



# The Council for Outbreak Response: Healthcare-Associated Infections and Antimicrobial-Resistant Pathogens

## Supplement B: Infection Control Breach Investigations

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Outbreak investigation has been within the scope of public health agencies' missions since their inception, and infection control breaches are frequently identified in healthcare outbreaks. However, the investigation of isolated reports of infection control breaches, absent identified cases and clusters, represents relatively new territory for many public health agencies. Increasingly, state and local public health program staff are investigating infection control breaches to determine the risk of communicable disease transmission and identify individuals who may have been exposed but have not yet developed, or been diagnosed with, infection or colonization.

A public health agency may receive an infection control breach report from healthcare providers or facilities, patients, or accrediting organizations. In recent years, the Centers for Medicare and Medicaid Service (CMS) has mandated the reporting of infection control breaches discovered during accrediting or certification survey visits to public health agencies, increasing the ability of disease control epidemiologists to recognize and respond to infection control breaches. Examples of the types of breaches that are being reported include the reuse of single-use devices or failures to follow requirements for reprocessing reusable medical equipment. Public health should be prepared to appropriately investigate such reports and provide guidance and support to the implicated health care provider or facility to implement any follow-up actions.

The investigation of serious infection control breaches often involves similar components and steps as outbreak investigation; therefore, the principles discussed in Chapter 5 are applicable to the investigation of isolated infection control breach reports as well. Furthermore, a key aspect in the response to an infection control breach is consideration for patient notification (i.e., informing affected individuals about an outbreak or breach). Triggers for notifying patients include situations in which patients: (1) have experienced harm, (2) require information to identify and/or mitigate a potential harm, or (3) their care is altered. Patient notification in the context of infection control breaches typically involves Trigger 2, as described by Schaefer et al (see section 1, reference 1, below). Additional information on patient notifications can also be found in Chapter 8.

The following sections provide an overview of resources public health agencies and healthcare partners can reference to assist with investigations of infection control breaches. The first section, "Investigation of Infection Control Breaches," provides background, materials, and advice to assist with the investigation and response to infection control breaches, including patient notification. The second section, "Selected Infection Control Resources and References," provides general resources for understanding the basic principles of infection control as well as some more detailed resources that are relevant to some common types of infection control breach reports. The third section, "Investigation of a Drug Diversion Event," provides guidance and background for responding to reports of healthcare drug diversion, which involve assessments and actions that are akin to infection control breach investigations, but with many special considerations.



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### 1. Investigation of Infection Control Breaches

This section lists some key resources that provide useful background, materials, and advice to assist with the investigation and response to infection control breaches, as well as some examples of publications in which infection control breach investigators described their specific findings and experiences.

1. Schaefer MK, Perkins KM, Link-Gelles R, Kallen AJ, Patel PR, Perz JF. Outbreaks and infection control breaches in health care settings: Considerations for patient notification. *Am J Infect Control*. 2020 Jun;48(6):718-724. Available at:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7894041/>

*This paper provides a useful framework for patient notification considerations, including a description of triggers for performing a notification when investigating an infection control breach, as well as examples of commonly encountered scenarios.*

2. Patel PR, Srinivasan A, Perz JF. Developing a broader approach to management of infection control breaches in healthcare settings. *Am J Infect Control*. 2008;36:685–90. Available at:

[https://www.ajicjournal.org/article/S0196-6553\(08\)00683-4/fulltext](https://www.ajicjournal.org/article/S0196-6553(08)00683-4/fulltext).

*This paper introduced a number of useful concepts and suggested approaches for investigating infection control breaches, many of which were revisited and expanded upon by Schaefer et al (reference 1 from this section).*

3. Centers for Medicare and Medicaid Services (CMS). Infection control breaches which warrant referral to public health authorities. Available at: <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/Survey-and-Cert-Letter-14-36.pdf>

*Beginning in 2014, CMS required the reporting of infection control breaches discovered during accrediting or certification survey visits to public health agencies.*

4. Braun BI, Chitavi SO, Perkins KM, Perz JF et al. Referrals of Infection Control Breaches to Public Health Authorities: Ambulatory Care Settings Experience, 2017. Available at

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7876613/>

*The authors characterized and summarized the IPC breaches that were identified by Joint Commission surveyors during the ambulatory health care and office-based surgery accreditation process and reported to state health departments in 2017.*

5. CDC. Injection Safety: Patient Notification Toolkit. Available at:

<https://www.cdc.gov/injectionsafety/pntoolkit/index.html>.

*This toolkit provides step-wise guidance to assist public health agencies and healthcare facilities with conducting a patient notification following identification of an infection control breach. The toolkit is intended to be used after the decision has been made to notify patients and offers resources and template materials (such as sample notification letters) as well as some essential tips and strategies.*

6. Schoonover H, Haydon K. Incident command structure using a daily management system and the Centers for Disease Control and Prevention's Patient Notification Toolkit drives effective



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response to an infection control breach. *J Healthc Risk Manag.* 2018 Oct;38(2):19-26. Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1002/jhrm.21323>.

*The authors describe how an incident command structure, information management system, and CDC Patient Notification Toolkit were used to drive an effective response to an infection control breach—resulting in 92% of affected patients completing the recommended testing.*

7. Arnold S, Melville SK, Morehead B, Vaughan G, Moorman A, Crist MB. Notes from the Field. Hepatitis C Transmission from Inappropriate Reuse of Saline Flush Syringes for Multiple Patients in an Acute Care General Hospital — Texas, 2015. *MMWR Morb Mortal Wkly Rep* 2017;66:258–260. Available at: <https://www.cdc.gov/mmwr/volumes/66/wr/mm6609a4.htm>.

*This report provides an example of an infection control breach investigation which uncovered hepatitis C virus transmission.*

8. Rasmussen SA, Goodman RA (editors). (2018) *The CDC Field Epidemiology Manual*. Available at: <https://www.cdc.gov/eis/field-epi-manual/index.html>.

*This reference does not address infection control breaches specifically, but provides a comprehensive resource for responding to outbreaks, with many principles that can also be applied to infection control breach investigations. Particularly relevant chapters to healthcare infection control breach investigations include Chapters 3 (Conducting a Field Investigation), 12 (Communicating During an Outbreak or Public Health Investigation), and 18 (Healthcare Settings).*

### 2. Selected Infection Control Resources and References

This section provides general resources for understanding the basic principles of infection control as well as some detailed resources that are relevant to some of the more commonly reported infection control breaches.

1. Centers for Disease Control and Prevention (CDC). Infection Control. Available at: <https://www.cdc.gov/infectioncontrol/index.html>.

*This webpage is the base directory for CDC infection control resources, including links to resources for standard and transmission-based precautions, infection control guidelines (reference 2 in this section), training and education resources, and tools for specific healthcare setting types.*

2. Centers for Disease Control and Prevention (CDC). Infection Control: Guidelines & Guidance Library. Available at: <https://www.cdc.gov/infectioncontrol/guidelines/index.html>.

*This webpage contains links to a variety of CDC infection control guidelines and documents including those developed under the auspices of the Healthcare Infection Control Practices Advisory Committee (HICPAC).*

3. Association for Professionals in Infection Control and Epidemiology (APIC). *The APIC Text*. Available at: <https://apic.org/resources/apic-text/>.

*A comprehensive infection control resource organized by chapter. Subscription required.*



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- Centers for Disease Control and Prevention (CDC). Essential Elements of a Reprocessing Program for Flexible Endoscopes – Recommendations of the HICPAC. Available at:

<https://www.cdc.gov/hicpac/recommendations/flexible-endoscope-reprocessing.html>.

*Because many breaches involve medical device reprocessing techniques, this resource can assist public health agencies in related investigations and can be a useful document to share with and help educate facilities.*

- Centers for Disease Control and Prevention (CDC). Infection Prevention during Blood Glucose Monitoring and Insulin Administration. Available at: <https://www.cdc.gov/injectionsafety/blood-glucose-monitoring.html>.

*This CDC resource provides essential background when investigating infection control breaches associated with blood glucose monitoring (or other forms of point of care testing involving capillary blood samples) or insulin pens and other medication cartridges.*

- Centers for Disease Control and Prevention (CDC). Injection Safety. Available at:

<https://www.cdc.gov/injectionsafety/index.html>.

*A website landing page for information about safe injection practices. Safe injection practices are part of standard precautions and are aimed at maintaining basic levels of patient safety and healthcare provider protections.*

- Dolan SA, Arias KM, Felizardo G, Barnes S, Kraska S, et.al. APIC position paper: Safe injection, infusion, and medication vial practices in health care. Am J Infect Control. 2016 Jul 1;44(7):750-7. Available at:

[https://apic.org/Resource/\\_TinyMceFileManager/Position\\_Statements/2016APICSIPPositionPaper.pdf](https://apic.org/Resource/_TinyMceFileManager/Position_Statements/2016APICSIPPositionPaper.pdf)

*Position paper from the Association for Professionals in Infection Control and Epidemiology describing risks and outbreaks associated with unsafe injection practices and associated recommendations.*

### 3. Investigation of a Drug Diversion Event

Broadly speaking, when prescription medicines are obtained or used illegally, it is called drug diversion. Healthcare providers who steal prescription medicines such as opioids for their own use put patients at risk for harms. This can include exposure to infectious diseases. For example, when a provider commits diversion by tampering with or otherwise misusing injection supplies, medications or other equipment, these items might become contaminated with hepatitis B or C virus, HIV, or bacteria. Drug diversion investigations involve assessments and actions that are akin to infection control breach investigations, but with many special considerations. The resources below provide guidance and useful background for investigation of healthcare drug diversion events.

- Schaefer MK, Perz JF. Outbreaks of Infections Associated With Drug Diversion by US Health Care Personnel. Mayo Clin Proc. 2014. 89(7):878-87. Available at:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4669560/>



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*This review article summarizes a variety of drug diversion-related outbreak investigations and includes a table describing key investigation steps.*

2. Centers for Disease Control and Prevention (CDC). Injection Safety: Drug Diversion. Available at: <https://www.cdc.gov/injectionsafety/drugdiversion/index.html>.

*This website provides information on drug diversion including outbreaks associated with drug diversion, resources for clinicians, and additional resources.*

3. Council of State and Territorial Epidemiologists. (2019) Healthcare-Associated Infections (HAI) Drug Diversion Planning and Response Toolkit for State and Local Health Departments. Available at <https://www.cste.org/page/Drug-Diversion-Toolkit>.

*This toolkit provides information on best practices when responding to a drug diversion, and provides resources informed by past drug diversion investigations.*

4. Brummond PW, Chen DF, Churchill WW, Clark JS, Dillon KR, et. al. ASHP Guidelines on Preventing Diversion of Controlled Substances. Am J Health Syst Pharm. 2017 Mar 1;74(5):325-348. Available at: <https://www.ashp.org/-/media/assets/policy-guidelines/docs/guidelines/preventing-diversion-of-controlled-substances.ashx>

*This guidance document is a framework from the American Society of Health-System Pharmacists describing controlled substance diversion prevention programs and provides useful context for public health partners and others charged with investigating a drug diversion report.*