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Objective: We investigated whether whole-genome sequencing (WGS) data altered interpretations of clonal transmission as determined by conventional epidemiology and pulsed-field gel electrophoresis (PFGE) at a tertiary-care hospital (hospital Z, HZ). **Methods:** We included all carbapenemase-producing Enterobacterales (CPE)-colonized or -infected patients identified via population-based surveillance from 2007 through 2018, who were admitted to HZ during and/or in the year prior to or following CPE detection. HZ reported clonal transmission clusters using epidemiology and PFGE for CPE identified at HZ or reported to HZ by other hospitals as potentially acquired at HZ. We assessed single-nucleotide polymorphism (SNP) phylogenies and case epidemiology. **Results:** Overall, 85 CPE-colonized or -infected patients were included: 50 were detected at HZ and 35 were detected at another local hospital but were admitted to HZ in the previous or following year. HZ reported 6 transmission clusters (Table 1). SNP analyses confirmed clusters B, C, E, and F. In cluster A, SNP analyses cast doubt on 2 of 9 cases (possibly representing plasmid transmission) but also identified 2 additional cases with isolates highly related (0–3 SNP differences) to other isolates. One case may be the index case: a travel-related case who stayed on the same unit as case 1, 4 months before case 1 detection. The second case stayed in a room previously occupied by 5 cluster A cases. In cluster D, SNP analyses found 1 additional case whose isolate was highly related (ie, 17–19 SNP differences) to other isolates. This case was identified a year before cluster D at another hospital that shares patients with HZ; however, the case's admission to HZ was after all cluster D cases were detected and no direct epidemiologic link was identified. **Conclusions:** WGS data can identify cases belonging to transmission clusters that conventional epidemiologic methods missed.

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Guiding Principles and Practices for Healthcare Outbreak Notification and Disclosures: CORHA Policy Workgroup Framework

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Background: Outbreaks of infections in healthcare negatively impact patient outcomes and experience. Transparency is critical to engendering trust and optimizing health. Consistent guidance is not available regarding when to report a possible outbreak of healthcare-associated infections (HAIs) to public health and when to notify a limited population or to publicly disclose the occurrence of HAI. Recent analyses of state public health policies revealed that most states address reporting of outbreaks using terms such as clusters, unusual occurrences, or incidences over baseline. Specific wording about healthcare outbreaks or guidance for notifying patients or public is often absent. Thus, HAI outbreak notification and disclosure guidance and practices vary significantly around the country. A best-practice guidance document will provide clarity for when such reporting should occur. **Methods:** The Council for Outbreak Response: HAI and Antimicrobial-Resistant Pathogens (CORHA) has undertaken the task of developing this guidance by forming a multidiscipline policy work group with representation from its partner organizations. This work group has been tasked with creating a general framework that will guide notification and disclosure in the context of a possible HAI outbreak. The draft guidance document has been developed over several months of telephone and in-person conferences among work group members. **Results:** The standardized actions stemming from the guiding principles and recommended practices for conducting step 1 (immediate notification, initial and critical communications that occur when an outbreak is first suspected), were arranged in a table format with rows representing stakeholders and constituents to be notified and columns demonstrating the actions to be taken (Fig. 1). As an investigation progresses, notification should be revisited, especially if an investigation's scope expands. The principles and practices for step 2 (expanded notification) have also been drafted in a table format. Next, the draft guidance addresses step 3 (public disclosure), outlining indications, practical guidance, and considerations in an outline and/or summary format. Real-world examples demonstrating application of the framework are being developed as supplementary resources to the framework. Current work group activities include engaging bioethicists, media reporters and patient advocates to review and comment on the guidance to ensure that it is clear, consistent and practical. **Discussion:** The draft guidance provides a framework for standardized actions for HAI outbreak notification and disclosure in a stepwise fashion, modeling public health practices and grounded in bioethical principles. The final product will provide valuable, practical advice for effectively sharing information with affected or potentially affected individuals and their caregivers in a timely manner.

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STEP I: IMMEDIATE NOTIFICATION (partial template shown here as an example)				
Who to Notify	How to Notify	When to Notify	What to Notify (actionable steps to take. Public health to be involved in an ongoing basis to ensure accuracy)	Justification
Case patients who have been infected or colonized, (or their designated healthcare proxy and if deceased, closest family member)	Verbally, in person, phone calls if already discharged with opportunity to ask questions. Written FAQ and/or descriptive statement should also be given or sent. If unable to reach patients verbally or by phone, a written communication should be sent. Depending on the situation, consider establishing a hotline or other opportunity for questions.	Notify first.	Applicable information about potential risk of transmission, testing, treatment and additional care measures may need to be communicated and implemented (e.g. isolation, PPE, cohorting, screening, changes in antibiotics, etc.)	To prevent and control transmission and assist with outbreak investigation activities. To fully inform patients about their healthcare condition.
Patients who have been exposed or potentially exposed (or their designated healthcare proxy and if deceased, closest family member)	Verbally, in person, phone calls if already discharged with opportunity to ask questions. Written FAQ and/or descriptive statement should also be given or sent. If unable to reach patients verbally or by phone, a written communication should be sent. Depending on the situation, consider establishing a hotline or other opportunity for questions.	After patients who have been infected or colonized, but then as soon as possible.	Applicable information about potential risk of transmission, testing, treatment and additional care measures may need to be communicated and implemented (e.g. isolation, PPE, cohorting, screening, changes in antibiotics, etc.)	To prevent and control transmission and assist with outbreak investigation activities. To fully inform patients about their current healthcare condition and risk.
Patients who may be at risk for future exposure (or their designated healthcare proxy) This group includes patients undergoing a procedure or admitted to a ward or area in a healthcare setting experiencing an outbreak.	Verbally, in person, written posting or phone call. Written FAQ and/or descriptive statement should also be given or sent where possible. If unable to reach patients verbally or by phone, a written communication should be sent. Postings (e.g. in lobby, patient units, handwashing stations, restrooms, admission packets).	Notify before the potential exposure.	Applicable information about potential risk of transmission, testing, alternate options for elective procedures, treatment and additional care measures may need to be communicated and implemented (e.g. isolation, PPE, cohorting, screening, changes in antibiotics, etc.)	To prevent and control transmission and assist with outbreak investigation activities. To fully inform patients about their healthcare condition and risk.
Responsible Healthcare Provider (as appropriate)	By confidential institutional email or by phone; public health may consider sending a health alert.	As soon as possible.	Their patient's risk or exposure.	To assist with questions from patients, follow up and support. To assist with contacting patients who are difficult to reach.
Healthcare Personnel (HCP) including: a) HCP who need to make behavioral changes at the location/s of the outbreak. b) HCP who have underlying illnesses that make them at risk for complications if infected or colonized.	Verbally, in person, during team huddles/meetings/rounds and written postings (e.g. on patient units, handwashing stations, breakrooms, etc.) Involve Employee Health Services to communicate with staff and offer testing or treatment if necessary.	As soon as possible.	Applicable information about potential risk of transmission, testing, treatment, modification of personal behaviors associated with risk for infections and additional care measures that may need to be communicated and implemented to prevent and control transmission (e.g. isolation, PPE, cohorting, screening, enhanced surveillance, more frequent cleaning/disinfection of surfaces, environmental testing, etc.)	To prevent and control transmission and assist with outbreak investigation activities. To engage Employee Healthcare Services to support HCP. To fully inform and support HCP about their healthcare risk.

Fig. 1