, HazMat teams, and the Civil Support Team had made the determination within approximately ten minutes of the explosions that there were not additional hazards, this information was not relayed to hospitals. The EMS safety officer on scene noted that patients would not have been transported so quickly had there been a suspicion of a biological or chemical agent. That said, the transfer of hazard information on-scene to hospitals has a critical impact on the operations of receiving emergency departments, and will be addressed.

Observations & Recommendations

Observation 10.3 (Strength) – Region 4 CMED coordinated the distribution of patients in an efficient manner to hospitals throughout greater Boston, which prevented overcrowding in emergency departments and operating rooms.

Recommendation 10.3.1 – None.

Observation 10.4 (Strength) – Hospitals were notified by CMED of EMS actions until the scene was deemed clear.

Recommendation 10.4.1 – Continue to promote information sharing between hospital emergency managers and emergency departments.

HPP Function 10.1 – The Healthcare Coalition assists with the coordination of the healthcare organization response during incidents that require medical surge.
PHP Function 10.2 – Support activation of medical surge.
PHP Function 10.3 – Support jurisdictional medical surge operations.
HPP Function 10.3 – Assist healthcare organizations with surge capacity and capability.

Analysis

Nine hospitals received transports from the scene via ambulance, with Brigham & Women's and Boston Medical Center (BMC) receiving the most at 23 and 19, respectively. Receiving hospitals put into place procedures to expedite the discharge of patients, decompress volume in emergency departments, and prioritize operating room utilization, all while managing resources in the event that secondary attacks occurred or additional victims were identified at the scene. Behavioral health support services, such as the Boston Emergency Services Team (BEST) out of BMC, worked quickly to aid any individuals experiencing mental health issues.

Hospital	Patients
Beth Israel	17
Boston Medical Center	19
Brigham and Women's	23
Children's	4
Carney	5
Faulkner	12
Mass General	16
St Elizabeth	11
Tufts	11
Total	**118**

Figure 10.5 – Patients received from ambulance transports.
Source: Office of Public Health Preparedness

Hospital emergency departments faced several challenges in treating arriving patients. The unorthodox nature and volume of the injuries resulting from the explosion of the pressure cooker devices, including blast injuries, burns, fractures, lacerations, and amputations, placed a significant strain on hospitals attempting to treat patients with resources available on-hand.

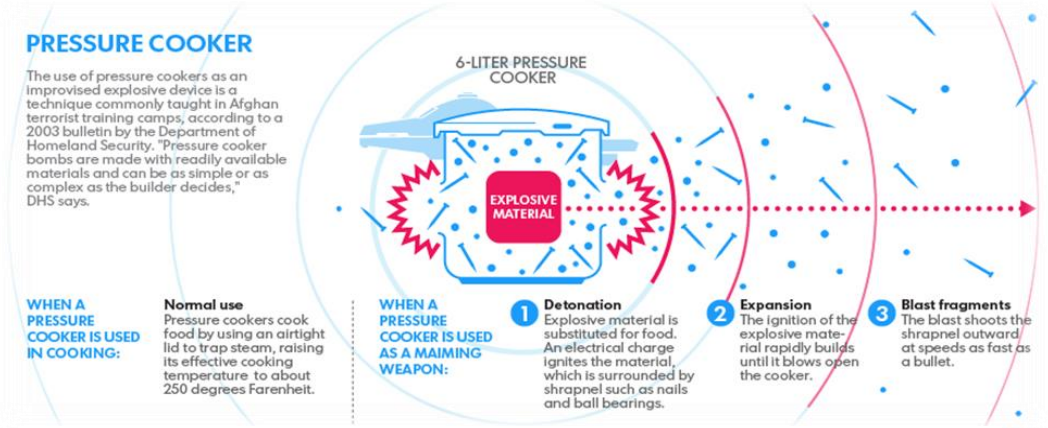
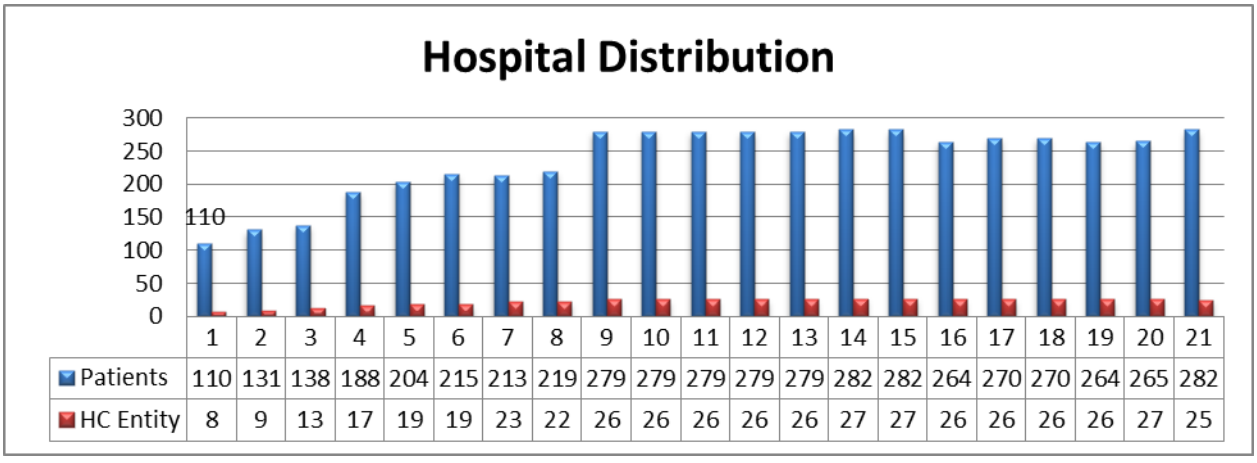


Figure 10.6 – Pressure cooker device used as improvised explosive device.
Source: USA Today

In response, the Medical Intelligence Center issued requests across the healthcare system for specialized supplies that certain hospitals required. A HHAN alert was sent out to hospitals throughout Massachusetts to obtain amputation kits. The Massachusetts Department of Public Health assisted in securing a blood transport from Rhode Island. Requesting hospitals received the specific aid requested from other institutions and with coordination from MDPH.

Although hospitals received their requested resources, the process did not follow established protocols. Requests for information did not originally start at the local level, as they should have, but instead were directed to MDPH, which had to work through the regional coordinators to verify supply requests. This extra step slowed the resource allocation process. Hospitals found a variety of methods to secure resources for their departments. These requests did not go through the Emergency Managers at the hospital level. Centralized coordination would have secured these resources more efficiently in the early hours.

As the recovery phase began, the MIC contacted hospital emergency managers on a daily basis to obtain updated in-patient and discharge numbers. The chart below represents the number of patients and healthcare institutions counted across the twenty (20) SitBriefs disseminated by the MIC following the bombings. The first column shows the numbers reported in the first SitBrief on April 15th, with 110 patients at 8 facilities, with column 21 showing the final number of 282 patients seen at 25. The variation in numbers can be attributed to several factors, including the



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Patients	110	131	138	188	204	215	213	219	279	279	279	279	279	282	282	264	270	270	264	265	282
HC Entity	8	9	13	17	19	19	23	22	26	26	26	26	26	27	27	26	26	26	26	27	25

Figure 10.7 – Number of patients seen and number of healthcare entities receiving patients through
Source: Office of Public Health Preparedness

transfer of patients between institutions, walk-in patients to regional hospitals in the days that followed April 15th for less acute care needs such as hearing impairment from the blasts, and

general documentation issues associated with obtaining accurate, updated information from a wide network of facilities.

The response and recovery process spanned several weeks for hospitals. It was a challenging period of time that required these institutions to address unique patient care needs in addition to cooperating with law enforcement in the investigation and implementing enhanced security measures. Heightened security was extremely critical during the shelter-in-place request, when hospitals were notified to be on the lookout for an armed and dangerous suspect presenting at an emergency department. Beth Israel Deaconess Medical Center ultimately received both of the suspects, with the first arriving in the early morning on April 19th following a shootout in neighboring Watertown and the second arriving that evening following a day-long manhunt by law enforcement. This created unique challenges for Beth Israel, as the hospital was treating both survivors and the suspects.

The complicated care required for patients, along with the outpouring of donations and well-wishers and dignitaries (including President Obama on April 18th) wishing to visit the patients required a significant degree of coordination among caregiving organizations. Donations are discussed in further detail in *Section 7: Mass Care*, but the coordination of services component is worth noting within the "Medical Surge" section, as it placed strain on hospital emergency departments and patient service providers. Support services offered by the Boston Public Health Commission, Attorney General's Office, Massachusetts Office of Victim Assistance, FBI, Massachusetts Department of Mental Health, Riverside Community Care, U.S. Health & Human Services, and others could have been coordinated more efficiently to alleviate the response burden on hospital administrative and support staff.

Observations & Recommendations

Observation 10.5 (Strength) – Real-time exchange of information through WebEOC and HHAN alerts was helpful to hospital emergency management staff, though at times the messages became difficult to triage due to the high volume of communications.

> Recommendation 10.5.1 – Continue to engage in efforts to consolidate and integrate WebEOC platforms.

Observation 10.6 (Area for Improvement) – Hospitals were inundated with requests for information from not only families and the media, but also from a variety of non-law

enforcement external entities, which created frustrations among administrative staff, emergency managers, and family social workers.

Recommendation 10.6.1 – Soon after an event, establish the MIC as the centralized lead for requests for information from the healthcare community and outside agencies during emergencies to reduce the number of requests coming in and to prevent credible entities from having to go to every hospital in search of information.

Observation 10.7 (Strength) – Regular notifications kept hospitals abreast of decisions being made and operations being conducted in the field by various departments and agencies throughout the city.

Recommendation 10.7.1 - None.

Observation 10.8 (Area for Improvement) – While hospitals demonstrated a high level of coordination to meet patient needs, the ability to request and share resources among area hospitals could have been improved through a centralized process.

Recommendation 10.8.1 – Continue, through pre-existing committees and groups, to build out networks and expand partnerships that can be relied upon for information and resource sharing during times of emergency. Secondly, develop a centralized process to notify public health partners about resource sharing between and amongst health care organizations.

Observation 10.9 (Area for Improvement) – While resource requests placed to the MIC were closed out in a timely manner, this function could have benefited from a more formal internal process.

Recommendation 10.9.1 – Create a better means to formally track specific resource requests from facilities through the Operations Section.

Observation 10.10 (Area for Improvement) – Offers of services and donations, which could have been processed in a more centralized, coordinated manner, became a burden to hospital staff.

Recommendation 10.10.1 – Have the MIC serve as a single point of contact for all resource offers, and disseminate information to hospitals on a pre-determined schedule throughout the response period.

HPP Function 10.5 – Provide assistance to healthcare organizations regarding evacuation and shelter in place operations.

Analysis

The early morning of April 19th saw an unprecedented shelter request implemented by the Governor of Massachusetts and Mayor of Boston for the Boston neighborhoods of Allston and Brighton and the adjacent community of Watertown. This request was expanded later in the morning to include the entire City of Boston, and the additional communities of, Newton, Brookline, Belmont, Waltham, and Cambridge, as law enforcement agencies from around the nation engaged in a manhunt for the second bombing suspect.

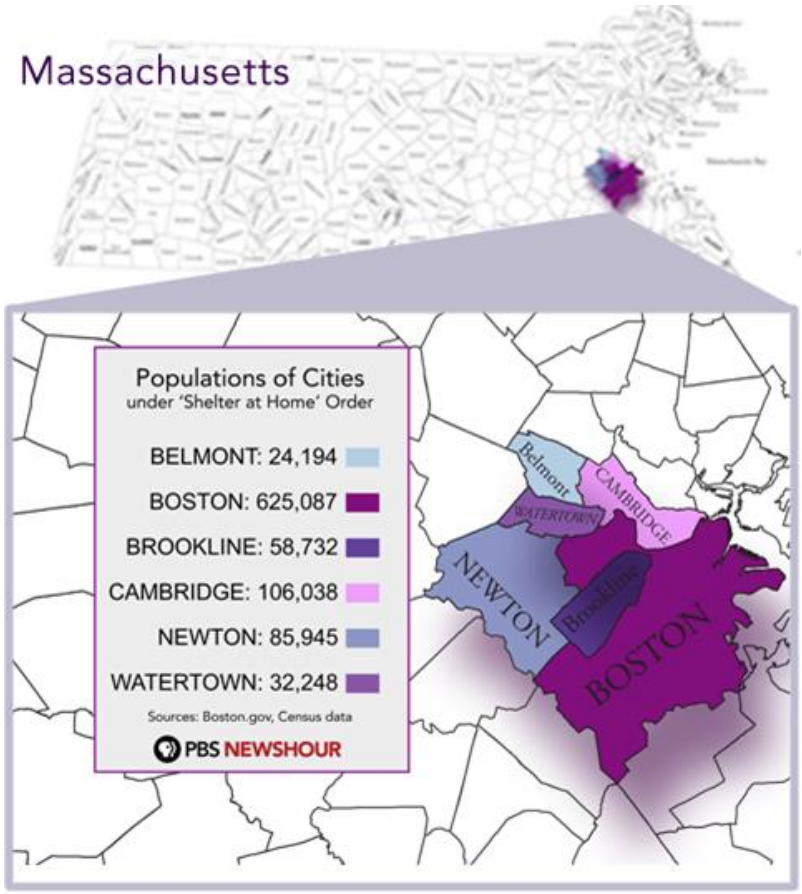


Figure 10.8 – Map of the communities under the shelter order. Source: PBS News Hour

Not since 9/11 had a major urban area in the United States been held at a standstill, with transportation completely shut-down and a request put out for area businesses to close their doors and keep their employees from travelling into work. While the disruption was considerable, it could have been even greater to the over 900,000 residents it applied to had the week of April 15th not been during school vacation for area students. At 6:01am on the morning of April 19th, the City of Boston's Emergency Alert System sent out a "severe" alert to residents registered

with the system, informing them of the shelter request, with "severe" denoting the highest possible level of alert. This alert was followed at 6:05 by an e-mail notification regarding the suspension of public transportation and the search for an "armed and dangerous suspect." These notifications were followed by a series of "severe" HHAN alerts that provided healthcare organizations with as much information as possible at the time. Institutions were advised to use the WebEOC "Boston Marathon" event for updates and to contact the MIC for any information. While most businesses followed orders and suspended operations, essential healthcare services were forced to continue operations under heightened security, which required close coordination and frequent communication as to updates within the city.

At 8:17am a "severe" HHAN alert informed healthcare institutions that it was advised they not allow anyone in or out of their facilities until further notice was received, and also that taxi services had been suspended in addition to the MBTA. At 8:30am, the following notice was sent out by MDPH to hospital emergency management directors:

> *The Massachusetts Department of Public Health is working to clarify the previous information about lockdown and shelter-in-place steps. Healthcare facilities should not send personnel home or request personnel come into the hospital until the security situation is resolved. In light of the lockdown and shelter-in-place orders, hospitals should implement enhanced security procedures and refrain from discharging patients until the security situation is resolved. Hospitals may still accept transfers (critical and emergency transfers only) as well as patients transported by ambulance and patients coming into the ED. Questions, please use your discretion being mindful of the current security situation.*

This was followed by a notification at 11:23am for hospitals to defer all non-emergency inter-facility transfer work and to identify priority lists of discharges.

The fast-moving environment and fluid security situation was challenging to coordinate with all stakeholders, but the presence of MDPH officials at the MIC helped to facilitate information sharing and provide accurate and timely responses to questions and concerns. This collaborative environment also helped to address staffing issue that needed to be resolved in light of the transportation shut down and shelter-in-place reqeust. In consultation with law enforcement, MDPH and BPHC issued the following notice at 12:34pm:

> *Healthcare facilities ARE allowed to request afternoon and evening staff come to the facility to relieve staff members who are currently on duty. Healthcare facilities are requested to limit, to the greatest extent possible, this staff change to essential personnel only. Healthcare facilities are also requested to please ensure that personnel in the affected area DO NOT travel into work, since law enforcement continues to advise that individuals shelter-in-place and refrain from gathering outside and from driving except in emergencies.*

In addition to patient care and staffing issues that required attention, throughout the morning information continued to be pushed out to stakeholders regarding the security situation and guidance for hospitals in terms of staffing and patient transfers / discharges. Hospitals continued to be put on high alert for the suspect, with the following language being sent out at 8:51am via the HHAN:

> *Hospitals in the Eastern part of Massachusetts. Please be on the lookout for anyone with a gunshot wound and/or explosion type wounds. There is reason to believe the suspect from this morning may be injured. If anyone with these types of wounds report in the ED of any Hospitals, please contact Mass State Police immediately.*

A law enforcement photo of the suspect was sent out shortly thereafter. As a result of the bombings a substantial law enforcement presence from multiple agencies was implemented at hospitals and emergency departments throughout Boston. This was a result of security protocols and the designation of hospitals as critical infrastructure.

MDPH issued guidance to EMS providers within the Commonwealth to continue services in the affected areas using normal protocols and procedures, but with a "heightened level of security". It was advised that non-emergent ambulance transfer work be deferred in cooperation with facilities.

The shelter request disrupted many day-to-day operations at hospitals. Regularly scheduled deliveries could not be completed due to the transportation ban. Due to the uncertainty of the length of the ban, planning was difficult. Food and linen supplies became a particular challenge for hospitals that were housing more individuals than normal, as patients in the locked-down areas remained at hospitals instead of returning home following treatment.

Home health and dialysis service was impacted due to the transportation shut down and the transportation ban. These services provide vital and necessary treatments to individuals and can cause adverse health outcomes for patients who do not receive them.

An estimated 40% of pharmacies in the shelter area were closed, creating a lack of access to medications for hospital outpatients. MDPH issued a HHAN alert at 3:24pm providing guidance on dispensing medications to emergency room and discharged patients, which included parameters on quantities and refill orders. During any business closure or transportation disruption, patients' ability to access medication will continue to be a focus of attention.

Throughout April 19th, all healthcare facilities were on a heightened state of alert, and even after the shelter-in-place recommendation was lifted by the Governor at 6:00pm, the state of alert remained as the manhunt continued and ultimately resulted in the capture and transport of the second suspect. The shelter request provided many lessons about how such a disruption affects city operations, especially for the healthcare industry that is such an integral part of Boston's economy.

Observations & Recommendations

Observation (Area for Improvement) 10.11 – Hospitals cannot run without support staff, and they are disproportionately affected by lockdowns and MBTA suspensions.

Recommendation 10.11.1 – Need for clearer guidance from issuing authorities when roadways are shut down from officials. this includes the specific definition of who is classified as essential personnel and allowed to use the roadways.

Recommendation 10.11.2 – Work with hospitals and health centers to create a map of where essential healthcare personnel live within and outside of Boston, to assist with future decision making.

Recommendation 10.11.3 – Continue efforts with the MBTA to identify optimal times for shut down to help with hospital shift changes.

Recommendation 10.11.4 – Hospitals should be among the first alerted as soon as major decisions are made significantly impacting city operations or the transportation infrastructure, to provide as much time as possible to prepare for any disruptions.

PHP Function 10.4 – Support demobilization of medical surge operations.

Analysis

For the hospitals, a significant element of returning to normal operations consisted of addressing employee mental health and wellness needs. As witnesses and caregivers to severely injured patients, countless staff was directly impacted by the emotional events of the marathon and following weeks.

In terms of patient care, many of the most acutely injured patients were eventually transitioned to rehabilitation centers, such as Spaulding Rehabilitation in Hospital in Boston which received patient transfers, or remained in hospital care until they could be discharged to outpatient therapy.

Ultimately, the response phase for hospitals lasted for weeks beyond the initial events of April 15th, and each institution demobilized and returned to normal operations based on their own individual protocols and procedures, while the MIC remained in contact with organizations on a daily basis to support any needs that arose.

Observations & Recommendations

Observation 10.12 (Strength) – Counseling resources were made available to hospital staff through employee assistance programs, and support provided through the MIC by local, state, and federal mental health resources.

> Recommendation 10.12.1 – Ensure the continued availability of mental health resources for those who need it months after the event.

PHP CAPABILITY 13:

PUBLIC HEALTH SURVEILLANCE

Overview

For the City of Boston, the Boston Public Health Commission's Infectious Disease Bureau (IDB) and its Communicable Disease Control Division (CDCD) serve as the public health authority for all issues related to infectious disease reporting, surveillance, investigation, and analysis. They are closely connected to the healthcare infrastructure of the City of Boston, and they operate syndromic surveillance systems to collect data daily from emergency departments for reporting and analysis. The Infectious Disease Bureau is well-integrated into Boston's emergency management and preparedness infrastructure, including the Medical Intelligence Center.

Following the marathon explosions, the IDB increased its surveillance of emergency department visits and created a "Marathon Blast" syndrome to track percentages of visits at hospitals. Surveillance was also increased for patients presenting with behavioral and mental health syndromes, including anxiety, alcoholism, PTSD, and suicidal ideation.

Overall, there were no significant aberrations in the data collected, or a direct need for any type of investigations or mitigation strategies. Spikes in anxiety were noted during the April 19th shelter request, and surrounding public events like funerals. However, had "dirty bombs" been used during the attacks there would have been a significantly higher need for public health intervention and mitigation, and for increased guidance related to post-exposure prophylaxis for the general public and healthcare providers.

Additionally, the IDB coordinated with the MIC to disseminate a BPHC advisory related to blood-borne pathogen prophylaxis in response to various inquiries related to blast injuries. This guidance primarily addressed injuries for victims that were near the site of the explosions, where biological foreign bodies such as bone could become projectiles and penetrate the skin of others. Surgeons noted that certain patients had suffered such injuries. The BPHC's recommendations are summarized below:

- Hepatitis B (HBV): For persons with penetrating injuries, non-intact skin exposures, or mucous membrane exposures, HBV post-exposure prophylaxis (PEP) is recommended

for anyone not known to be immune to HBV. Non-immune victims should start a Hepatitis B vaccination series as soon as possible.

- Hepatitis C (HCV): No PEP is recommended.
- HIV: No PEP is recommended.

These recommendations were in accordance with the Centers for Disease Control and Prevention guidelines related to post-exposure prophylaxis for blast injuries.

PHP Function 13.1 – Conduct public health surveillance and detection.

Analysis

The BPHC enjoys longstanding relationships with City of Boston hospitals in terms of disease surveillance and reporting. Following the bombings, additional indicators were identified that were tracked as syndromes to determine if there were any indicators that deviated from expected baseline data. There was an initial concern that there would be increases in hospital visits for behavioral and mental health issues, including anxiety, alcoholism, PTSD, and suicidal ideation. As such, these conditions these were proactively monitored.

The below chart shows data from April 7th through April 27th, with increases classified as "significant" occurring on April 19th and April 23rd for anxiety, PTSD syndromes, and suicidal ideation.

Date	Total Visits	% Anxiety	% PTSD	% Suicidal Ideation	% Alcohol
7-Apr	1480	0.5	0.7	1.3	3
8-Apr	1638	0.6	0.6	2.1	2
9-Apr	1544	0.5	0.5	1.2	3
10-Apr	1508	0.6	0.9	1	3
11-Apr	1532	0.7	0.7	1.3	3
12-Apr	1427	0.4	0.7	1.1	3
13-Apr	1393	0.6	0.8	0.9	3
14-Apr	1521	0.4	0.5	0.9	3
15-Apr	1464	0.7	0.9	1.2	4

16-Apr	1336	1	1.3	1.3	2
17-Apr	1401	0.6	0.7	1.8	3
18-Apr	1369	0.9	1.1	1.2	2
19-Apr	1098	1.5	1.8	1.6	3
20-Apr	1341	1	1.1	1.4	3
21-Apr	1397	0.6	0.7	1.6	3
22-Apr	1530	0.8	0.8	1.7	3
23-Apr	1445	1.1	1.3	2.2	2
24-Apr	1439	0.6	0.6	1.7	2
25-Apr	1413	1	1.3	1.3	2
26-Apr	1423	0.7	1.1	1.5	3
27-Apr	1401	0.5	0.6	1.1	4

Figure 15.1 – City of Boston Emergency Department data for behavioral and mental health visits. Source: BPHC Infectious Disease Bureau

Additionally, the below chart shows the daily visits to City of Boston emergency departments that were tracked from April 7th through April 27th, with the Marathon Blast Syndrome (MBS#) aggregating the chief complaints, which included the sub-syndromes of "blast", "trauma", "burns", and "hearing problems". With a baseline range of 0.2 – 1.1% of visits, April 15th saw an 8.9% rate for marathon related blast injuries. Expectedly, there is a noted sharp drop on April 19th during the shelter request for the Boston region. As a note, the data fields are not mutually exclusive, so the 8.9% rate likely represents a degree of double counting.

Emergency Department Visit Surveillance Data

Date	Total Visits	Marathon*	Blast*	Trauma*	Burns*	Hearing*	Marathon Blast#	% Marathon
7-Apr	1480	0	0	2	6	0	8	0.5
8-Apr	1638	0	0	0	3	0	3	0.2
9-Apr	1544	0	0	2	1	1	4	0.3
10-Apr	1508	0	0	2	2	0	4	0.3
11-Apr	1532	0	0	10	4	0	14	0.9
12-Apr	1427	0	0	4	3	2	9	0.6
13-Apr	1393	0	0	2	4	2	8	0.6
14-Apr	1521	0	1	6	8	1	16	1.1

15-Apr	1464	24	60	31	17	13	130	8.9
16-Apr	1336	1	4	4	1	2	11	0.8
17-Apr	1401	0	0	3	3	0	6	0.4
18-Apr	1369	0	0	1	6	0	7	0.5
19-Apr	1098	0	1	2	1	1	4	0.4
20-Apr	1341	0	3	1	5	1	9	0.7
21-Apr	1397	0	0	6	5	3	14	1
22-Apr	1530	0	0	8	1	1	10	0.7
23-Apr	1445	0	1	3	1	1	6	0.4
24-Apr	1439	0	0	4	3	0	7	0.5
25-Apr	1413	0	0	0	6	0	6	0.4
26-Apr	1423	0	1	4	3	2	9	0.6
27-Apr	1401	0	0	4	5	2	11	0.8

Figure 15.2 – City of Boston Emergency department data for Marathon Blast Syndrome (MDS#) Source: BPHC Infectious Disease Bureau

Ultimately, there were not significant deviations reported. This could have been due, in part, to all of the efforts associated with promoting the mental health resources that were being made available to the public through drop-in centers, hotlines, and online materials.

Observations & Recommendations

Observation 13.1 (Strength) – BPHC successfully utilized its Boston Surveillance System to receive daily reports related to PTSD, anxiety, suicidal intentions, and alcohol related visits.

Recommendation 13.1.1 – None.

Observation 13.2 (Strength) – The IDB was able to advise stakeholders on communicable disease issues related to the bombing and subsequent medical care.

Recommendation 13.2.1 – None.

Observation 13.3 (Area for Improvement) – For some notifications and advisories, hospital infectious disease staff did not receive the same timely information as hospital emergency management staff from the IDB and MIC.

Recommendation 13.3.1 – Work with hospital emergency management staff to ensure that MIC advisories and emergency notifications are disseminated throughout the hospital system, particularly to infectious control staff. Additionally, look into obtaining a distribution list from IDB for infectious disease staff that could be added to MIC contacts.

Observation 13.4 (Area for Improvement) – IDB had difficulty connecting with a CDC subject matter expert during the response. Resources and information was requested that was re-routed back through the state, and information provided did not sufficiently address the stated need.

Recommendation 13.4.1 – Have local and state ESF-8 representatives coordinate with the CDC to better understand protocols for receiving official guidance on matters related to infectious disease.

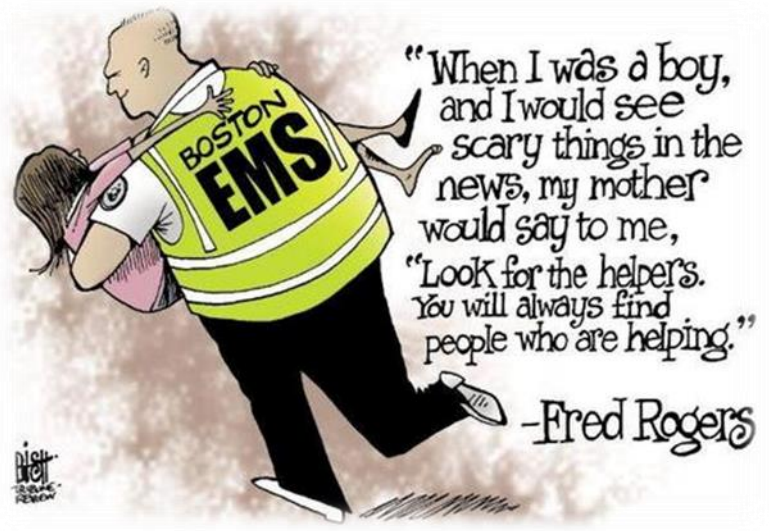
Recommendation 13.4.2 – Work with local CDC field assignees to address these issues and communicate what the specific needs of local government and public safety are.

PHP & HPP CAPABILITY 14:

RESPONDER SAFETY & HEALTH

Overview

For the purposes of this report, "Responder Safety & Health" applies to all ESF-8 medical personnel who were along the course route in Boston, at the finish line medical tents, or at hospitals. This is inclusive of first responders, public health staff, hospital staff, and volunteers operating in a medical capacity. The safety and health of responders is paramount, and the events of the week of April 15th highlighted a number of successes and areas for improvement in this realm that will continue to be addressed going forward. This report will focus primarily on the health and safety of ESF-8 staff stationed at the finish line, Boston Medical Reserve Corps volunteers working under the management of the Office of Public Health Preparedness, and, where relevant, first responders who interfaced with ESF-8 staff.



Randy Bush, Pittsburgh Tribune-Review

Every year on the morning of the Boston Marathon, a 45 minute briefing is held with finish line medical volunteers at the Old John Hancock Building's Dorothy Quincy Suite, adjacent to the finish line medical area in Copley Square. During this briefing, operational logistics for the event are reviewed, and guidance for the event is provided by the BAA medical coordinator, the BAA medical director, and the City of Boston's Public Safety Medical Director. Following the larger auditorium session, volunteers are asked to find their team leaders for a follow-on briefing either near the auditorium or at their designated finish line stations.

During the briefings, limited information is provided about how roles and responsibilities would change should the operation shift from a special event to a tactical operation. Typical briefings do not go into detail about how a tactical operation would impact the command and control structure, evacuation procedures, and additional safety concerns. Much of this communication had to be done in an ad hoc manner after the attacks occurred.

Immediately following the bombings, the EMS managing physician at Tent A told the BAA tent manager to announce to the volunteers and patients that an unknown event had occurred, that the safest place to be was inside the tent, and that individuals should go back to their assigned area with their team leaders. At Medical Tent B, the tent manager issued similar guidance for staff to stay in the tent and to remain operational in the event that it needed to be used as a secondary site to support Medical Tent A.

In regards to scene security, prior to the blasts, bomb dogs swept the medical tents in search of any potential explosives or devices, providing an additional layer of security to the law enforcement details assigned to the tents. Following the blasts, however, law enforcement personnel left the medical tents to respond to the situation unfolding on Boylston Street, leaving the tents open to non-credentialed entry and exit. The lack of formal police presence at the tents was identified as a major potential hazard by first responders triaging and transporting patients from Medical Tent A, as many individuals possessed backpacks that could have contained secondary devices.

An overarching security challenge involved the use of the Incident Command System and establishing span of control of all staff and volunteers within the finish line medical infrastructure. Following the bombings, scene security and patient care became a law enforcement and EMS tactical operation. Issues arose related to being able to safely remove medical volunteers from the scene, determine the proper chain of command to follow, and keep the tent clear for emergency transports. EMS leadership correctly prioritized treating patients, which left staff without sufficient resources to manage BAA volunteers.

Away from the scene, first receivers at hospitals raised several safety concerns that required attention. Chief among these was the fact that the first hospitals to receive patients did not initially get confirmation that the scene at Copley Square was free of biological, radiological, and/or chemical hazards. While detectors at hospitals did not pick up on any additional hazards, hospital staff still operated with a degree of anxiety in the absence of official confirmation. Additionally, the mental health impact on hospital staff, which had to be addressed through

employee assistance programs and a variety of other channels as part of the process for returning to normal operations, was considerable in the days and weeks following the bombings. .

PHP Function 14.1 – Identify responder safety and health risks.
PHP Function 14.2 – Identify safety and personal protective needs.

Analysis

Proper personnel identification and personal protective equipment for responders is accounted for during the extensive planning and preparedness process that goes into the marathon each year. Boston EMS supervisors are easily identifiable with high visibility jackets. All non-public safety personnel that are on-scene are identified by two items: the marathon jacket issued to them by the BAA and the lanyard credentials identifying their specific role. Anyone with a medical credential would have been vetted as a provider prior to the marathon, but following the attacks it became difficult to maintain credentialed access to restricted areas, due to the dispersal of law enforcement and other security personnel. Eventually, anyone without a proper credential was escorted from the scene.

The challenges related to identification and credentialing are evidence of the overall need for integrated incident command during special events and response operations. While the Boston Marathon is an event coordinated and managed by the Boston Athletic Association, the infrastructure supporting on-scene management and acute patient care and transport in the Boston portion of the event is overseen by Boston EMS. Traditionally, this system is well-managed and for years has made the Boston Marathon an extraordinary example how to successfully conduct a large-scale planned event.

When operations shifted following the attacks, however, there was initial confusion among many of the volunteers about chain of command, roles and responsibilities, and the administration of patient care. Many of the issues highlighted can be addressed through a more structured establishment of ICS among all of the partner agencies beforehand, with an understanding of how command structure changed during any large scale public safety emergency. Steps can also be taken to enhance the security component of the morning medical briefing held prior to the marathon each year.

Within the tents, EMS personnel determined that the injuries presenting were consistent with blasts and that there was no evidence of HazMat-related injuries, clearing the way for transport.

However, as has been mentioned, the on-scene clearance provided by CBRNE responders was not communicated within the medical tent where patients were being transported, and this information did not make it to receiving area hospitals.

This event also highlighted the role EMS may play in a hot or warm zone, where ongoing physical threats still exist within a treatment zone or where there may be direct exposure to HazMat or CBRNE materials. While Boston EMS has already made efforts to procure and deploy ballistic personal protective equipment (PPE) to staff, this equipment was not available to responders during the response.

For a planned event such as the marathon, there is also the issue of having volunteers and civilians in an operational zone. While it cannot be expected that volunteers have the same level of PPE as first responders, it is possible to provide some basic safety measures for support staff. For example, in response to concerns about exposure to blood and shrapnel, latex gloves were distributed to volunteers within the tents to help mitigate potential contact.

Observations & Recommendations

Observation 14.1 (Area for Improvement) – At one point, the Safety Officer position within the ICS structure also served as a loading officer on-scene, dividing attention away from the specific site and personnel safety roles of the position.

> Recommendation 14.1.1 – Look into assigning a Deputy Safety Officer to large medical events to create on-scene ICS redundancy.

Observation 14.2 (Area for Improvement) – The morning BAA briefing lacked sufficient instructions about how volunteers should interface with public safety personnel and how roles may shift during a disruptive event.

> Recommendation 14.2.1 – Conduct a more detailed security briefing as part of the medical briefing on the morning of the marathon. The security briefing should review chain of command and rallying points and give team leaders instructions on how to work with their team members in the event of a major emergency.

Observation 14.3 (Area for Improvement) – The lack of an integrated ICS system between Boston EMS and the BAA caused confusion with chain of command between responders and volunteers when the scene shifted from a special event to a tactical response.

Recommendation 14.3.1 – Ensure BAA leadership is integrated into an ICS structure for the 2014 Boston Marathon.

Recommendation 14.3.2 – Clearly outline roles and responsibilities should the scene shift to a tactical operation.

Recommendation 14.3.3 – Have BAA medical team leaders attend EMS briefings, and integrate them into ICS chain of command.

Recommendation 14.3.4 – Identify BAA leadership to take basic ICS training for on-scene operations.

Observation 14.4 (Area for Improvement) – Volunteer safety could have been compromised within the medical tents given the complex injuries of the patients and potential exposure to blood and shrapnel.

Recommendation 14.4.1 – Provide all OPHP staff and volunteers staff with basic PPE during the morning briefing, such as latex gloves, should they be required.

PHP Function 14.4 – Monitor responder safety and health actions.

Analysis

For public health and public safety personnel, the need for immediate mental health support was recognized early on in the response. After all patients were cleared from the medical tents, EMS responders were provided with mental health counseling through internal Employee Assistance Programs. However, other supportive services could have been managed more effectively. At the time, it was unclear how long the response efforts would last, and basic necessities such as food and water were delayed in arriving, for example. A rest area away from the scene would have been beneficial for staging a rehabilitation zone with food and treatment providers and for responders to simply separate themselves from the traumatic scene of the attacks.

For public health staff and volunteers that worked at the finish line, coordinated support efforts began the following day. For EMS personnel on scene, notifications were pushed out in the days that followed related to available mental health support, as well as symptom and treatment options for blast-related hearing injuries.

A major strength of the ongoing response was the coordinated effort amongst mental health providers and public safety agencies to identify the needs of responders and match them with appropriate resources. In coordination with existing employee assistance programs, support was provided to Boston EMS, private ambulance employees, public safety agencies, the BAA, and area hospitals in the weeks that followed the attacks. In addition to the in-person individual and group sessions being offered, information on behavioral and mental health resources available for responders were also coordinated and widely disseminated through the MIC, MDPH, OEMS, and other responder networks.

Observations & Recommendations

Observation 14.5 (Strength) – Boston EMS employee assistance staff responded the evening of April 15th at the medical tents to provide support to responders still on-scene.

Recommendation 14.5.1 – None.

Observation 14.6 (Area for Improvement) – Rehabilitation, including food and water, for on-scene responders was not available for hours after the scene had been cleared.

Recommendation 14.6.1 – Work through command and operation centers to facilitate delivering the required support in a more timely manner.

Observation 14.7 (Area for Improvement) – OPHP staff should have been provided with better guidance about supportive services in the weeks following the bombings. The system, as it was set up, required staff to access additional services through a co-worker, which may have been a barrier to seeking help.

Recommendation 14.7.1 - Through recovery planning efforts, develop formal protocols for how staff is to access support services following traumatic experiences.

Observation 14.8 (Strength) –EMS responders received notifications regarding symptoms and treatment options for blast-related hearing injuries.

Recommendation 14.8.1 – None.

Observation 14.9 (Strength) – OPHP staff working the finish line were provided with post-traumatic stress debriefings from multiple sources, including Boston EMS and Riverside Community Care. Day-of debriefings were held with trained internal OPHP staff, and some staff were told to remain home on April 16th to allow for separation from work.

Recommendation 14.9.1 - None.

Observation 14.10 (Strength) – In conjunction with HHS, the MIC was able to provide drop-in mental health support services at EMS stations.

Recommendation 14.10.1 - Through recovery planning efforts, determine how public health can support first responders beyond traditional employee assistance programs.

Observation 14.11 (Area for Improvement) – Through local, regional, and state partnerships, mental health and support services (in-person and virtual) were offered to first responders and volunteers. However, it took 3-5 days to recognize the strong need for additional external mental health support services to be provided, and sessions continued to be scheduled 2 months post-event for first responders.

Recommendation 14.11.1 – Even if there is no immediate need, establish multiple mental health debrief sessions 2-3 days post-event for personnel that would like to attend.

Recommendation 14.11.2 – Establish a more formal relationship with the Massachusetts Department of Public Health's Office of Emergency Medical Services contact, and consider staging a representative from the agency at the MIC to coordinate mental health services for first responders.

PHP & HPP CAPABILITY 15:

VOLUNTEER MANAGEMENT

Overview

On an annual basis, the Boston Athletic Association (BAA) coordinates and manages a significant volunteer presence for the Boston Marathon. Individuals who wish to volunteer at the Boston Marathon are organized into functional teams that support the runners and spectators before, during, and after the race. The BAA registers and assigns all volunteers, regardless of outside professional or volunteer affiliations, to these teams in the months leading up to the race. Of the approximately 8,500 volunteers solicited for the event, over 1,000 medical volunteers are assigned to teams that care for the athletes along the race route and at the field medical tents located in Copley Square at the race's finish line.

Boston MRC Volunteers receive pre-Marathon briefing inside Medical Tent A.
Photo by Office of Public Health Preparedness

This report focuses primarily on the role of the Boston Medical Reserve Corps (Boston MRC) in volunteer operations at the Boston Marathon, and is reflective of the experience neither of BAA volunteers nor BAA management. However, there will be references to how City of Boston and BAA leadership collaborated to provide support services to BAA staff and volunteers in the aftermath of the bombings.

The Medical Reserve Corps itself is a national program administered out of the Office of the Surgeon General's Division of Civilian Volunteers. Local Medical Reserve Corps units are present in cities and towns throughout the United States and its territories. A Unit Coordinator

placed within the BPHC's Office of Public Health Preparedness leads the Boston MRC. Consisting of over 650 fully credentialed members that can be called upon to volunteer and assist during emergency incidents, the Boston MRC requires all of its members to attend an orientation, pass a criminal background check, create a profile with contact information through a database managed by the Massachusetts Department of Public Health, and, if applicable, provide proof of any medical licensures and credentials if they are serving in a medical capacity, which none were for the marathon.

Each year, the BAA makes available a select number of volunteer spots on the Injured Runner Tracking Team to Boston MRC members. The BAA Injured Runner Tracking Team is tasked with the responsibility of supporting Boston EMS and hospital operations related to emergency patient tracking. For the 2013 Boston Marathon, Boston MRC members were recruited by the Unit Coordinator to volunteer primarily at the finish line medical tents and at BAA/American Red Cross medical tents along the course route. To be eligible for the Injured Runner Tracking Team, members received formal training on how to operate the technology and equipment associated with emergency patient tracking. Once selected by the Unit Coordinator, Boston MRC members were given instructions on how to register with the BAA to join the Injured Runner Tracking Team. A smaller number of Boston MRC members were also assigned to volunteer at local hospitals to assist with emergency patient tracking, but these operations, while related, were not formally a part of the BAA volunteer process.

Prior to the explosions, volunteer operations had been conducted in a manner consistent with the planned objectives and with the expectations from previous years. Issues, including difficulties using technology and maintaining appropriate span of control, were identified during after action sessions and debriefings, but overall operations went smoothly. As with all elements of the day's operations, areas for improvement are identified and built upon each subsequent year.
After the explosions, Boston MRC volunteers followed incident command as previously established by the Unit Coordinator, who was on-scene at Medical Tent A, and they remained clear of tactical operations being conducted by Boston EMS and other first responders. Volunteers were organized, accounted for, and demobilized in an orderly manner within approximately 45 minutes of the explosions. A check-in system was established to ensure individual safety and accountability following their departure from the finish line. An advisory was also sent out to all Boston MRC members notifying them of the incident, stating that there was no need for assistance following the blasts, and discouraging any type of spontaneous assistance at the crime scene or elsewhere. There were instances of volunteers showing up

unprompted to assist, most notably at the community drop-in center established the evening of April 15th, and these individuals were turned away as a matter of policy.

Within hours of the blasts, Boston MRC members who had volunteered with the Injured Runner Tracking Team were made aware of mental health resources available to them, and in-person sessions were provided to volunteers. Beyond the Boston MRC, all BAA volunteers were contacted through the appropriate channels to ensure behavioral and mental health resources were also being offered to them. These resources included in-person sessions that were coordinated by a variety of providers through the Medical Intelligence Center.

Overall, the core tenants of the volunteer management system that exists in the City of Boston worked. Volunteers were successfully recruited, assigned, managed, demobilized, and provided follow-up care through joint efforts of Boston EMS, the BAA, and the Boston MRC Unit Coordinator.

PHP Function 15.1 – Coordinate volunteers.

Analysis

The BAA has implemented a robust system for recruiting and coordinating the thousands of volunteers required to support all aspects of the Boston Marathon. The BAA relies on its partners, including the Boston MRC, to aid in the placement of volunteers who wish to be assigned specialized tasks, such as medical positions. In helping to staff the BAA Injured Runner Tracking team, the Boston MRC plays the very specific role of supporting Boston EMS and hospital operations by conducting emergency patient tracking. This process, which allows for the tracking of all marathon-related patients during the day of the event, has been in place for many years and is described in further detail within *Capability 6: Information Sharing.* Boston MRC members wishing to volunteer must complete a mandatory training through the DelValle Institute of Emergency Management as part of

the recruitment process in order to ensure they are is familiar with the technology and their role in the operation. Members with prior emergency patient tracking experience are given priority in the selection process, though efforts are always made to incorporate new volunteers in the operation.

The volunteers' patient tracking responsibilities are critical, as their efforts assist in providing the medical directors, field management, public safety, and hospitals with a real-time assessment of patient throughput. The tracking system provides stakeholders with the exact time-stamped location of patients, and this data, along with the BAA's runner tracking platform, helps with family reunification efforts.

Observations & Recommendations

Observation 15.1 (Strength) – Through coordination with Boston EMS and the BAA, the Boston MRC was able to recruit, coordinate, train, and assign a sufficient amount of volunteers for emergency patient tracking purposes, which is a key operational piece of the event.

> Recommendation 15.1.1 – Continue efforts to recruit, vet, and credential volunteers well in advance of the Boston Marathon and other special events.
>
> Recommendation 15.1.2 – Have the MRC Program Manager maintain dated notes in volunteer files related to abilities, limitations, past performance observations, etc., to further inform future assignment and improve program continuity for managers.
>
> Recommendation 15.1.3 – Find additional opportunities beyond patient tracking for Boston MRC volunteers to participate in at future marathons.

Observation 15.2 (Strength) – Volunteers were provided with specific training on the Emergency Tracking System from the DelValle Institute for Emergency Preparedness prior to the marathon.

> Recommendation 15.2.1 – Continue to revisit the course material and make updates based on lessons learned from exercises and real world events to improve system functionality and user familiarity with the technology.

Observation 15.3 (Area for Improvement) – Not all MRC Volunteers are trained on how to operate within the field on an annual basis. Volunteers who have attended an emergency

tracking system training in the past are not required to attend the pre-marathon training, which covers event specifics.

> Recommendation 15.3.1 - Determine a means of providing all volunteers operational information prior to the day of event via in-person trainings, briefings, e-mail newsletter, or some other mechanism.

PHP Function 15.2 – Notify volunteers.

Analysis

Two sets of volunteer notification protocols were followed relating to the Boston Marathon. The first set of protocols was associated with coordinating and communicating with volunteers to provide them with their assignments for the day. This consisted of following standard Boston MRC notification protocols that provide volunteers with a prescribed set of information, including reporting times, location, and point of contact information, as well as dress code, food provisions, transportation options, and any other information pertinent to the incident. Additional pre-event information was also provided to Boston MRC members by the BAA, as all volunteers with the BAA Injured Runner Tracking Team were registered through their separate system.

The second set of notification protocols followed were associated with the advisories that went out to all Boston MRC members via email shortly after the bombings and in the hours and days that followed. Following the bombings, an advisory notification was sent out to the Boston MRC membership providing a situational updates and highlighting that there was not a need for volunteers in any response capacity; the latter was included to discourage potential spontaneous volunteers from assisting in the recovery. The policy of BPHC and OPHP is to not accept any individuals offering assistance unless they have been vetted and credentialed prior to an incident.

Volunteers were also contacted regarding behavioral and mental health support services as they became available, which is detailed further within *Function 15.4 – Demobilize Volunteers.*

Observations & Recommendations

Observation 15.4 (Strength) – Boston MRC members were notified through appropriate channels of their selection to volunteer in the Boston Marathon as emergency patient trackers and were

provided with sufficient information to arrive at the incident location and conduct their assigned responsibilities.

Recommendation 15.4.1 – Continue advanced planning with Boston EMS and the BAA to ensure successful recruitment and notification of all volunteers.

Observation 15.5 (Strength) – Following the explosions, sufficient information was provided to volunteers to manage the situation.

Recommendation 15.5.1 – During a high profile incident, the system Boston MRC uses to push out notifications to volunteers could have been utilized to provide redundant communication beyond email, including text messages and phone calls.

Observation 15.6 (Area for Improvement) – While an e-mail notification was sent to all Boston MRC volunteers at 4:31pm advising members to stay home and that no assistance was needed, it could have been disseminated earlier.

Recommendation 15.6.1 - Through the planning section at the Medical Intelligence Center, have the Boston MRC notification protocols and procedures on-hand for more rapid communications to volunteers.

Recommendation 15.6.2 – Build in a mechanism for forwarding the Unit Coordinator's desk and cell phone to the Medical Intelligence Center should s/he not be available in order to create redundancy in emergency communications for volunteers.

Recommendation 15.6.3 – Provide additional cross-training to OPHP staff to build redundancy within the volunteer program so staff beyond the Unit Coordinator can quickly contact volunteers.

Recommendation 15.6.4 – Update MRC standard operating procedures to provide an all hazards approach to communications protocols (i.e. guidance on what types of communications a given situation warrants).

PHP Function 15.3 – Organize, assemble, and dispatch volunteers.

Analysis

Boston MRC members were organized prior to the Boston Marathon and provided with volunteer assignments and a reporting infrastructure, all of which were consistent with incident command protocols. Upon arrival the morning of the event, volunteers attended the BAA medical briefing held at the John Hancock Dorothy Quincy Suite at 8:00am. Volunteers were then instructed to meet their supervisors for additional briefings in their assigned medical tents. Volunteers that were assigned to medical tents along the course and at the pre-determined area hospitals reported directly to those venues for briefings. During the briefings, introductions were made, timelines were reviewed, and the emergency tracking system was tested. Job Action Sheets (JAS) were also disseminated to volunteers for review, which highlighted the key tasks to be performed as part of their assigned positions.

At both the medical briefing and the position-specific briefing, it was noted that there was a lack of clear direction as to what to do in the event of a significant breach of security or change in operational protocol. It has been clearly noted that, in the future, all briefings for the marathon and all other planned and unplanned responses will require an operational security briefing.

Observations & Recommendations

Observation 15.7 (Strength) – Overall, volunteers were properly briefed and sufficiently trained to perform their assigned job functions. This preparation assisted with overall patient and healthcare system situational awareness throughout the incident leading up to and during the initial phases following the explosions.

> Recommendation 15.7.1 – Continue to ensure trained support staff are assigned to assist in emergency patient tracking in future years. Incorporate any identified system user or technology issues in future training sessions, job action sheets, and field guides.

Observation 15.8 (Strength) – Volunteers adhered to the training they received as part of the Boston MRC program and remained clear of tactical operations following the explosions.

> Recommendation 15.8.1 – Incorporate examples from the 2013 Boston Marathon within standard orientation training to stress the importance of incident command and following chain of command during emergency incidents.

> Recommendation 15.8.2 –Clarify the role of the Boston MRC Unit Coordinator in

relation to the volunteers and the chain of command during trainings and incident operational briefings.

Observation 15.9 (Area for Improvement) – Following the blasts, finish line volunteers were organized inside of Medical Tent A in order to account for their whereabouts, to ensure their safety, and to provide updated instructions. However, additional credentialing would have helped to enhance operations.

Recommendation 15.9.1 – Update the Boston MRC Standard Operating Guidelines to require that all volunteers upload profile pictures, especially for those volunteers assigned to special events. Pictures would help staff account for volunteers in an emergency.

Recommendation 15.9.2 – Continue to explore a means for an on-scene volunteer credentialing system that would produce photo identification to assist with security and accountability.

PHP Function 15.4 – Demobilize volunteers.

Analysis

Following the explosions, the Boston MRC Unit Coordinator assigned to the finish line took charge of the volunteers assigned to him that were performing patient tracking responsibilities. As the event transitioned to a tactical operation, the volunteers were gathered, moved away from the center of the tent, accounted for, and held within Medical Tent A. Upon releasing volunteers, they were asked to use a buddy system as they exited the finish line area and to call the Medical Intelligence Center to confirm their safety upon returning home.

A smaller number of volunteers were assigned to Medical Tent B and along the course route at other enhanced medical tents. While not under the direct supervision of the Unit Coordinator, volunteers at these locations listened to the instructions of their supervisors per incident command. For volunteers at Medical Tent B, OPHP staff demobilized volunteers in a similar fashion to the demobilization process in Medical Tent A, albeit in a less chaotic environment. The second demobilization was performed after consulting with the Unit Coordinator as the decision was being made to release the volunteers from Medical Tent A. Upon returning to the Medical Intelligence Center, the Unit Coordinator contacted volunteers assigned to enhanced medical tents along the course route via phone and email, instructing them to demobilize per the

orders of the supervisors at their respective stations. Boston MRC volunteers stationed at area hospitals were advised to do the same.

Due to the nature of the events, it was recognized early on that volunteers would require formal follow up to offer mental health support. Boston MRC volunteers witnessed very traumatic scenes of human suffering, and OPHP worked with Boston EMS and professionals from Riverside Community Care to hold a group counseling session on April 18th. It was also recognized that some volunteers had additional stressors associated with being medical professionals and being told to not help in a medical capacity. An additional informal counseling session was held for Boston MRC volunteers on April 30th, which allowed them to share their experiences with others who were there following the explosions. Support staff from the BPHC was provided for the event.

For all BAA volunteers, OPHP worked with various mental health providers to offer any counseling services that were requested. These were coordinated through the Medical Intelligence Center with BAA leadership and resource providers.

Demobilization operations went well, given the nature of the event. Boston MRC volunteers did not interfere with tactical response operations, followed incident command, were accounted for, were able to return home safely, and received appropriate follow-up notifications and mental health services. All BAA volunteers were provided with a variety of resources as well. Future consideration will be given as to how to more formally incorporate demobilization guidance into trainings and operational briefings.

Observations & Recommendations

Observation 15.10 (Strength) – Boston MRC volunteers, under advisement from the Boston MRC Unit Coordinator, checked in with the Medical Intelligence Center upon arriving home safely, ensuring they were accounted for.

Recommendation 15.10.1 – Ensure a hard copy of the volunteer list, along with emergency contacts, is always held by the planning section within the Medical Intelligence Center, as well as electronically on the system share drive.

Recommendation 15.10.2 – Draft a volunteer emergency demobilization plan as part of the Boston MRC SOP.

Recommendation 15.10.3 – Incorporate a demobilization overview and associated guidance as part of the Boston MRC Orientation for all new members.

Recommendation 15.10.4 – Distribute incident organization chart to volunteers as part of briefings to ensure chain of command is clearly delineated and span of control is appropriate.

Observation 15.11 (Area for Improvement) – Boston MRC Volunteers had to find their own way home from the blast site, hospitals, and medical tents, which could have led to additional safety risks.

Recommendation 15.11.1 – As part of the emergency demobilization plan, consider transportation or shelter-in-place options for volunteers when transportation infrastructure is limited.

Observation 15.12 (Strength) – Boston MRC and BAA volunteers were provided with multiple behavioral and mental health counseling sessions from mental health professionals through coordination with the Medical Intelligence Center.

Recommendation 15.12.1 – Update the Boston MRC Standard Operating Guide to include behavioral and mental health resources that can be utilized for volunteers and the protocols for activating those resources in a timely manner following any traumatic incident.

Observation 15.13 (Area for Improvement) – During mental health counseling sessions, it became apparent that volunteers from the Boston MRC who are medical professionals had additional issues related to their inability to help victims at the finish line. Boston EMS paramedics were included in the sessions to address the importance of the volunteers having followed chain of command and not responded.

Recommendation 15.13.1 – Include in the Boston MRC training references to the importance of following incident command for safety and accountability, especially during events that become tactical medical operations.

APPENDIX A: PARTICIPATING ORGANIZATIONS

The following agencies and organizations participated in one of the many group interviews that were conducted that informed the compilation of this After Action Report.

American Red Cross
Beth Israel Deaconess Medical Center
Boston Children's Hospital
Boston Medical Center
Boston Emergency Medical Services
Boston Emergency Services Team (BEST)
Boston Public Health Commission
Bowdoin Street Health Center
Brigham & Women's Hospital
Brigham & Women's Faulkner Hospital
Cambridge Health Alliance
Carney Hospital
City of Boston Mayor's Constituent Service Hotline
Codman Square Health Center
Conference of Boston Teaching Hospitals
Dialysis Clinic, Inc.
Mattapan Community Health Center
Massachusetts Council for Home Care Aide Services
Massachusetts Department of Health
Massachusetts Department of Mental Health
Massachusetts Eye & Ear Infirmary
Massachusetts General Hospital
Massachusetts League of Community Health Centers
Medical Academic and Scientific Community Organization (MASCO)
MGH Charlestown Community Health Center
Riverside Community Care
Roslindale Medical & Dental Center
South Cover Community Health Center
Spaulding Rehabilitation Hospital
St. Elizabeth's Medical Center
Tufts New England Medical Center
United States Department of Health & Human Services

APPENDIX B: CAPABILITY & FUNCTION DEFINITIONS

The following capabilities and functional area definitions are taken from both the Centers for Disease Control's Public Health Preparedness Capabilities and U.S. Health & Human Service's Assistant Secretary for Preparedness & Response's Hospital Preparedness Capabilities. Only those capabilities and functional areas that were discussed within this report are included, and they are incorporated in the order in which they appeared within the report.

PHP & HPP CAPABILITY 1:

COMMUNITY & HEALTHCARE SYSTEM PREPAREDNESS

Capability Summary:

(PHP) Community preparedness is the ability of communities to prepare for, withstand, and recover — in both the short and long terms — from public health incidents. By engaging and coordinating with emergency management, healthcare organizations (private and community-based), mental/behavioral health providers, community and faith-based partners, state, local, and territorial, public health's role in community preparedness is to do the following:

- Support the development of public health, medical, and mental/behavioral health systems that support recovery.
- Participate in awareness training with community and faith-based partners on how to prevent, respond to, and recover from public health incidents.
- Promote awareness of and access to medical and mental/behavioral health resources that help protect the community's health and address the functional needs (i.e., communication, medical care, independence,

supervision, transportation) of at-risk individuals.

- Engage public and private organizations in preparedness activities that represent the functional needs of at-risk individuals as well as the cultural and socio-economic, demographic components of the community.
- Identify those populations that may be at higher risk for adverse health outcomes
- Receive and/or integrate the health needs of populations who have been displaced due to incidents that have occurred in their own or distant communities (e.g., improvised nuclear device or hurricane)

(HPP) Healthcare system preparedness is the ability of a community's healthcare system to prepare, respond, and recover from incidents that have a public health and medical impact in the short and long term. The healthcare system role in community preparedness involves coordination with emergency management, public health, mental/behavioral health providers, community and faith-based partners, state, local, and territorial governments to do the following:

- Provide and sustain a tiered, scalable, and flexible approach to attain needed disaster response and recovery capabilities while not jeopardizing services to individuals in the community
- Provide timely monitoring and management of resources.
- Coordinate the allocation of emergency medical care resources.
- Provide timely and relevant information on the status of the incident and healthcare system to key stakeholders.

Healthcare system preparedness is achieved through a continuous cycle of planning, organizing and equipping, training, exercises, evaluations and corrective actions.

PHP Function 1.1 – Determine risks to the health of the jurisdiction.
HPP Function 1.2 – Coordinate healthcare planning to prepare the healthcare system for a disaster.

Function Summary:

(PHP) Identify the potential hazards, vulnerabilities, and risks in the community that relate to the jurisdiction's public health, medical, and mental/behavioral health systems, the relationship of those risks to human impact, interruption of public health, medical, and mental/behavioral health services, and the impact of those risks on the jurisdiction's public health, medical, and mental/ behavioral health infrastructure.

(HPP) Coordinate with emergency management to develop local and state emergency operations plans that address the concerns and unique needs of healthcare organizations. Plans should encompass the ability to deliver essential healthcare services during a response. This includes the assessment phases of planning to determine needs and priorities of healthcare organizations and the development of operational courses of action used during responses.

PHP Function 1.2 – Build community partnerships to support health preparedness.

Function Summary:

Identify and engage with public and private community partners who can do the following:

- Assist with the mitigation of identified health risks.
- Be integrated into the jurisdiction's all-hazards emergency plans with defined community roles and responsibilities related to the provision of public health, medical, and mental/behavioral health as directed under the Emergency Support Function #8 definition at the state or local level.

PHP Function 1.3 – Engage with community organizations to foster public health, medical, and mental/behavioral health social networks.
HPP Function 1.1 – Develop, refine, or sustain Healthcare Coalitions.

Function Summary:

(PHP) Engage with community organizations to foster social connections that assure public health, medical and mental/behavioral health services in a community before, during, and after an incident.

(HPP) Develop, refine, or sustain Healthcare Coalitions consisting of a collaborative network of healthcare organizations and their respective public and private sector response partners within a defined region. Healthcare Coalitions serve as a multi-agency coordinating group that assists Emergency Management and Emergency Support Function (ESF) #8 with preparedness, response, recovery, and mitigation activities related to healthcare organization disaster operations. The primary function of the Healthcare Coalition includes sub-state regional, healthcare system emergency preparedness activities involving the member organizations. Healthcare Coalitions also may provide multi-agency coordination to interface with the appropriate level of emergency operations in order to assist with the provision of situational awareness and the coordination of resources for healthcare organizations during a response.

HPP Function 1.3 – Identify and prioritize essential healthcare assets and services.

Function Summary:

Identify and prioritize healthcare assets and essential services within a healthcare delivery area or region (Healthcare Coalition area). Coordinate planning to protect and enhance priority healthcare assets and essential services in order to ensure continued healthcare delivery to the community during a disaster.

PHP Function 1.4 – Coordinate training or guidance to ensure community engagement in preparedness efforts.
HPP Function 1.5 – Coordinate training to assist healthcare responders to develop the necessary skills in order to respond.

Function Summary:

(PHP) Coordinate with emergency management, community organizations, businesses, and other partners to provide public health preparedness and response training or guidance to community partners for the specific risks identified in the jurisdictional risk assessment.

(HPP) Coordinate training for healthcare responders and supporting agencies in order to provide the required knowledge, skills, and abilities needed to prepare and respond to a disaster. Training curriculums are based on assessments, strategies, improvement plans, and ongoing evaluation efforts. Training is coordinated with ongoing training initiatives from healthcare and response partners. Training should include appropriate National Incident Management System (NIMS) or equivalent training.

PHP & HPP CAPABILITY 2:

COMMUNITY & HEALTHCARE SYSTEM RECOVERY

Capability Summary:

(PHP) Community recovery is the ability to collaborate with community partners, (e.g., healthcare organizations, business, education, and emergency management) to plan and advocate for the rebuilding of public health, medical, and mental/behavioral health systems to at least a level of functioning comparable to pre-incident levels, and improved levels where possible.

(HPP) Healthcare system recovery involves the collaboration with Emergency Management and other community partners, (e.g., public health, business, and education) to develop efficient processes and advocate for the rebuilding of public health, medical, and

mental/behavioral health systems to at least a level of functioning comparable to pre-incident levels and improved levels where possible. The focus is an effective and efficient return to normalcy or a new standard of normalcy for the provision of healthcare delivery to the community.

PHP Function 2.1 – Identify and monitor public health, medical, and mental/behavioral health system recovery needs.
HPP Function 2.1 – Develop recovery process for the healthcare delivery system.

Function Summary:

(PHP) Assess the impact of an incident on the public health system in collaboration with the jurisdictional government and community and faith-based partners, in order to determine and prioritize the public health, medical, or mental/behavioral health system recovery needs.

(HPP) Identify healthcare organization recovery needs and develop priority recovery processes to support a return to normalcy of operations or a new standard of normalcy for the provision of healthcare delivery to the community.

PHP Function 2.2 – Coordinate community public health, medical, and mental/behavioral health system recovery operations.

Function Summary:

Facilitate interaction among community and faith-based organizations (e.g., businesses and non-governmental organizations) to build a network of support services which will minimize any negative public health effects of the incident.
PHP Function 2.3 – Implement corrective actions to mitigate damages from future incidents.

Function Summary:

Incorporate observations from the current incident to describe actions needed to return to a level of public health, medical, and mental/behavioral health system function at least comparable to pre-incident levels or improved levels where appropriate. Document these items in a written after action report and improvement plan, and implement those corrective actions that are within the purview of public health.

PHP & HPP CAPABILITY 3:

EMERGENCY OPERATIONS COORDINATION

Capability Summary:

(PHP) Emergency operations coordination is the ability to direct and support an event or incident with public health or medical implications by establishing a standardized, scalable system of oversight, organization, and supervision consistent with jurisdictional standards and practices and with the National Incident Management System.

(HPP) Emergency operations coordination regarding healthcare is the ability for healthcare organizations to engage with incident management at the Emergency Operations Center or with on-scene incident management during an incident to coordinate information and resource allocation for affected healthcare organizations. This is done through multi-agency coordination representing healthcare organizations or by integrating this coordination into plans and protocols that guide incident management to make the appropriate decisions. Coordination ensures that the healthcare organizations, incident management, and the public have

relevant and timely information about the status and needs of the healthcare delivery system in the community. This enables healthcare organizations to coordinate their response with that of the community response and according to the framework of the National Incident Management System (NIMS).

PHP Function 3.1 – Conduct preliminary assessment to determine needs for public activation.
HPP Function 3.1 – Healthcare organization multi-agency representation and coordination with emergency operations.

Function Summary:

(PHP) Define the public health impact of an event or incident and gather subject matter experts to make recommendations on the need for, and scale of, incident command operations.

(HPP) Coordinate the protocols and criteria for the multi-agency representation of healthcare organizations into local and state emergency operations during an incident response.

HPP Function 3.2 – Assess and notify stakeholders of healthcare delivery status.

Function Summary:

Assess the incident's impact on healthcare delivery in order to determine immediate healthcare organization resource needs and the status of healthcare delivery during an incident response. This includes assisting with the creation of the incident common operating picture and developing the processes for notification and information exchange between relevant response partners, stakeholders, and healthcare organizations.

PHP Function 3.2 – Activate public health emergency operations.

Function Summary:

In preparation for an event, or in response to an incident of public health significance, engage resources (e.g., human, technical, physical space, and physical assets) to address the incident or event in accordance with the National Incident Management System and consistent with jurisdictional standards and practices.

PHP Function 3.3 – Develop incident response strategy.

Function Summary:

Produce or provide input to an Incident Commander or Unified Command approved, written Incident Action Plan, as dictated by the incident, containing objectives reflecting the response strategy for managing Type 1, Type 2, and Type 3 events or incidents, as described in the National Incident Management System, during one or more operational periods.

PHP Function 3.4 – Manage and sustain the public health response.
HPP Function 3.3 – Support healthcare response efforts through coordination of resources.

Function Summary:

(PHP) Direct ongoing public health emergency operations to sustain the public health and medical response for the duration of the response, including multiple operational periods and multiple concurrent responses.

(HPP) Coordinate resource allocation for healthcare organizations by assisting incident management with decisions regarding resource availability and needs. This process should continue throughout incident response and recovery; including ongoing coordination to track resources for decision-making and optimal resource allocation.

PHP Function 3.5 – Demobilize and evaluate public health emergency operations.

Function Summary:

Release and return resources that are no longer required by the event or incident to their pre-ready state and conduct an assessment of the efforts, resources, actions, leadership, coordination, and communication utilized during the incident for the purpose of identifying and implementing continuous improvement activities.

PHP CAPABILITY 4:

EMERGENCY PUBLIC INFORMATION & WARNING

Capability Summary:

Emergency public information and warning is the ability to develop, coordinate, and disseminate information, alerts, warnings, and notifications to the public and incident management responders.

PHP Function 4.1 – Activate the emergency public information system.

Function Summary:

Notify and assemble key public information personnel and potential spokespersons, which were identified prior to an incident, to provide information to the public during an incident.

PHP Function 4.2 – Determine the need for a joint public information system.

Function Summary:

Determine the need for, and scale of, a joint public information system, including if appropriate, activation of a Joint Information Center within the public health agency. Participate with other jurisdictional Joint Information Centers in order to combine information sharing abilities and coordinate messages.

PHP Function 4.3 – Establish and participate in information system operations.

Function Summary:

Monitor jurisdictional media, conduct press briefings, and provide rumor control for media outlets, utilizing a National Incident Management System compliant framework for coordinating incident-related communications.

PHP Function 4.4 – Establish avenues for public interaction and information exchange.

Function Summary:

Provide methods for the public to contact the health department with questions and concerns through call centers, help desks, hotlines, social media, web chat or other communication platforms.

PHP Function 4.5 – Issue public information, alerts, warnings, and notifications.

Function Summary:

Utilizing crisis and emergency risk communication principles, disseminate critical health and safety information to alert the media, public, and other stakeholders to potential health risks and reduce the risk of exposure to ongoing and potential hazards.

PHP & HPP CAPABILITY 6:

INFORMATION SHARING

Capability Summary:

(PHP) Information sharing is the ability to conduct multijurisdictional, multidisciplinary exchange of health-related information and situational awareness data among federal, state, local, territorial, and tribal levels of government, and the private sector. This capability includes the routine sharing of information as well as issuing of public health alerts to federal, state, local, territorial, and tribal levels of government and the private sector in preparation for, and in response to, events or incidents of public health significance.

(HPP) Information sharing is the ability to conduct multijurisdictional, multidisciplinary exchange of public health and medical related information and situational awareness between the healthcare system and local, state, Federal, tribal, and territorial levels of government and the private sector. This includes the sharing of healthcare information through routine coordination with the Joint Information System for dissemination to the local, state, and Federal levels of government and the community in preparation for and response to events or incidents of public health and medical significance.

PHP Function 6.1 – Identify stakeholders to be incorporated into information flow.

Function Summary:

Identify stakeholders within the jurisdiction across public health, medical, law enforcement, and other disciplines that should be included in information exchange, and identify inter-jurisdictional public health stakeholders that should be included in information exchange. Determine the levels of security clearance needed for information access across and between these stakeholders.

PHP Function 6.2 – Identify and develop rules and data elements for sharing.

Function Summary:
Define minimum requirements for information sharing for the purpose of developing and maintaining situational awareness. Minimum requirements include the following elements:

- When data should be shared
- Who is authorized to receive data
- Who is authorized to share data
- What types of data can be shared
- Data use and re-release parameters
- What data protections are sufficient

- Legal, statutory, privacy, and intellectual property considerations

PHP Function 6.3 – Exchange information to determine a common operating picture.
HPP Function 6.1 – Provide healthcare situational awareness that contributes to the incident common operating picture.

Function Summary:

(PHP 6.3) Share information (both send and receive) within the public health agency, with other identified intra-jurisdictional stakeholders, and with identified inter-jurisdictional stakeholders, following available national standards for data vocabulary, storage, transport, security, and accessibility.

(HPP 6.1) Provide situational awareness regarding the status of healthcare delivery into the ongoing flow of information to assist with the creation of an incident common operating picture. This includes providing information to the full spectrum of healthcare partners. This encompasses the real time sharing of actionable information between healthcare organizations and incident management to assist decision makers with resource allocation and provide healthcare organizations with incident specific information.

HPP Function 6.2 – Develop, refine, and sustain redundant, interoperable communications systems.

Function Summary:
Communications interoperability enables healthcare organization emergency communication systems to communicate with existing incident management emergency communications systems. With these systems in place, healthcare organizations can communicate with multiple agencies, relevant response partners, stakeholders, and other healthcare systems through radio and/or associated communications systems permitting an exchange of information in real time, when needed, and when authorized.

PHP CAPABILITY 7:

MASS CARE

Capability Summary:

Mass care is the ability to coordinate with partner agencies to address the public health, medical, and mental/behavioral health needs of those impacted by an incident at a congregate location. This capability includes the coordination of ongoing surveillance and assessment to ensure that health needs continue to be met as the incident evolves.

PHP Function 7.1 – Determine public health role in mass care operations.
PHP Function 7.2 – Determine mass care needs of the impacted population.

Function Summary:

(PHP 7.1) In conjunction with Emergency Support Function #6, #8, and #11 partners, emergency management, and other partner agencies, determine the jurisdictional public health roles and responsibilities in providing medical care, health services, and shelter services during a mass care incident.

(PHP 7.2) In conjunction with Emergency Support Function #6, #8, and #11 partners, emergency management and other partner agencies, determine the public health, medical, mental/behavioral health needs of those impacted by the incident.

Function 7.3 – Coordinate public health, medical, and mental/behavioral health services.

Function Summary:

Coordinate with partner agencies to provide access to health services, medication and consumable medical supplies (e.g., hearing aid batteries and incontinence supplies), and durable medical equipment for the impacted population.

Function 7.4 – Monitor mass care population health.

Function Summary:

Monitor ongoing health-related mass care support, and ensure health needs continue to be met as the incident response evolves.

PHP & HPP CAPABILITY 10:

MEDICAL SURGE

Capability Summary:

(PHP) Medical surge is the ability to provide adequate medical evaluation and care during events that exceed the limits of the normal medical infrastructure of an affected community. It encompasses the ability of the healthcare system to survive a hazard impact and maintain or rapidly recover operations that were compromised.

(HPP) The Medical surge capability is the ability to provide adequate medical evaluation and care during incidents that exceed the limits of the normal medical infrastructure within the community. This encompasses the ability of healthcare organizations to survive an all-hazards incident, and maintain or rapidly recover operations that were compromised.

PHP Function 10.1 – Assess the nature and scope of the incident.

Function Summary:

In conjunction with jurisdictional partners, coordinate with the jurisdiction's healthcare response through the collection and analysis of health data (e.g., from emergency medical services, fire service, law enforcement, public health, medical, public works, utilization of incident command system, mutual aid agreements, and activation of Emergency Management Assistance Compact agreements) to define the needs of the incident and the available healthcare staffing and resources.

HPP Function 10.2 – Coordinate integrated healthcare surge operations with pre-hospital EMS operations.

Function Summary:

Coordination between the State, healthcare organizations, and Healthcare Coalitions with EMS operations and medical oversight to develop, refine, and sustain protocols for information sharing and communications. These protocols should assist with the coordination of transport decisions and options during a medical surge incident. These protocols also assist healthcare organizations understand the EMS disaster triage, transport, documentation, and CBRNE treatment methodologies during mass casualty incidents resulting in medical surge.

HPP Function 10.1 – The Healthcare Coalition assists with the coordination of the healthcare organization response during incidents that require medical surge.

PHP Function 10.2 – Support activation of medical surge.
PHP Function 10.3 – Support jurisdictional medical surge operations.
HPP Function 10.3 – Assist healthcare organizations with surge capacity and capability.

Function Summary:

(HPP 10.1) Develop, refine, and sustain processes to ensure incident management decisions during medical surge incidents are coordinated through multi-agency collaboration representative of the community healthcare organizations' priorities and needs. Coordination is achieved by ensuring that there are plans and protocols in place to guide the decisions made by incident management. It may also be achieved through real time multi-agency coordination by healthcare organizations during a response.

(PHP 10.2) Support healthcare coalitions and response partners in the expansion of the jurisdiction's healthcare system (includes additional staff, beds and equipment) to provide access to additional healthcare services (e.g., call centers, alternate care systems, emergency medical services, emergency department services, and inpatient services) in response to the incident.

(PHP 10.3) In conjunction with health care coalitions and response partners, coordinate healthcare resources in conjunction with response partners, including access to care and medical service, and the tracking of patients, medical staff, equipment and supplies (from intra or interstate and federal partners, if necessary) in quantities necessary to support medical response operations.

(HPP 10.3) The rapid expansion of the capacity and capability of the healthcare system to provide the appropriate and timely clinical level of care in response to an incident that causes increased numbers (capacity) or special types of patients (capability) that overwhelm the day-to-day acute-care medical resources. This encompasses the appropriate decisions regarding patient care that require multi-agency coordination between healthcare organizations and incident management during medical surge operations.

HPP Function 10.5 – Provide assistance to healthcare organizations regarding evacuation and shelter in place operations.

Function Summary:
Support healthcare organizations during evacuation and shelter in place operations in which no warning or ample warning is received prior to the occurrence. This assists healthcare organizations with the safe and effective care of patients, use of equipment, and utilization of staff during relocation to another facility within a region or outside of the region in response to an incident. This includes the provision of assistance to healthcare organizations that have decided to shelter-in-place during the incident.

PHP Function 10.4 – Support demobilization of medical surge operations.

Function Summary:

In conjunction with other jurisdictional partners, return healthcare system to pre-incident operations by incrementally decreasing surge staffing, equipment needs, alternate care facilities, and other systems, and transition patients from acute care services into their pre-incident medical environment or other applicable medical setting.

PHP CAPABILITY 13:

PUBLIC HEALTH SURVEILLANCE

Capability Summary:

Public health surveillance and epidemiological investigation is the ability to create, maintain, support, and strengthen routine surveillance and detection systems and epidemiological investigation processes, as well as to expand these systems and processes in response to incidents of public health significance.

PHP Function 13.1 – Conduct public health surveillance and detection.

Function Summary:

Conduct ongoing systematic collection, analysis, interpretation, and management of public health-related data to verify a threat or incident of public health concern, and to characterize and manage it effectively through all phases of the incident.

PHP & HPP CAPABILITY 14:

RESPONDER SAFETY & HEALTH

Capability Summary:

(PHP) The responder safety and health capability describes the ability to protect public health agency staff responding to an incident and the ability to support the health and safety needs of hospital and medical facility personnel, if requested.

(HPP) The responder safety and health capability describes the ability of healthcare organizations to protect the safety and health of healthcare workers from a variety of hazards during emergencies and disasters. This includes processes to equip, train, and provide

other resources needed to ensure healthcare workers at the highest risk for adverse exposure, illness, and injury are adequately protected from all hazards during response and recovery operations.

PHP Function 14.1 – Identify responder safety and health risks.
PHP Function 14.2 – Identify safety and personal protective needs.

Function Summary:

(PHP 14.1) Assist in the identification of the medical and mental/behavioral health risks (routine and incident-specific) to responders and communicate this information prior to, during, and after an incident.

(PHP 14.2) Coordinate with occupational health and safety and other subject matter experts, based on incident-specific conditions, to determine the necessary personal protective equipment, medical countermeasures, mental/behavioral health support services and other items and services, and distribute these, as applicable, to protect the health of public health responders.

PHP Function 14.4 – Monitor responder safety and health actions.

Function Summary:
Conduct or participate in monitoring and surveillance activities to identify any potential adverse health effects of public health responders.

PHP & HPP CAPABILITY 15:

VOLUNTEER MANAGEMENT

Capability Summary:

Volunteer management is the ability to coordinate the identification, recruitment, registration, credential verification, training, and engagement of volunteers to support the jurisdictional public health agency's response to incidents of public health significance.

PHP Function 15.1 – Coordinate volunteers.

Function Summary:

Recruit, identify, and train volunteers who can support the public health agency's response to an incident. Volunteers identified prior to an incident must be registered with the Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP), Medical Reserve Corps, or other pre-identified partner groups (e.g., American Red Cross or Community Emergency Response Teams).

PHP Function 15.2 – Notify volunteers.

Function Summary:

At the time of an incident, utilize redundant communication systems where available (e.g., reverse 911 or text messaging) to request that prospective volunteers participate in the public health agency's response.

Associated Response Task(s):

- Contact volunteers via various modes of communications.
- Include necessary situational awareness in notification.

PHP Function 15.3 – Organize, assemble, and dispatch volunteers.

Function Summary:

Coordinate the assignment of public health agency volunteers to public health, medical, mental/behavioral health, and non-specialized tasks as directed by the incident, including the integration of inter-jurisdictional (e.g., cross-border or federal) volunteer response teams into the jurisdictional public health agency's response efforts.

PHP Function 15.4 – Demobilize volunteers.

Function Summary:

Release volunteers based on evolving incident requirements or incident-action plan and coordinate with partner agencies to assure provision of any medical and mental/behavioral health support needed for volunteers to return to pre-incident status.

APPENDIX C: INCIDENT EVENTS SUMMARY TABLE

The following timeline was developed to highlight the planning, response, and recovery events and notifications associated with the Boston Marathon. Events include planning meetings, emergency notifications, and significant events that were associated with the ESF-8 elements of the marathon.

A majority of the time stamps were taken from official notifications, including the City of Boston WebEOC Boston Marathon event, the Health & Homeland Alert Network, and e-mail traffic between public safety and healthcare partners.

Three color codes were utilized to highlight certain types of events and notifications for navigation purposes.

Red	**Significant events associated with the event, i.e. time of the explosions, issuance of shelter order.**
Orange	**Events and notifications that were an important part of the unfolding response.**
Green	**Used to designate the activation and demobilization of physical locations, including operations centers.**

Date	Time	Event	#	PHP/HPP Capability	Comment
4-Jan	-	MRC Volunteer Notification	15	Volunteer Management	534 members reached. 74 responded to perform runner tracking.
14-Jan	-	Bi-Monthly Marathon Planning Sessions Begin	1	Healthcare System Prep.	

Date	Time	Event	#	PHP/HPP Capability	Comment
14-Jan	-	Boston Marathon Medical Committee Meeting	1	Healthcare System Prep.	BAA Planning Meeting.
24-Jan	-	Boston Marathon Public Safety Committee Meeting	1	Healthcare System Prep.	MEMA and BAA Planning Meeting.
14-Feb	-	Boston Marathon Public Safety Committee Meeting	1	Healthcare System Prep.	MEMA and BAA Planning Meeting.
13-Mar	-	Boston Marathon Medical Committee Meeting	1	Healthcare System Prep.	BAA Planning Meeting.
14-Mar	-	Boston Marathon Public Safety Committee Meeting	1	Healthcare System Prep.	MEMA and BAA Planning Meeting.
20-Mar	-	Boston Marathon Hospital Planning Meeting	1	Healthcare System Prep.	BAA meeting with hospitals along the Marathon course and in Boston. Meeting reviewed protocols for treating patients being used at medical tents, support for hospitals with resource needs and information about injured runner tracking.
21-Mar	-	Boston Marathon Planning During COBTH Meeting	1	Healthcare System Prep.	Spent some time reviewing plan for the Boston Marathon and resolving any last minutes concerns or issues.
29-Mar	-	OPHP Patient Tracking Refresher	10	Medical Surge	
1-Apr	-	Boston Marathon Medical Committee Meeting	1	Healthcare System Prep.	BAA Planning Meeting.
2-Apr	-	MRC Training for Hospital Volunteers During the Marathon - Web-based Training	15	Volunteer Management	

Date	Time	Event	#	PHP/HPP Capability	Comment
10-Apr	-	Boston EMS Marathon Plan Overview Disseminated	1	Healthcare System Prep.	Included information regarding MIC Operations, Hospital Preparedness and Injured Runner Tracking
10-Apr	-	OPHP Staff Assignments Issued	3	Emergency Operations	
10-Apr	-	OPHP Emergency Tracking System (ETS) Support Review	7	Mass Care	Refresher Training for those who served as ETS Administrative Support for the Marathon
10-Apr	-	Final Boston Marathon Medical Meeting	1	Healthcare System Prep.	
11-Apr	-	Final Boston Marathon Public Safety Meeting	1	Healthcare System Prep.	
11-Apr	-	Boston MRC Emergency Tracking Training for the Boston Marathon	7	Mass Care	Training for new volunteers who have not used the ETS before
11-Apr	-	Boston MRC Emergency Tracking Refresher for the Boston Marathon	7	Mass Care	Refresher ETS training for experienced volunteers
12-Apr	800	MIC SitBrief #1 & Operations Plan distributed to Healthcare Partners	6	Information Sharing	
12-Apr	1500	Pre-Marathon Hospital Conference Call with MDPH	1	Healthcare System Prep.	Final check-in with hopsitals, 4C hospital coordinators and MDPH EPB in preparation for the Marathon

Date	Time	Event	#	PHP/HPP Capability	Comment
12-Apr	**1536**	**Boston WebEOC Post #4072**	**6**	**Information Sharing**	**The File Library Folder 2013 Boston Marathon is available for information sharing purposes for this event. Operation Plans and other event reference documents are available here. Additional information related to the event can also be uploaded to this folder.**
12-Apr	-	ETS Review	10	Medical Surge	OPHP staff reviewed ETS web-based system for use during Marathon and its role in family reunification.
12-Apr	-	ETS Evaluation Review	10	Medical Surge	Went over prepared evaluations for ETS staff. (Injured runner tracking, hospitals, family reunification).
15-Apr	**0700**	**MDPH Department Ops. Center ACTIVATED**	**3**	**Emergency Operations**	
15-Apr	**0700**	**MEMA SEOC ACTIVATED**	**3**	**Emergency Operations**	
15-Apr	0730	Course Medical Tent MRC Volunteer Check-in with the MIC	15	Volunteer Management	Check-ins with Course Tent 24 (Brookline), Tent 22 (Brookline), Tent 16 (Newton) and Tent 11 (Newton)
15-Apr	0800	Staff Reporting - BAA Dorothy Quincy Suite	3	Emergency Operations	
15-Apr	**0800**	**MIC Activated - Level 1**	**3**	**Emergency Operations**	
15-Apr	0805	Runner Emergency Contact Information Update	10	Medical Surge	Received notice that the runner emergency contact information was not uploaded into ETS and link would be sent from Boston EMS that morning
15-Apr	0905	Runner Emergency Contact Information	10	Medical Surge	Emergency contact information received from Boston EMS.

Date	Time	Event	#	PHP/HPP Capability	Comment
		Received			
15-Apr	0811	HHAN Alert - Moderate	6	Information Sharing	Hospital bed count requested
15-Apr	0815	Course Medical Tent MRC Volunteer/Staff Check-in with the MIC	15	Volunteer Management	Check-ins with Course Tent 5 (Natick), Tent 15 (Newton), Tent 13 (Newton) and Tent 8 (Wellesley)
15-Apr	0845	Newton-Wellesley Hospital Volunteer Check-in	15	Volunteer Management	
15-Apr	0850	Runner Family Emergency Contact Information Sent to the MIC	7	Mass Care	Log-in information from BAA sent to the MIC from Boston EMS
15-Apr	0900	Staff Reporting - Field Medical Tents (A, B, Elite)	3	Emergency Operations	33 OPHP and MRC staff report to Tent A for sign-in, credentialing, and jacket distribution.
15-Apr	0900	First MIC Advisory sent to healthcare partners with activation information and MIC Org Chart	6	Information Sharing	Looks as though there was a delay in emails sending from the MIC. Email was sent at 0901 but not received until 0932.
15-Apr	0900	MIC Marathon Information email sent to Hospital Emergency Managers from COBTH Coordinator	6	Information Sharing	Reminder email with Hospital Coordinator contact information and situational awareness links.
15-Apr	**0915**	**MDPH Hospital Conference Call**	**1**	**Healthcare System Prep.**	

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	**0917**	**Marathon Start - Women's Elite**	**6**	**Information Sharing**	
15-Apr	0946	HHAN Alert - Moderate (COBTH)	6	Information Sharing	MIC activation notice sent to COBTH
15-Apr	1000	Emergency Patient Tracking System Tests	10	Medical Surge	
15-Apr	1000	Medical Tent Briefings Held	10	Medical Surge	
15-Apr	1100	OPHP 800MHz Radio Check	3	Emergency Operations	
15-Apr	1100	MDPH Hospital Conference Call	6	Information Sharing	
15-Apr	1211	EMTrack Patient Count Sent	6	Information Sharing	
15-Apr	**1215**	**Elite Male Enters Tent A**	**6**	**Information Sharing**	
15-Apr	**1300**	**DPH Bed Count Request**	**10**	**Medical Surge**	
15-Apr	1300	Medical Tent #5 Closes	10	Medical Surge	~55 patients scanned.
15-Apr	1314	HHAN Alert - Moderate	6	Information Sharing	Hospital bed count requested
15-Apr	1350	Boston WebEOC Post #4087	6	Information Sharing	Elite medical tent shutting down.
15-Apr	1350	Elite Medical Tent CLOSED	10	Medical Surge	
15-Apr	1355	Patient Tracking Update	10	Medical Surge	523 patients seen. 193 active. 330 discharged.
15-Apr	1400	MDPH Hospital Conference Call	6	Information Sharing	

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	1400	MIC SitBrief #2	6	Information Sharing	
15-Apr	**1425**	**Boston WebEOC Post #4088 (LOW)**	**6**	**Information Sharing**	**Per BAA, Medical Stations 1, 2, 3, and 4 are closed as of 1425hrs.**
15-Apr	1448	HHAN Alert - Moderate (HOSPEP)	6	Information Sharing	Bed count request
15-Apr	**1449**	**Explosions #1 and 2 on Boylston St.**	**6**	**Information Sharing**	
15-Apr	**1450**	**800MHz Radio Alert of Explosion (Curran)**	**6**	**Information Sharing**	**Call to MIC from Tent A notifiying of explosion and "influx of patients"**
15-Apr	1451	Twitter Reports of Explosions	6	Information Sharing	
15-Apr	**1451**	**Boston WebEOC Post # 4090 (HIGH)**	**6**	**Information Sharing**	**A large explosion has been reported outside of Medical Tent A, prepare for unexpected injuries to report.**
15-Apr	**1453**	**CMED MCI Notification Sent to EDs Disaster Radio**	**10**	**Medical Surge**	
15-Apr	**1455**	**CMED Mutual Aid Called on BAMA**	**10**	**Medical Surge**	
15-Apr	1456	Boston WebEOC Post # 4094 (MEDIUM)	6	Information Sharing	OPHP has accounted for and released all Emergency Tracking volunteers.
15-Apr	**1458**	**First Ambulance Leaves w/ Patient to MGH**	**10**	**Medical Surge**	
15-Apr	1459	HHAN Alert - Severe (COBTH)	6	Information Sharing	Explosion near Medical Tent A. EMS will be using red wristbands for patients. Multiple casualties reported. (175 users alerted)

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	1459	HHAN Alert - Severe (HOSPEP)	10	Medical Surge	There has been a reported man hole explosion near the finish line at the Boston Marathon. Boston EMS estimates 30 to 40 patients. They are tagging everyone as red and will begin transports to Boston hospitals momentarily. (225 users alerted)
15-Apr	**1500**	**HAZMAT Clearance**	**10**	**Medical Surge**	**Confirmed on scene by BFD, BPD, and CST that no radiological traces of explosion found.**
15-Apr	1502	BPD Notification	6	Information Sharing	Explosion...Bomb Squad notified...Crime Scene notified.
15-Apr	**1505**	**EMS TAC Radio - Scene 1 Cleared**	**3**	**Emergency Operations**	
15-Apr	1505	COBTH Hospital Notification	10	Medical Surge	Notified that patient tracking staff has been removed and incident has shifted to MCI patient tracking.
15-Apr	**1510**	**HHAN Alert - Severe (HOSPEP)**	**6**	**Information Sharing**	**There has been a reported man hole explosion near the finish line at the Boston Marathon. Boston EMS estimates 30 to 40 patients. They are tagging everyone as red and will begin transports to Boston hospitals momentarily.**
15-Apr	1510	MRC Volunteer Management	15	Volunteer Management	All volunteers taken to back of Tent A to debrief and be advised of what to do. Coordinated exit strategy for leaving scene and getting home.
15-Apr	1513	BRIC Request for MIC Updates	6	Information Sharing	
15-Apr	1514	COBTH Hospital Notification	10	Medical Surge	Ambulances will be transporting two at a time from Copley.
15-Apr	**1517**	**EMS TAC Radio - Scene 2 Cleared**	**3**	**Emergency Operations**	**No patients remaining on Boylston**

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	**1518**	**Boston WebEOC Post # 4093 (HIGH)**	**6**	**Information Sharing**	**The MBTA has shut down all green line service from Kenmore Square to Park Street.**
15-Apr	1519	BRIC Notification	6	Information Sharing	Per RTCC, reports of two explosions on Boylston St near Copley Square, finish area of the Marathon. BPD Command Staff on scene. Race has been diverted. There are reports of injuries. Advising personnel to use caution. Be aware of suspicious packages and/or persons. CAUSE AND ORIGIN OF EXPLOSION IS NOT YET KNOWN.
15-Apr	1520	BAA Evacuates Dorothy Quincy Suite	6	Information Sharing	
15-Apr	**1529**	**COBTH Hospital Notification**	**10**	**Medical Surge**	**All runners still on track will be held at the medical tents and water tents away from Copley. Marathon suspended.**
15-Apr	1531	Boston WebEOC Post #4097 (MEDIUM)	6	Information Sharing	All runners are stopping at Tent 13 in Newton. In addition be advised that some patients are self-presenting at hospitals. This is not necessarily an indication of additional impacts beyond the explosion in the finish line area.
15-Apr	1533	LMA Emergency Preparedness and Security Committees notification	6	Information Sharing	"To the LMA Emergency & Security Committees: Please be advised: There have been reports of two explosions on Boylston Street near the finish line of the Marathon. Multiple casualties are expected. Personnel are being advised to use caution and be aware of suspicious packages and/or persons. More information will be provided as available."

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	1535	Boston WebEOC Post #4099 (MEDIUM)	6	Information Sharing	I-90 exit 22 eastbound to Copley / Prudential has been closed.
15-Apr	1537	Request from the Boston Regional Intelligence Center (BRIC)	6	Information Sharing	Received request from David Carabin, Director, BRIC at BPD to be informed of injuries and fatalities.
15-Apr	**1537**	**EMS TAC Radio - Last "RED" Patient Transported**	**10**	**Medical Surge**	
15-Apr	1545	Runner Notification	6	Information Sharing	Runners told in Newton what had transpired and to await further word for transportation.
15-Apr	1548	Boston WebEOC Post #4100 (HIGH)	6	Information Sharing	Mass. Ave Bridge between Boston and Cambridge has been closed by law enforcement.
15-Apr	**1550**	**Last critical patient transported from scene**	**10**	**Medical Surge**	**Minor injured patients continued to be transported until 8:50pm.**
15-Apr	**1555**	**Boston EOC Activated**	**6**	**Information Sharing**	**Boston WebEOC Post #4101 (MEDIUM)**
15-Apr	1559	COBTH Hospital Notification	10	Medical Surge	Let me know if your hospital is experiencing a surge.
15-Apr	1559	Offer of Assistance from VHA Office of Emergency Management	7	Mass Care	Email offer of assistance from Bill Vieth, Region 1 Area Emergency Manager for the VHA Office of Emergency Management to staff the MIC.
15-Apr	1600	OPHP Staff Arrive at UCC	3	Emergency Operations	

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	1600	Displaced/Stranded Runners	7	Mass Care	Mea Allen and Atyia Martin went to Boston Commons with Paramedic Adam Corneille per request from Dr. Ferrer. Checked in with Deputy Colm Lydon, BPD. Had approximately 30 runners on multiple T buses. Proceeded to get the ARC to provide water, try to get support from MEMA and BAA; primarily with MBTA bus driver Mayola Little (67963). Assisted runners with getting their personal belongings from BAA. May runner were picked up by friends/family. Remaining runners needed to get to Hopkinton. Received confirmation from MEMA that the BAA would transport runners if they were brought to a drop-off point near finish line. Bus Driver Shanelle Mercer took runners to designated location.
15-Apr	**1616**	**COBTH Hospital Notification**	**10**	**Medical Surge**	**Transports from the scene have stopped for now. You should not experience more of a surge. Please send me the total number of patients that were transported to your facility from the explosion.**

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	1617	HHAN Alert - Moderate (BOH)	6	Information Sharing	At 14:42 there was a reported explosion near the finish line medical tent at the Boston Marathon. Initial estimates were of approximately 40 people, mostly spectators, injured. At 15:15 reports from MEMA indicated that there had been a second device at Saint James at Trinity Place. A controlled explosion occurred at 1600 hours. Initial reports from Boston EMS and on scene responders estimate that there were 30 to 40 civilian patients. EMS was tagging everyone affected with red wristbands and were beginning transports to Boston hospitals. MEMA reported 68 transports to area hospitals with additional being treated in medical tents. Hospitals are reporting that they are managing the influx of patients. There are two confirmed reports of two deaths. At 15:28 the race was stopped at Massachusetts Avenue. Shelter locations have been established at Boston College in Newton; Devotion School, Driscoll Elementary and Lawrence School in Brookline. (4,256 users alerted)
15-Apr	**1617**	**MEDIA - Mayor's Press Office Media Advisory**	**4**	**Public Information**	**Issues media advisory announcing public safety officials first briefing about incident at 1630 hrs.**
15-Apr	1620	MDPH Shelter Update	6	Information Sharing	Shelter locations have been established at Boston College in Newton; Devotion School, Driscoll Elementary and Lawrence School in Brookline.
15-Apr	**1624**	**BPD Notification**	**6**	**Information Sharing**	**Confirmed incendiary explosion at JFK Library...Bomb Squad notified.**

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	1628	BRIC Notification	6	Information Sharing	Per RTCC, Advising that BPD/FBI/JTTF are on scene investigating the explosions in Copley Square. There is no specific information but we are advising added diligence and awareness at your facilities.
15-Apr	1631	MRC Volunteer Notification	15	Volunteer Management	Email sent to BMRC Marathon volunteers reminding them to check-in with the MIC. Volunteers along route were advised to return PDAs to ambulance companies on scene.
15-Apr	**1645**	**BMC Request for Blood Platelets**	**10**	**Medical Surge**	**Requested 7 units of platelets from RI Blood Center for surgeries currently underway and expected to carry into the overnight shifts.**
15-Apr	1646	HHAN Alert - Moderate (Bed Count Request)	10	Medical Surge	As a precautionary measure in response to the explosions in Copley Square, DPH is requesting all hospitals in Massachusetts log onto the DPH Web E O C system and enter a Level 1 bed count. Web E O C may be accessed at https://mdph.webeocasp.com/mdph. Region 4C Hospitals, please contact the Boston MIC at 617-343-6920 (primary) or the DPH DOC at 617-994-9839 (backup), if you need additional information or resources.
15-Apr	**1647**	**COBTH Hospital Notification**	**10**	**Medical Surge**	**Cell phone towers are currently overwhelmed. Please send me land line contact information.**
15-Apr	1647	MRC Volunteer Notification	15	Volunteer Management	Via MA Responds, 610 MRC members reached advising everyone to stay home and not self-deploy.
15-Apr	1701	Tufts Code Black	10	Medical Surge	Suspicious package.

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	1717	OPHP Staffing - Last Staff Arrive at MIC	3	Emergency Operations	
15-Apr	**1719**	**HHAN Alert (Moderate) Requests for Assistance**	**6**	**Information Sharing**	**Please ensure that you are following the normal chain of communication if you have any needs at your facility. Region 4C Hospitals, please contact the Boston MIC at 617-343-6920 (primary) or the DPH DOC at 617-994-9839 (backup), if you need additional information or resources. As a tertiary method of contact, please page the DPH Duty Officer at 617-339-8351.**
15-Apr	1725	HHS Social Media Offer	6	Information Sharing	CDCD receives offer from HHS to track social media. Follow up uncertain.
15-Apr	**1740**	**HHAN Alert - Severe (HOSPEP)**	**6**	**Information Sharing**	**In response to the influx of patients from this afternoons bombings, Boston Medical Center is requesting the following supplies from any hospitals that are willing to provide them: amputation kits, general vascular kits (short and AAA kits). Specific details are attached. If you are able and willing to provide any of these kits, please call Jeff Schuster at 617-414-6883.**
15-Apr	**1741**	**MEDIA - Mayor's Press Office Media Advisory**	**4**	**Public Information**	**Announce Mayor Menino will address media about bombings for the first time at 1800 hrs.**
15-Apr	1754	BPD Notification - Crime Scene Area	6	Information Sharing	Crime scene perimeter: Boylston St & Claredon to Boylston/Hereford St and Newbury Street to Huntington St

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	1759	MRC Volunteer Notification	15	Volunteer Management	Notification sent to MRC members making program manager available for any needs. SAMHSA hotline provided as a resource unitl further notice.
15-Apr	1800	BMC Receives Blood from RI Blood Center	10	Medical Surge	Blood brought from Providence to Foxboro, and escorted in with MSP vehicles. Coordinated via COBTH, MDPH DOC, and ESF-8 at MEMA SEOC.
15-Apr	**1823**	**HHAN Alert - Severe (HOSPEP) Family & Patient Reunification**	**6**	**Information Sharing**	**In an effort to assist with the very real challenges of patient and family reunification, DPH is instructing that all hospitals that have received patients with Boston Marathon explosion related injuries please send by no later than 1845 hrs a list of those patients along with an appropriate contact person at the hospital and his or her contact number. Even if this information is duplicative, please send it in ASAP to mdevine@cobth.org and mic@bostonems.org. I appreciate your prompt attention. (329 users reached)**
15-Apr	1900	MIC SitBrief #3 Disseminated	6	Information Sharing	
15-Apr	1900	HHAN Alert - DMAT 1 On Alert	7	Mass Care	
15-Apr	1901	COBTH Hospital Notification	6	Information Sharing	Tufts on Code Black due to a suspicious package.

Date	Time	Event	#	PHP/HPP Capability	Comment
15-Apr	1911	HHAN Alert - Conf. Call w/ Boston Ambulance Services	10	Medical Surge	Metropolitan Boston Area Ambulance Services, DPH will be hosting a brief conference call for the Metro Boston ambulance services to facilitate ambulance staffing plan in coordination with Boston EMS. This call will take place at 7:30PM tonight. The number is 866-679-6836 and the pass code is 5,8,3,3,4,2,7. The specific services we are looking to talk to are Boston EMS, Fallon, Cataldo, AMR, Armstrong, Easy Care, McCalls and Brewster Ambulance Service. We all are continuing to support EMS efforts during this event and will use the call to better prepare services for the next operational period.
15-Apr	**1930**	**Community Support Center Established at Park Plaza Castle**	**2**	**Community Recovery**	**Utilized primarily for runner logistics. Separation from belongings, wallets, etc.**
15-Apr	1940	OPHP Staff Arrives at Park Plaza Castle		Mass Care	Family reunification support provided.
15-Apr	1949	MRC Volunteer Notification	15	Volunteer Management	Email sent to BMRC Marathon volunteers know they could contact me day or night if need be. Also gave them the number to the SAMHSA hotline and let them know more resources would be available to them soon.
15-Apr	2000	MRC Volunteer Management	15	Volunteer Management	All volunteers contacted to confirm safety.
15-Apr	2040	Blackberry Wireless Priority Access Codes Provided to OPHP	3	Emergency Operations	Provided by BEMS. Cell service already restored by then.
15-Apr	2044	FBI Patient Tracking	6	Information Sharing	

Date	Time	Event	#	PHP/HPP Capability	Comment
		Inquiry			
15-Apr	2100	MIC SitBrief #4	6	Information Sharing	
15-Apr	**2000**	**Runners from Boston Commons Arrive at Castle**		**Mass Care**	**MBTA bus brought the runners from the designated BAA dropoff point to the Castle when there were no buses for the runners to get to Hopkinton.**
15-Apr	2100	BAA TransportsBoston Commons Runners to Hopkinton		Mass Care	Dr. Ferrer spoke with BAA and Salvation Army to transport runners to Hopkinton; BAA was able to arrange transportation.
15-Apr	**2104**	**Patient Records**	**6**	**Information Sharing**	**COBTH forwards list of patients to Mayor's 4500 line.**
15-Apr	2141	MEDIA - Mayor's Press Office Media Advisory	4	Public Information	Extended media advisory with update about crime scene perimeter in Copley and opening of the Castle in Park Plaza as a community drop in center.
15-Apr	2300	MIC SitBrief #5	6	Information Sharing	
15-Apr	2330	OPHP Staff Leave UCC	3	Emergency Operations	
16-Apr	0215	OPHP Staff Leaves Park Plaza Castle	7	Mass Care	
16-Apr	0801	MDPH Conference Call	7	Mass Care	Please join the Massachusetts Departments of Public and Mental Health, the Boston Public Health Commission, and Boston EMS for a brief information gathering and coordination conference call this morning at 10:00 a.m. The call will be focused upon discussing information and resource needs from affected hospitals, as well as family reunification/notification challenges and critical incident stress management needs for patients, families, and staff members. The call-in number is 1-877-601-4491, and the

Date	Time	Event	#	PHP/HPP Capability	Comment
					passcode is Public Health.
16-Apr	**0804**	**Initial VNA Request and Response**	**2**	**Community Recovery**	**VNA requested assistance with ensuring their nurses would be able to attend to clients in the area of the crime scene. OPHP Director asked that they send a list of client addresses in the area.**
16-Apr	0830	OPHP Director at Westin Hotel UCC	3	Emergency Operations	Arrived at Westin Hotel before press conference, met with Dr. Ferrer and agreed to meet her at the Castle, met with DPH & HHS to confirm request for federal mental health support.
16-Apr	**0900**	**BPHC Webpage Update**	**4**	**Public Information**	**Updated with statement about bombings and links to trauma coping resources.**
16-Apr	1000	OPHP Director at Park Plaza Castle	7	Mass Care	Coordinated with ARC to standby, coordinated conference calls with hospitals and mental health partners
16-Apr	1039	VNA Request Response	2	Community Recovery	Forwarded list to BPD and responded to email regarding request from VNA regarding access to patients in crime scene area.

Date	Time	Event	#	PHP/HPP Capability	Comment
16-Apr	**1110**	**HHAN Alert (Severe) Family Reunification**	**7**	**Mass Care**	**Thank you again for participating in this mornings conference call. As I mentioned, DPH and BPHC and Boston EMS are requesting that all hospitals which received patients with Boston Marathon explosion related injuries, please send by no later than 1230 hours a list of patients names, a general description of status, a triage category level along with an appropriate contact person at the hospital and his or her contact number. The second part of the request articulated on this mornings conference call asked affected hospitals and other healthcare providers to provide a preliminary assessment of the potential critical incident stress management needs of their patients, families, and staff members. Please send in ASAP to mdevine@cobth.org and mic@bostonems.org. I appreciate your prompt attention. Thank you.**
16-Apr	1127	Patient Information Sharing - HIPAA	6	Information Sharing	It is the understanding of DPH's General Counsel that BPHC is allowed to provide patient information (at least name and location, opinions vary about health status) to law enforcement, even in absence of a court order or a warrant.
16-Apr	1312	Update on Patient Counts to City Leadership		Medical Surge	Sent email to Mitch Weiss, Dr. Ferrer, Chief Hooley with updated patient counts by hospital.
16-Apr	1450	MEDIA - Mayor's Press Office Advisory	4	Public Information	Announcement Resource and Information Center for affected businesses will open at the Park Plaza Hotel.

Date	Time	Event	#	PHP/HPP Capability	Comment
16-Apr	1600	Conference Call - Mental Health Coordination	7	Mass Care	OPHP, HHS, BAA, ARC, MDPH, Riverside, DMH, MDMH - Determine needs of community.
16-Apr	1700	Conference Call - Mental Health Coordination	7	Mass Care	Determine resources available. Types of specialties, message crafting.
16-Apr	**1853**	**MEDIA - Mayor's Press Office Press Release**	**4**	**Public Information**	**Annoucement in conjunction with the Governor's Office of the formation of the One Fund.**
16-Apr	**1900**	**Community Support Center CLOSED at Park Plaza Castle**	**2**	**Community Recovery**	**Transitioned to City Year**
16-Apr	1900	Dorchester Vigil Garvey Park	7	Mass Care	BPHC provided greif counselors.
17-Apr	**0000**	**U.S. HHS Mental Health Team arrives in Boston**	**7**	**Mass Care**	**Arrive at Crown Plaza Hotel in Newton.**
17-Apr	0800	Mental Health Support - Neighborhood House Charter School	7	Mass Care	BPHC provided on scene support.
17-Apr	**0900**	**City Year Community Support Center OPENS**	**2**	**Community Recovery**	**BPHC serves as primary grief counselors and BCYF serving as primary operational logistics.**
17-Apr	0959	MEDIA - Mayor's Press Office Advisory	4	Public Information	Announcment of relocation of the Resource and Information center from the Castle to City Year.
17-Apr	1000	Conference Call - Mental Health Coordination	7	Mass Care	Coordination of providing services to the BAA, regional amublance services, Dorchester school, City Year community drop-in center.
17-Apr	**1600**	**MEMA SEOC ESF-8 Desk STANDS DOWN**	**3**	**Emergency Operations**	

Date	Time	Event	#	PHP/HPP Capability	Comment
17-Apr	1733	HHAN Alert (Moderate) Crisis Counseling Support	7	Mass Care	If you have a request for crisis counseling support for your organization or agency, log onto the HHAN and click on the title of this alert to access the resource request form. Please email the completed form to the Boston Medical Intelligence Center at, mic@bostonems.org, as soon as possible.
17-Apr	1800	Mental Health Support - BAA Organizing Committee	7	Mass Care	HHA, BPHC provided resources to 158 individuals.
17-Apr	**1807**	**MIC Advisory - CDC Bloodborne Pathogens**	**13**	**Public Health Surveillance**	**Notification sent to healthcare partners with BPHC guidance re: bloodborne pathogens from the blast.**
17-Apr	1848	MEDIA - Mayor's Press Office Press Release	4	Public Information	Announcement of Ken Feinberg as One Fund administrator.
17-Apr	1857	MEDIA - Mayor's Press Office Advisory	4	Public Information	Announcement that City Year drop-in site would continue to be open on the 18th.
18-Apr	**0900**	**Family Assistance Center OPEN at Seaport**	**2**	**Community Recovery**	**Open for half day April 18th. Closed on 19th for shelter order. Re-opened for first full day on April 20th. Run by BPHC and ARC**
18-Apr	0900	Boston EOC ESF-8 Desk Staffed by OPHP	3	Emergency Operations	Planning for Boylston phased re-entry begins.
18-Apr	**1400**	**"Healing Our City" Interfaith Service**	**2**	**Community Recovery**	**President Obama's visit to the Cathedral of the Holy Name**
18-Apr	**1400**	**Presidential Disaster Delcaration**	**2**	**Community Recovery**	
18-Apr	1500	OPHP Mental Health	7	Mass Care	

Date	Time	Event	#	PHP/HPP Capability	Comment
		Session			
18-Apr	**1700**	**City Year Community Support Center CLOSED**	**2**	**Community Recovery**	
18-Apr	**1749**	**BRIC Notification - Suspect Photo**	**6**	**Information Sharing**	**Please find attached an ID Wanted Bulletin regarding the 15 April 2013 Boston Marathon bombing.**
18-Apr	1800	Mental Health Support - Last Mile Event	7	Mass Care	HHS provided support.
18-Apr	1800	MRC Mental Health Session	7	Mass Care	
19-Apr	**0000**	**HHAN Alert (Minor) Active Shooter MIT**	**6**	**Information Sharing**	**An active shooter situation at M I T has been contained. One M I T officer shot. Elevated alert will be sent out if larger situation develops.**
19-Apr	**0601**	**City of Boston Everbridge Alert Phone Call**	**4**	**Public Information**	**Notifcation sent out to shelter in place for Allston, Brighton, and Watertown.**
19-Apr	**0605**	**City of Boston Everbridge Alert E-Mail**	**4**	**Public Information**	**T service is Suspended until further notice Watertown and surrounding communities including allston and brighton should stay home, shelter in place and understand we have an armed and dangerous person still at large and police actively pursuing him.** **Please be patient and use common sense about congregating in large crowds until this suspect is apprehended We will continue to update the public with more information as it becomes available**

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	**0606**	**HHAN Alert - Severe (COBTH)**	**6**	**Information Sharing**	**The MBTA is suspended due to police efforts to arrest one of the suspected bombers. There is a manhunt in the Watertown area. Communities are advises advised to shelter in place hospitals should use heightened security. Please continue to use the Boston Marathon Web e o c event. Please contact the M I C for more information 6 1 7 3 4 3 6 9 2 0**
19-Apr	0618	MIC Alert (BPHC Senior Leadership)	6	Information Sharing	The MBTA is suspended due to police efforts to arrest one of the suspected bombers. There is a manhunt in the Watertown area. Communities are advised to shelter in place hospitals should use heightened security. Hospitals are adivsed to hold staff and not release them this morning. We will provide more information once it becomes available.
19-Apr	0624	HHAN Alert - Severe (MEMA) Watertown Incident	6	Information Sharing	Because of the ongoing manhunt for a person wanted in connection with Mondays Marathon bombings all MBTA services (buses and subway) have been shut down effective immediately. People should not go to or congregate at transportation stations. Residents in Watertown, Newton, Waltham, Belmont, Cambridge and the Alston Brighton neighborhoods of Boston are advised to stay in doors. Residents should not answer the door unless it is a police officer, and are advised to stay away from windows. All businesses in these towns will remain closed until further notice. People should not congregate outside. Residents and businesses should monitor media for further information.

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	0707	BPHC Staff Notification	6	Information Sharing	The Boston Public Health Commission is closed today UNTIL FURTHER NOTICE. Essential staff in 24 hour programs must check in with their supervisors. Thank you.
19-Apr	0731	BPHC Staff Notification	6	Information Sharing	Due to police activity and the suspension of MBTA services, the Commission and it's buildings are closed today UNTIL FURTHER Notice. Residents of Alston Brighton, Watertown, Cambridge, Belmont, Waltham and Newton have been advised to stay indoors. Please monitor the Commission's website, news outlets, emails and telephone alerts regarding the status of the Commission. Thank you.
19-Apr	0750	Longwood Medical Area JOC Activated	3	Emergency Operations	
19-Apr	**0751**	**HHAN Alert - Severe (BOH) Staffing Issues**	**10**	**Medical Surge**	**Due to the ongoing manhunt for a person wanted in connection with Mondays Marathon bombings, and all MBTA services being shut down; healthcare facilities in the affected communities of Watertown, Newton, Waltham, Belmont, Cambridge and the Allston and Brighton neighborhoods of Boston that have been advised to shelter in place should communicate with staff members and should not discharge off duty staff members from the facility nor request staff transit into the facility until the security situation is resolved.**
19-Apr	0800	Mental Health Support -	7	Mass Care	Visisted area hospitals to support survivors.

Date	Time	Event	#	PHP/HPP Capability	Comment
		Semper Fi			
19-Apr	**0802**	**Governor Patrick Expands Shelter Order**	**4**	**Public Information**	**Order expanded to ALL OF BOSTON per press conference.**
19-Apr	**0805**	**MEDIA - Mayor's Press Office Advisory**	**4**	**Public Information**	**Announcement of citywide shelter in place order.**
19-Apr	0809	HHAN Alert (Severe) Shelter Order Expanded	6	Information Sharing	Update: Please note that the shelter in place order has been expanded to all of Boston. Due to the ongoing manhunt for a person wanted in connection with Mondays Marathon bombings, and all MBTA services being shut down; healthcare facilities in the affected communities of Watertown, Newton, Waltham, Belmont, Cambridge and the Allston and Brighton neighborhoods of Boston that have been advised to shelter in place should communicate with staff members and should not discharge off duty staff members from the facility nor request staff transit into the facility until the security situation is resolved.
19-Apr	**0817**	**HHAN Alert (Severe)**	**6**	**Information Sharing**	**Mayor Thomas M. Menino and Boston Police Commissioner Edward Davis has ordered all people in the City of Boston to shelter in place. Healthcare organizations cannot allow anyone in or out of facilities until further notice. All taxi service is suspended until further notice.**
19-Apr	0819	Boston WebEOC Post #4419	6	Information Sharing	Mayor Thomas M. Menino and Boston Police Commissioner Edward Davis has ordered all people in the City of Boston to shelter in place. Healthcare

Date	Time	Event	#	PHP/HPP Capability	Comment
					organizations cannot allow anyone in or out of facilities until further notice.
19-Apr	0830	BPHC Staff Notification Update	6	Information Sharing	UPDATE: ALL BOSTON RESIDENTS HAVE BEEN ADVISED TO STAY INDOORS, as well as residents of Allston Brighton, Watertown, Cambridge, Belmont, Waltham and Newton. Due to police activity and the suspension of MBTA services, the Commission and it's buildings are closed TODAY UNTIL FURTHER Notice. Essential staff in 24 hour programs must check in with their supervisors. Please monitor the Commission's website (bphc.org), news outlets, emails and telephone alerts regarding the status of the Commission. Thank you.

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	0838	DPH Guidance to Hospital EM Directors	10	Medical Surge	The Massachusetts Department of Public Health is working to clarify the previous information about lockdown and shelter-in-place steps. Healthcare facilities should not send personnel home or request personnel come into the hospital until the security situation is resolved. In light of the lockdown and shelter-in-place orders, hospitals should implement enhanced security procedures and refrain from discharging patients until the security situation is resolved. Hospitals may still accept transfers (critical and emergency transfers only) as well as patients transported by ambulance and patients coming into the ED. Questions, please use your discretion being mindful of the current security situation.
19-Apr	**0840**	**Boston WebEOC Post #4415**	**6**	**Information Sharing**	**Per Boston Police Commissioner Edward Davis, all hospitals should be on alert that the wanted suspect could arrive at hospitals with possible gunshot wounds. No other information has been confirmed at this time.**

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	0851	HHAN Alert (Severe) Suspect Alert	6	Information Sharing	Hospitals in the Eastern part of Massachusetts. Please be on the lookout for anyone with a gunshot wound and,or explosion type wounds. There is reason to believe the suspect from this morning may be injured. If anyone with these types of wounds report in the E D of any Hospitals, please contact Mass State Police immediately. Also, MDPH is working to clarify the previous information about lockdown and shelter in place steps. Healthcare facilities should not send personnel home or request personnel come into the hospital until the security situation is resolved. Hospitals should implement enhanced security procedures and refrain from discharging patients until the security situation is resolved. Hospitals may still accept critical and emergency transfers, as well as patients transported by ambulance and patients coming into the ED. Please use your discretion being mindful of the current security situation.
19-Apr	**0906**	**HHAN Alert (Severe) Abulance Security**	**6**	**Information Sharing**	**All emergency medical services within the affected areas , including Boston, Cambridge, will be conducted within normal protocols and processes, but with a heightened level of security. All non emergent ambulance transfer work should be deferred, to the extent possible, and in cooperation with facilities, until additional guidance is available regarding changing security issues. Emergency work should be conducted under normal protocols and processes.**

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	0907	HHAN Alert (Severe) Picture of Bombing Suspect	6	Information Sharing	Sent to all hospitals.
19-Apr	0953	HHAN Alert - Severe (EMS)	6	Information Sharing	This is a resend of the previous message to ensure that all services receive this alert via the telephone. All emergency medical services within the affected areas , including Boston, Cambridge, will be conducted within normal protocols and processes, but with a heightened level of security. All non emergent ambulance transfer work should be deferred, to the extent possible, and in cooperation with facilities, until additional guidance is available regarding changing security issues. Emergency work should be conducted under normal protocols and processes.
19-Apr	1103	City of Boston Everbridge Alert E-Mail	4	Public Information	City-wide shelter-in-place is advised. As this investigation unfolds, we are advising all city-wide to shelter-in-place. Please understand we have an armed and dangerous person(s) still at large and police are actively pursing every lead in this active emergency event. Please be patient and use common sense until this person(s) is apprehended. We will continue to update the public with more information as it becomes available. All MBTA service remains suspended at this time.

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	1123	Boston WebEOC Post #4443	10	Medical Surge	Per the Boston Public Health Commission, all non-emergent inter-facility transfer work shall be deferred. Hospital organizations are encouraged to identify a priority list of discharges based on internal hospital bed needs. Facility-to-facility may be completed in conjunction with the foregoing. Any discharges to private residences within the restricted areas (Boston, especially Allston and Brighton, Belmont, Cambridge, Newton, Waltham, and Watertown) should be deferred. Please shelter-in-place. The goal is to ensure patient, EMS crew, and hospital operation safety and efficiency.

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	1133	HHAN Alert (Severe) Hospital Update	6	Information Sharing	The situation remains unstable. The taxi ban has been lifted in the City of Boston. Updated guidance regarding EMS, sheltering in place, and the need to be on the lookout for the suspect remains in place and is listed below. Please be on the lookout for anyone with a gunshot wound and/or explosion type wounds. There is reason to believe the suspect from this morning may be injured. If anyone with these types of wounds present in the E D of any Hospitals, please contact Mass State Police Dispatch at 617-740-7536 or dial 911 immediately. Healthcare facilities should not send personnel home or request personnel come into the hospital until the security situation is resolved. All emergency medical services within the affected areas , including Boston, Cambridge, will be conducted within normal protocols and processes, but with a heightened level of security. Emergency work should be conducted under normal protocols and processes. All non-emergent inter-facility transfer work shall be deferred. Hospital organizations are encouraged to identify a priority list of discharges based on internal hospital bed needs. Facility-to-facility may be completed in conjunction with the foregoing. Any discharges to private residences within the restricted areas (Boston, especially Allston and

Date	Time	Event	#	PHP/HPP Capability	Comment
					Brighton, Belmont, Cambridge, Newton, Waltham, and Watertown) should be deferred. Please shelter-in-place. The goal is to ensure patient, EMS crew, and hospital operation safety and efficiency.

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	1135	Boston WebEOC Post #4447	6	Information Sharing	The MIC has received reports that certain pharmacies throughout the city are closed. We are working to gather more information on this and will provide a list of open pharmacies.
19-Apr	1234	Boston WebEOC Post #4453	10	Medical Surge	In response to concerns articulated by healthcare facilities, the Massachusetts Department of Public Health and the Boston Public Health Commission have consulted with law enforcement agencies and are providing the following guidance for staffing and shift change. Healthcare facilities ARE allowed to request afternoon and evening staff come to the facility to relieve staff members who are currently on duty. Healthcare facilities are requested to limit, to the greatest extent possible, this staff change to essential personnel only. Healthcare facilities are also requested to please ensure that personnel in the affected area DO NOT travel into work, since law enforcement continues to advise that individuals shelter-in-place and refrain from gathering outside and from driving except in emergencies.
19-Apr	1239	Boston WebEOC Post #4456	10	Medical Surge	DPH and BPHC provided guidance to healthcare facilities and EMS agencies about patient transports and inter-facility transfers, as well as approval to allow for patient discharges from the healthcare facility for patients provided that they do not reside in the restricted areas (Boston, especially Allston and Brighton, Belmont, Cambridge, Newton, Waltham, and Watertown). Discharges of patients that reside in those communities

Date	Time	Event	#	PHP/HPP Capability	Comment
					should be deferred and those patients should be temporarily sheltered at the healthcare facility.

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	1249	HHAN Alert (Severe) Security Update	6	Information Sharing	The security situation involving the manhunt for suspect #2 in the Boston Marathon bombings remains fluid. In the affected area — the city of Boston as a whole, and especially Allston and Brighton, as well as the communities of Belmont, Cambridge, Newton, Waltham, and Watertown — law enforcement continues to advise that individuals shelter-in-place and refrain from gathering outside and from driving except in emergencies. All of those requests are in the interest of the safety and security of the general public and of the law enforcement and first responders involved in today's events. In response to concerns articulated by healthcare facilities, the Massachusetts Department of Public Health and the Boston Public Health Commission have consulted with law enforcement agencies and are providing the following guidance for staffing and shift change. Healthcare facilities ARE allowed to request afternoon and evening staff come to the facility to relieve staff members who are currently on duty. Healthcare facilities are requested to limit, to the greatest extent possible, this staff change to essential personnel only. Healthcare facilities are also requested to please ensure that personnel in the affected area DO NOT travel into work, since law enforcement continues to advise that individuals shelter-in-place and refrain from gathering outside and from driving except in emergencies. Please remember that service on the MBTA is fully suspended so it is not available to transport staff into healthcare facilities. As you saw earlier, DPH and BPHC also provided guidance to healthcare facilities and EMS agencies about patient transports and inter-facility transfers, as well as

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	1407	HHAN Alert - Severe (MEMA)	6	Information Sharing	Shelter in place remains for affected area (City of Boston, Watertown, Cambridge, Waltham, Newton, Belmont, Brookline) but it does not prevent employees from returning home. MBTA systems and services remains closed, options to return home from work include driving, taxis, getting friends and or family for pick up. While in general employees are allowed to return home, local authorities may have specific restrictions for certain areas given local conditions or security concerns. Residents and businesses should continue to monitor media for further information.

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	1524	HHAN Alert (Severe) Hospital Guidance	10	Medical Surge	DPH and BPHC are asking hospitals to do their best, in light of the fluid information on the security situation, to accommodate healthcare facility shift change. The travel of essential personnel, especially essential personnel to and from healthcare facilities, is acceptable. Please consider the recommendations provided in the previous email and use your best judgment to ensure safe healthcare staffing levels without impacting the safety and security of your patients, their families, EMS crews, and hospital operations. Updates were provided by state officials regarding sheltering in place and essential travel in the previously restricted areas. Patients can be discharged from hospitals. Please keep in mind that MBTA systems and services remain closed, options to return home from work include driving, taxis, getting friends and or family for pick up. While in general residents are allowed to return home, local authorities may have specific restrictions for certain areas given local conditions or security concerns. The Department has received notification that a need to provide prescriptions to patients being discharged from hospitals in the affected cities in the Commonwealth exists due to lack of access to outpatient pharmacy services. Hospital pharmacies may dispense medications to emergency room and discharged patients pursuant to 105 CMR 722.090(B), (1) (2) and (C).
					In meeting the requirements of the 105 CMR 722.090(B), (1) (2) and (C), the following parameters apply: a) Hospital pharmacies and their satellites or branches may fill prescriptions for emergency room patients and discharge patients in an amount not to exceed a 14 day

Date	Time	Event	#	PHP/HPP Capability	Comment
19-Apr	1630	Boston WebEOC Post #4491	6	Information Sharing	As was just announced by Governor Patrick, although the second suspect in the Boston Marathon bombings has not yet been located, the MBTA transit system will resume service immediately. The law enforcement's "Stay Indoors Request" is lifted in the City of Boston and the communities of Belmont, Cambridge, Newton, Waltham, and Watertown. The Governor and Mass State Police urge the residents of the Commonwealth to remain vigilant. The Commonwealth will maintain a heightened security posture and all healthcare facilities are urged to do the same, but normal day-to-day activities may resume. For the healthcare system, this includes normal hospital staffing procedures, standard processes for patient discharges, and the normal business of inter-facility transfers. And all law enforcement officials urge the public and healthcare facilities within the Commonwealth to continue to be on the lookout for the Boston Marathon bombing suspect.
19-Apr	**1800**	**SHELTER ORDER LIFTED BY GOVERNOR**	**4**	**Public Information**	
20-Apr	1037	MEDIA - BPHC Press Release	4	Public Information	Announcement of Mayor's Health Line weekend hours for trauma support and counseling.
20-Apr	1500	Mental Health Support - Children's Hospital	7	Mass Care	HHS provided support to 13 individuals.

Date	Time	Event	#	PHP/HPP Capability	Comment
21-Apr	1300	Mental Health Support - BAA Volunteer Session #1	7	Mass Care	HHS provided support to 78 individuals.
21-Apr	**1626**	**MEDIA - Mayor's Press Office Press Release**	**4**	**Public Information**	**Announces plan for re-opening of Copley Square, prioritizing early entry for survivors and affected residents/businesses. Temporary memorials from Boylston St. moved to Copley Square.**
21-Apr	1700	Boston WebEOC Post #4528	7	Mass Care	The following support lines were announced in a press conference held at 1600hrs: • The Mayor's Health Line at 617-534-5050 will continue to provide behavioral health support to the public, with counselors available today until 6pm, and Monday through Friday from 9am-5pm • A separate number for victims and immediate family members has been set up at 617-343-1373, for questions about the reentry plan or any other concerns
22-Apr	0700	Mental Health Support - Cambridge Public Schools	7	Mass Care	Riverside provided support.
22-Apr	0900	Victim Support Letter Drafted	7	Mass Care	Announces FBI briefing at the Family Assistance Center. MIC and BPHC work together to establish accurate victim lists.
22-Apr	1200	One Fund Boston Registration Opens	7	Mass Care	
22-Apr	1450	MOMENT OF SILENCE HELD	2	Community Recovery	

Date	Time	Event	#	PHP/HPP Capability	Comment
22-Apr	1559	MEDIA - Mayor's Press Office Press Release	4	Public Information	Announcement of FBI handover of Boylston St. back to City of Boston.
22-Apr	1630	Boston EOC ESF-8 Desk Staffed by OPHP	3	Emergency Operations	
22-Apr	**1730**	**FBI Hands Over Copley Sq. to City of Boston**	**2**	**Community Recovery**	
22-Apr	1830	MEDIA - Mayor's Press Office Press Release	4	Public Information	Announcement regarding BPD returns of lost property that was left in crime scene area.
22-Apr	1900	Memorial Service @ Boston University	2	Community Recovery	
23-Apr	0700	Mental Health Support - Boston EMS	7	Mass Care	HHS provided support to 32 individuals.
23-Apr	**0800**	**Crime Scene Area Re-Opened to Businesses and Residents**	**2**	**Community Recovery**	
23-Apr	0800	Boylston Re-Entry at Hynes Convention	2	Community Recovery	Mental health support provided by BPHC, Riverside to 106 individuals.
23-Apr	0800	Mental Health Support - Fallon Ambulance	7	Mass Care	HHS resources provided all day to 30 individuals.
23-Apr	0819	MEDIA - BPHC Press Release	4	Public Information	Announcement of the opening of the mental health drop-in center at BAHEC.
23-Apr	0923	MEDIA - Mayor's Press Office Press Release	4	Public Information	Guidnace about businesses returning to Boylston St.

Date	Time	Event	#	PHP/HPP Capability	Comment
23-Apr	1612	MEDIA - Mayor's Press Office Press Release	4	Public Information	Announcement that One Fund has raised $20 million.
23-Apr	**1800**	**Private Vigil Held for Survivors & Families**	**2**	**Community Recovery**	**Mental health support provided by BPHC, ARC, Riverside to 50 individuals.**
23-Apr	1300	FAC Law Enforcement Briefing	7	Mass Care	OPHP coordinated the Law Enforcement (BPD, MA AG, FBI) and Support Services (BPHC/ARC) briefing for survivors and families. Dr. Ferrer facilitated and announced that families and survivors would have the opportunity to visit the bombing sites and finish line before it opens to the general public the next morning This was the first notification to staff and other City agencies.
23-Apr	0800	Crime Scene Area Re-Opened to the General Public	2	Community Recovery	
24-Apr	1200	Memorial Service @ MIT	7	Mass Care	Mental health resources dispatched to event.
24-Apr	1300	Mental Health Support - BPD Dispatchers	7	Mass Care	HHS provided support to 9 individuals.
24-Apr	1325	MEDIA - Mayor's Press Office Press Release	4	Public Information	Announcement of "Boylston Strong" to encourage business in the Back Bay area.
24-Apr	1400	Mental Health Support - Children's Hospital #8	7	Mass Care	HHS provided support to 94 individuals.
24-Apr	1634	MEDIA - BPHC Press Release	4	Public Information	BPHC encourages members of th emedia covering the Marathon to take advantage of mental health counseling services.

Date	Time	Event	#	PHP/HPP Capability	Comment
25-Apr	0700	Mental Health Support - BPD Dispatchers	7	Mass Care	HHS provided support to 11 individuals.
25-Apr	0800	Mental Health Support - Fallon Ambulance	7	Mass Care	HHS provided support all day to 23 individuals.
25-Apr	1722	MEDIA - Mayor's Press Office Press Release	4	Public Information	Announces free assistance for affected businesses and residents in processing insurance claims.
25-Apr	1830	Mental Health Support - BAA Volunteer Session #3	7	Mass Care	HHS and ARC provided support to 72 individuals.
26-Apr	0800	Mental Health Support - Semper Fi	7	Mass Care	
26-Apr	1700	MIC Transitions From Level 1 Activation	3	Emergency Operations	
26-Apr	0900	MEDIA - MDPH Press Release	4	Public Information	BPHC works with MDPH and Riverside Community Care to issue press release about Riverside offering free trauma counseling to non-Boston residents in MA.
26-Apr	**1700**	**Family Assistance Center CLOSED at Seaport**	**2**	**Community Recovery**	**Operations transitioned over to BPHC.**
29-Apr	**1228**	**MIC Demobilization & Transition Plan sent out to partners**	**3**	**Emergency Operations**	
30-Apr	0800	MRC Group Session	7	Mass Care	Meeting held for 14 MRC volunteers to meet.
1-May	1308	MEDIA - BPHC Community Newspaper	4	Public Information	Dr. Nguyen focuses topic on supporting children after the Marathon bombings.

Date	Time	Event	#	PHP/HPP Capability	Comment
		Column			
2-May	1800	Mental Health Support - Richard's Family Community Meeting	7	Mass Care	
2-May	1824	MEDIA - Mayor's Press Office Press Release	4	Public Information	Announcement of upcoming One Fund town hall meetings.
3-May	1100	Mental Health Support - Haitian Multi-Service Center	7	Mass Care	BMC Multicultural Health provided support to 14 individuals.
9-May	1800	Mayor Menino Dinner @ Drydock Café	2	Community Recovery	BPHC provided support staff and counseling services.
14-Jun	1400	Memorial Planning Meeting	2	Community Recovery	A plan was developed at City Hall that required some logistics for BPHC, mainly from OPHP (securing space at the Seaport, food, and transportation) and CAFH Bureau (provide mental health support).
17-Jun	1700	Seaport Hotel and World Trade Center Confirmed Availability	2	Community Recovery	Mirianna confirmed with Jeremy Bersin that the Seaport was available and they would offer the space and food at no cost.
18-Jun		Invitations to Memorial Closing and Dinner Sent	2	Community Recovery	OPHP/CAFH emailed, called, and emailed survivors to RSVP
6/21/2013	1355	Mayor's Briefing Drafted for Memorial Dinner at Seaport World Trade Center	2	Community Recovery	Sarah Zaphiris requested it be submitted by 1500 on Friday so it would be included in the Mayor's weekend briefing.

Date	Time	Event	#	PHP/HPP Capability	Comment
6/24/2013	1730	Survivors Assemble at Seaport Hotel	2	Community Recovery	o Parking was available in the Seaport Place Parking Garage free of charge to attendees (BPHC covered cost) o Attendees proceeded to the Plaza Level (3rd floor) to catch the shuttle bus to Copley
6/24/2013	1730	ARC Support to Memorial Closing	2	Community Recovery	American Red Cross set up a canteen service at Copley Plaza and pre-stage their mental health resources
6/24/2013	1800	Families and Survivors Bused to Copley Plaza.	2	Community Recovery	Two charter buses from Local Motion Bus Company left from the Seaport to Copley Plaza
6/24/2013	1830	Survivors arrive at Copley Plaza	2	Community Recovery	o Buses to parked alongside the memorial on Boylston, offering some privacy o Those arriving at Copley and not being bused from the Seaport were checked against a list of those who have RSVPed or those who were invited. o Spaulding Rehabilitation van arrived with one survivor and family members
6/24/2013	1830	Survivors Have Private Time at the Temporary Memorial site	2	Community Recovery	o Survivors, Mayor Menino, Dr. Ferrer, and other City Officials were at the Memorial site o Visitors were able to write notes on fresh boards posted at the site, which were included in the City Archives along with all other materials
6/24/2013	1900	Survivors Return via Bus to the Seaport Hotel	2	Community Recovery	o ARC team rode back with buses to Seaport in case support is needed o Some of those who went directly to Copley rode on the shuttle to the Seaport

Date	Time	Event	#	PHP/HPP Capability	Comment
6/24/2013	1930	Survivors' Dinner/Gathering at the Seaport Hotel	2	Community Recovery	Dinner was held in the Plaza Ballroom in the hotel on the third level.
6/24/2013	2145	Shuttle Left Seaport Hotel to Go Back to Copley Plaza	2	Community Recovery	

APPENDIX D: IMPROVEMENT PLAN

This IP has been developed specifically for the Boston Public Health Commission, as well as other applicable partner agencies in the healthcare community, based upon after action interviews conducted and lessons learned following the 2013 Boston Marathon. Observations and recommendations noted throughout this report have been assigned corrective actions, which will be prioritized and incorporated into future work plans to ensure necessary steps are taken to prepare for future responses.

(Note: The contents of the improvement plan are not included in this AAR version, and are internal to the Office of Public Health Preparedness)

Observation	Recommendation		Corrective Action Description		Primary Responsible Agency	Agency POC	Start Date	Completion Date