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BMC develops protocol for preserving forensic evidence after a terrorist attack

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Boston Medical Center (BMC) pathologists have developed a set of protocols for processing and preserving forensic evidence, such as shrapnel, bullets and other projectiles, in surgical specimens (i.e. amputated limbs, injured organs, etc.) after a terrorist attack based on lessons learned from the Boston Marathon bombing. Their findings are published online in advance of print in the *Archives of Pathology and Laboratory Medicine*.

As a result of the Boston Marathon bombings in 2013, three people were killed and 264 others were injured - some suffering from injuries so severe that they required amputations. Many of the specimens contained forensic evidence, but without any clear guidelines, pathology departments developed ad hoc protocols. While each institution was able to appropriately collect and preserve the necessary specimens, it was obvious that a need existed to develop a set of guidelines and standard operating protocols for preserving forensic evidence.

In the aftermath, a team of BMC pathologists met with Boston-area pathology departments, representatives from the U.S. Federal Bureau of Investigation (FBI) and the Massachusetts Office of the Chief Medical Examiner to develop a set of predetermined guidelines to be used in times of crisis.

"Preservation of evidence was key in those first few hours following the Boston Marathon bombing because most of the amputations were being processed while the suspects were at large," said Cathryn J. Byrne-

Dugan, MD, MPH, chief resident of the department of pathology and laboratory medicine at BMC and first author of the report. "In times of chaos, if there is no predetermined, planned approach, the overall efficiency lags and missteps are inevitable. These guidelines will streamline how evidence is collected in a medical setting, reducing the risk of human error, and provide critical information to the law enforcement community that may shed light on the attack itself, or those responsible for it."

As patients with serious injuries begin to arrive at a hospital, the protocol recommends identifying one pathology assistant and/or resident and one attending physician to act as a team to handle all of the surgical specimens associated with the incident and be the point-of-contact for law enforcement. Once a specimen associated with the incident is identified, the team should carefully check the patient identifiers. If foreign bodies arrive separately from the surgical specimens, they should remain untouched in their sealed surgical container.

During the gross examination phase, the guidelines recommend that pathologists obtain labeled photographs and x-rays of the specimen. All loose objects, including clothing and make-shift tourniquets, should be placed in a container for the FBI and labeled with the patient's name. If there is any indication for DNA analysis, a frozen tissue sample may be stored. All forensic evidence should be described, measured, weighed, photographed, and then locked in a secure area. FBI or police can pick up the collected evidence on an as-needed basis. Any surgical specimens associated with a deceased patient should be transferred to the medical examiner's office.

"This protocol was validated by the nation's top forensic experts and provides simple, concrete steps that will prove extremely beneficial in a crisis situation where time, staff and resources may be stretched thinly," said Daniel Remick, MD, chief of the department of pathology at BMC

and chairman of pathology and laboratory medicine at the Boston University School of Medicine (BUSM) who served as senior author of the report.

Provided by Boston University Medical Center

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