

# STANDARDIZING THE CARE OF OCCUPATIONAL BLOOD-BORNE PATHOGEN EXPOSURES TO REDUCE UNNECESSARY USE OF THE EMERGENCY DEPARTMENT

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**Problem:** Care of health care workers with a blood-borne pathogen (BBP) exposure who seek treatment in emergency departments needs to be standardized. A standardized system may lead to better care for exposed individuals.

**Methods:** An interprofessional process was developed to standardize care of occupational BBP exposures in nonemployees. A health planning program design was conducted to compare outcomes before and after the standardized process was enacted.

**Results:** Standardizing treatment of occupational exposures provided more efficient care for exposed nonemployee workers and allowed an improved use of ED resources.

**Implications for Practice:** Programs developed to improve utilization of the emergency department have a greater chance of success when developed using an interprofessional, collaborative approach.

**Key words:** Blood-borne pathogen; Occupational exposures; Standardized care; Health planning

As an ambulance crew arrived at the emergency department, the paramedic was greeted by ED staff, who initiated the intake/triage process. The emergency nurses knew the paramedic well. The paramedic pulled the charge nurse aside and stated that he had been stuck by a needle used on the patient while obtaining intravascular access en route. The charge nurse invited the paramedic to sign into the emergency department to receive care. The charge nurse explained that the ED staff would take care of him as soon as they could. Coincidentally, on the same day a visiting surgeon

in the operating room was stuck with a retractor that slipped during a surgical case. Because the surgeon was not a hospital employee, the surgical nurse directed the surgeon to the emergency department for treatment.

Such blood-borne pathogen (BBP) exposures could occur in almost any United States emergency department. Although exposures to a BBP are urgent, these patients could be treated effectively outside the emergency department. The purpose of this article is to describe an interprofessional process developed to standardize care of persons who sustain occupational BBP exposures and later seek treatment in the emergency department.

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## Background

In 1992 the Occupational Safety and Health Administration (OSHA) implemented a safety and health standard for BBPs. The standard was specific in addressing how employers should implement prevention measures. Exposure control plans were to be developed and updated at least annually with a focus on BBP training for employees, provision of and training regarding personal protective equipment, provision of hepatitis B virus (HBV) vaccination, exposure follow-up, and biohazard containment and disposal.<sup>1</sup> In 2000 OSHA revised the standard, requiring employers to use safer medical devices and maintain a sharps injury log of exposures in an effort to better protect workers.<sup>2</sup>

The Centers for Disease Control and Prevention states that a percutaneous exposure to human immunodeficiency virus (HIV)-positive blood possesses a 0.3% risk of seroconversion, hepatitis C virus (HCV) possesses a 1.8% risk of seroconversion, and HBV possesses up to a 60% risk of seroconversion.<sup>3</sup> In comparison, a mucocutaneous exposure to HIV-positive blood possesses a 0.09% risk of seroconversion; limited data are available for HCV because mucocutaneous exposure is not believed to be an efficient means to transmit the virus.<sup>3</sup> The true incidence of BBP exposures in health care workers is largely unknown because of speculation that many exposures are unreported, despite an estimated 600,000 to 800,000 needle-stick injuries annually in the US.<sup>4</sup>

Early reporting and treatment is essential when a BBP exposure occurs. Researchers have determined that a standardized operational system is needed and can effectively handle exposure incidents.<sup>5,6</sup> Prompt reporting of BBP exposures ensures that exposed persons are treated medically and participate in discussions regarding risk of disease transmission in an effort to alleviate anxiety and psychological distress.<sup>7</sup> Follow-up testing of exposed workers and source patients is required to facilitate appropriate interventions and reduce the risk of seroconversion.<sup>8</sup>

### Program Planning

A health planning program design was used to develop and evaluate a new BBP exposure program.<sup>9</sup> This project was deemed “not human subjects research” by the local Institutional Review Board.

### Assessment of the 2011 BBP Process

This project took place at a US Midwest urban, level I trauma medical center. Approximately 5000 employees at the project site were managed by an Employee Health Department (EHD) for work-related injuries, including BBP exposures. In addition to employees, medical, nursing, and allied health students from an affiliate university were undergoing training at the medical center. These students, as well as attending physicians and other contracted health care personnel not falling into the category of “employee,” were not covered by the EHD when BBP exposures occurred. In addition, many of the city’s EMS workers (ie, police officers, firefighters, and emergency medical technicians) came to the medical center’s emergency department for evaluation after sustaining an occupational BBP. Upon accessing data from electronic records of ED registrations in 2011, it was noted that persons with 36 occupationally acquired BBP exposures presented to the emergency department, with 21 of these exposures in EMS personnel. That same year, the EHD handled more than 100 occupational exposures sustained by employees.

### 2011 BBP Process for Employees

Injuries and exposures sustained by employees were reported to a hotline number that was available 24 hours a day, 7 days a week (24/7). Because the EHD was not located within the hospital, employees would call the hotline to report injuries or exposures (including blood or other infectious agents). The hotline was managed by a nurse within the EHD during normal business hours of 7:30 AM to 4:00 PM Monday through Friday. After hours, the line transferred to a cell phone carried by an EHD nurse. The EHD nurse took the information, offered counseling, and directed employees to obtain a blue BBP exposure packet housed in the hospital laboratory. The exposure packet contained paperwork to be completed and laboratory requisitions for blood draws of the employee and source patient for baseline HBV, HCV, and HIV testing. The patient’s HIV test was a rapid test with results known in less than an hour once the blood was received in the laboratory. The patient’s rapid HIV test result was called to the hotline and relayed to the exposed employee by the EHD nurse. If the result was positive, postexposure medications were prescribed for the employee. Follow-up with the nurse practitioner in the EHD occurred the next business day. This system worked well to provide immediate care to employees while minimizing time away from their work responsibilities.

### 2011 BBP Process for Nonemployees

The “packet” system was extended to some nonemployee entities working at or presenting to the hospital, resulting in color-coded packets specific for attending physicians, EMS personnel, and students from the affiliate university. The color coding of the packets also denoted who laboratory personnel should call with the source patient’s rapid HIV test result. Packets were not available for other nonemployee groups such as students from institutions other than the affiliate university, researchers, visiting physicians observing at the hospital, and other contracted personnel. These individuals were most likely directed to their own employer for guidance or to the medical center’s emergency department. Confusion sometimes occurred when trying to discern which packet to use. For example, physicians believed to be hospital employees were directed to obtain a blue employee packet, only later to find they should have used a red nonemployee packet for physicians who were not employees. Also, because the 24/7 hotline was not available to nonemployees, no one was immediately available to advise the exposed nonemployee. When EMS personnel presented to the emergency department, appropriate care was received, but if the emergency department was exceptionally busy, evaluation may have been delayed. EMS workers sometimes waited for the

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