# LESSONS LEARNED FROM A hospital scabies outbreak

BY STACY DEMOSS, RN, MSN, CIC

On the afternoon of September 14, 2009 (a Tuesday), the infection prevention office at Mercy Medical Center, a 445-bed acute care facility in Cedar Rapids, Iowa, received a phone call from a skilled nursing unit about several staff members with complaints of a rash. This call started a chain of events that would, in the end, affect almost 1,500 people (patients, hospital staff, and family members). Four symptomatic staff members were not immediately available for interview, but three others were interviewed that afternoon. One of the interviewees had classic signs of scabies. The infectious disease physician was notified of the rash cluster, and human resources gave permission to send one of the symptomatic employees to the emergency department for physician diagnosis. That employee was diagnosed with scabies and sent home, and the infection preventionist (IP) was given the names of three possible source patients.

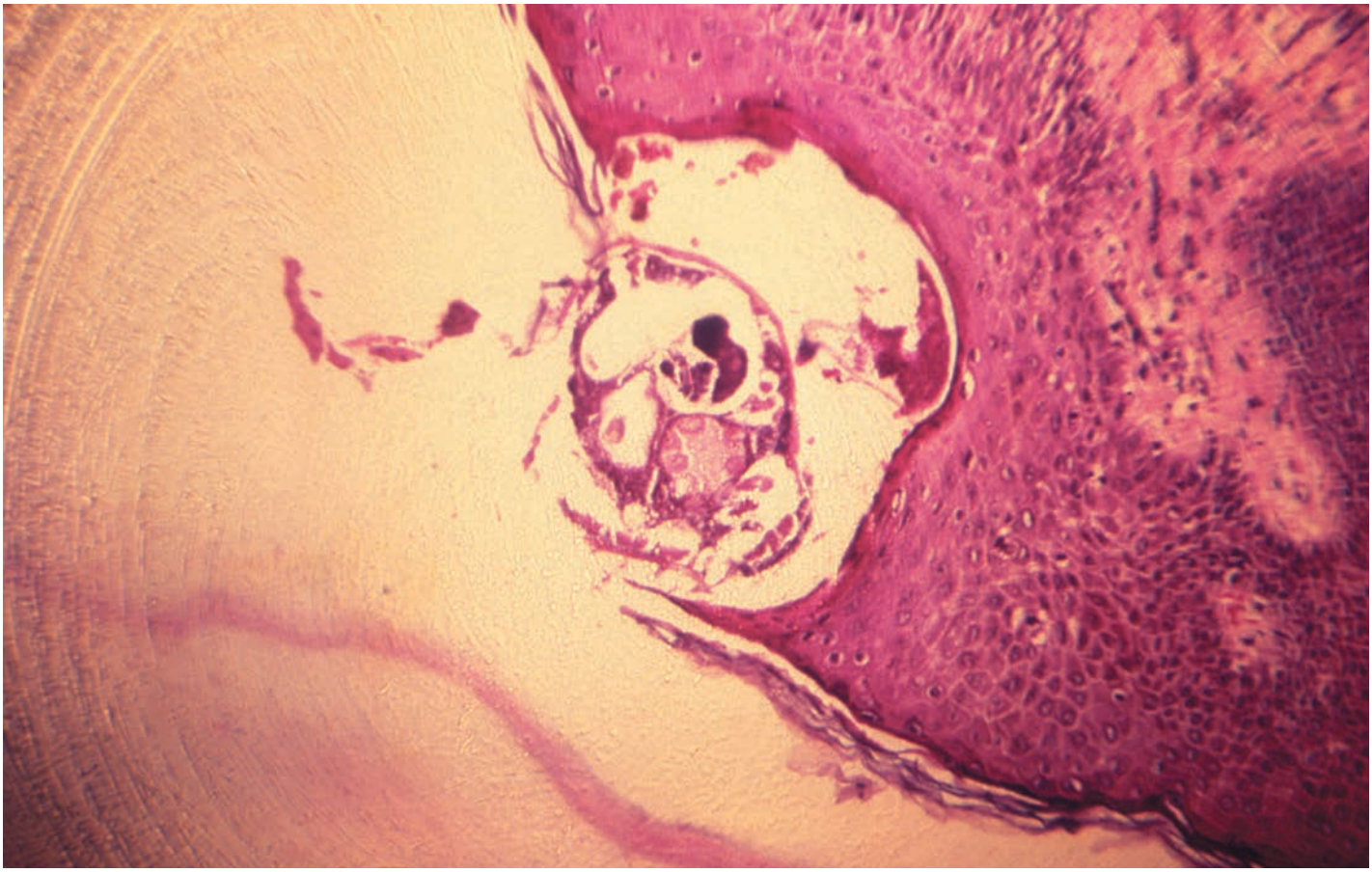
## IDENTIFYING AND TREATING THE SOURCE PATIENT

Two of the potential source patients were ruled out on examination. The third was a patient currently on the oncology unit of the hospital in palliative care. Upon entry to the patient room, the IP was immediately concerned that the patient might have Norwegian (crusted) scabies, a relatively rare infection. The IP had never seen a patient with Norwegian scabies, but she recognized the classic scaly, crusted sores on the patient's hands from pictures that were presented during an APIC conference seminar she had attended. The patient was placed on contact isolation, and then a fingernail scraping was collected and taken to the microbiology lab, where scabies mites were identified under a microscope.

The source patient had been seen in the wound center in July and August 2009 and was admitted on August 18 to a general medical floor. The patient had been diagnosed with psoriasis a few years earlier by a dermatologist, and the nursing staff, although uncomfortable with her skin condition, were not highly concerned. Exfoliating skin treatments were started on September 3, and the patient was transferred to a skilled nursing unit. On September 9, the patient was transferred to the oncology floor for palliative care after a change in condition. Thus, the patient had been in the hospital for almost a month before infection prevention was notified and contact isolation precautions were put into place.

Once Norwegian scabies was identified, we initiated our incident command system because of the length of time that this patient was not in isolation, as well as the number of floors and hospital departments that we knew were going to be affected. The concept of an incident command system was fairly new to our organization, but we knew the system had worked well the year before, when our hospital campus was affected by flooding. We immediately brought representatives from marketing, human resources, pharmacy, nursing leadership, and administration to the table and started to work through the logistics of treating our staff and patients as well as communicating what was unfolding.

The patient was transferred back to a medical floor, and treatment was started. The patient was losing large amounts of the "crusting" that had developed, so we dedicated two rooms for care and transferred the patient back and forth. Using two rooms allowed for us to keep isolation precautions in place while thoroughly cleaning the rooms. We initially took for granted that our environmental services staff would be comfortable being in these rooms; however, the staff expressed some hesitation and anxiety. In response, we provided additional education to them about precautions in place and their risks of becoming infested.



CDC/SUSAN LINDSLEY

## IMPLEMENTING INCIDENT COMMAND

By using our incident command system, we effectively addressed the multiple challenges that arose from this outbreak. We knew we were going to be dealing with an overwhelming number of staff members and patients, and we concluded we did not have the resources to conduct physical examinations of all the staff involved to determine who might be infected. Instead, we would treat all who reported symptoms or exposure, without confirming infestation.

One of our earliest decisions was to allow all nursing staff to continue working while wearing isolation gowns and gloves during all patient care. Because so many members of the nursing staff were reporting symptoms consistent with scabies, we could not furlough them all and still provide safe care for our patients.

The incident command system helped us mobilize a hospital-wide response. Marketing and the public information officer worked on education and communication for staff and patient notifications. Letters were sent to all the patients who were housed in the three affected inpatient units and their providers. Marketing and the public information officer also prepared for media outreach. Because the local health department was made aware of the outbreak, we anticipated that media would soon find out about it.

Pharmacy procured permethrin to treat exposed staff and patients, and labor pool staff helped us administer permethrin treatment, in one evening, to all the patients on the floor from which the source patient had been transferred.

Information services worked with the infection prevention staff to develop a SharePoint database to track employee and patients who were exposed and treated. A similar SharePoint database was used for the H1N1 vaccination and seasonal influenza clinics later that year.

An employee exposure clinic was set up to treat all exposed or symptomatic staff. Any staff members who were experiencing any symptoms were also offered treatment for their immediate family members. We soon found out that we had secondary transmission (asymptomatic staff members with symptomatic family members). Following guidance from the California Department of Health,[1] our incident command team, with the approval of our incident commander and administration, agreed to offer treatment to all household family members of any exposed staff to stop transmission. Because of this decision, we did not have any ongoing transmission and quickly stopped the outbreak. The incident command center remained open to support the employee clinic from September 15 until September 22.

Of the 418 Mercy Medical Center staff and family members who were treated, 139 reported symptoms. In total, 1,236 employees and family members received medication through the employee health scabies clinic, and 37 received medication through another outpatient pharmacy. Employees from 57 hospital departments were affected by this outbreak. Of the 241 patients who had potential exposure during this time, 70 received treatment and four were known to be symptomatic.

## LESSONS LEARNED

- The organization needs to continually reinforce to all staff a clear and formal process for reporting any unusual, potentially infectious conditions to the IP.

- Broad treatment and prophylaxis are critical to prevent ongoing transmission of Norwegian scabies. Prophylactic treatment should not be limited to staff and family members with symptoms. Our infectious disease physician approved the mass prophylaxis order for our employees. Patients currently on the affected unit could be examined by providers and have their treatment ordered by their provider, whereas patients who had been discharged were asked to see their personal care providers. We faxed an order form to every staff member's family physician to get orders for their family members.
- Staff members need instruction on cleaning their homes to prevent transmission of the infection. Although we had worked closely with our marketing department during this outbreak to provide information to employees about the infestation and how to prevent its spread, employees followed up with questions about cleaning their homes. We then sent that information, which should have been included in the initial communications.
- IPs should reinforce to healthcare providers that they can routinely use personal protective equipment, even when contact precautions are not implemented, if they have concerns about infection transmission. Before the scabies diagnosis, multiple staff members felt uncomfortable about the patient's skin condition, but they did not use gowns or gloves because they knew of the patient's history of psoriasis.
- Events that involve overwhelming staff exposure can adversely affect the hospital's ability to care for patients. In this case, we could not follow up with the patients as well as we would have liked because so many employees were exposed. This outbreak was one factor that drove our institution to develop an employee health role. PS

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**Reference**

1. California Department of Health Division of Communicable Disease Control. Management of scabies outbreaks in California health care facilities. 2008. https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/MgmntofScabiesOutbreaksinHCFacilities.pdf. Accessed March 2018.

**Additional resource**

Centers for Disease Control and Prevention. Parasites: Scabies. 2010. https://www.cdc.gov/parasites/scabies/index.html. Accessed March 2018.

AJIC American Journal of Infection Control

## READ MORE ABOUT SCABIES IN THE *AMERICAN JOURNAL OF INFECTION CONTROL*

**Implementing systems thinking for infection prevention: The cessation of repeated scabies outbreaks in a respiratory care ward.** Sheuwen Chuang, Peter Howley, Shih-Hua Lin, *American Journal of Infection Control*, Vol. 43, Issue 5, p499-505.

**Collaborative public health response during a scabies outbreak.** Jessica Vakili, Stephanie Etter, Debbie Hoy, et al. *American Journal of Infection Control,* Vol. 43, Issue 6, S66.

**Utilizing a hospital point of dispensing (hpod) architecture for control of a scabies outbreak at an acute care hospital.** Casey Calabria, Michelle Vignari, Alexandra Yamshchikov, *American Journal of Infection Control,* Vol. 42, Issue 6, S156.