

Outbreak of *Streptococcus pneumoniae* in a Psychiatric Unit

[Announcer] This program is presented by the Centers for Disease Control and Prevention.

[Mike Miller] Hi, I'm Dr. Mike Miller, and today I'm speaking with Dr. Katherine Fleming-Dutra, an epidemiologist at CDC. Our conversation is based on her investigation of a *Streptococcus pneumoniae* outbreak in a pediatric psychiatric unit, which appears in CDC's journal, *Emerging Infectious Diseases*. Welcome, Dr. Fleming-Dutra.

[Katherine Fleming-Dutra] Thank you.

[Mike Miller] Dr. Fleming-Dutra, tell us a little about *Streptococcus pneumoniae*.

[Katherine Fleming-Dutra] *Streptococcus pneumoniae*, also called pneumococcus, is a type of bacteria that causes many common illnesses, including pneumonia, ear infections, and sinus infections. *Streptococcus pneumoniae* can also cause rare but serious infections, such as bloodstream infections and brain infections, called meningitis.

[Mike Miller] In spite of its name, *Streptococcus pneumoniae*, this organism actually causes a lot of diseases, not just pneumonia. Why is this?

[Katherine Fleming-Dutra] *Streptococcus pneumoniae* got its name in the 19th century because it was recognized to be a common cause of pneumonia. These bacteria can live in the nose of healthy people without causing illness. From the nose, *Streptococcus pneumoniae* can sometimes move into other parts of the body, including the lungs, ears, sinuses, or bloodstream to cause disease.

[Mike Miller] Are *Streptococcus pneumoniae* infections more likely to show up in some settings rather than others?

[Katherine Fleming-Dutra] Infections caused by *Streptococcus pneumoniae* are very common in the community. Infections with *Streptococcus pneumoniae* affect all people, but in particular young children, the elderly, and people with certain medical conditions, such as lung disease and immune system problems, are at higher risk of being infected.

[Mike Miller] There was an outbreak of *Streptococcus pneumoniae* in a pediatric psychiatric unit in Rhode Island in 2011. What happened there?

[Katherine Fleming-Dutra] Three cases of confirmed *Streptococcus pneumoniae* infection and eight cases of pneumonia, many of which were likely caused by *Streptococcus pneumoniae*, occurred among patients, staff, and visitors in a pediatric psychiatric unit in one month. All three confirmed cases were caused by the same strain of *Streptococcus pneumoniae*. When the CDC and state health department investigated this outbreak, we also found that six patients on the unit had that strain in their noses, showing that this strain was being spread among patients, staff, and visitors on this unit. This unit also had some challenges in preventing infections. For example, the patients did not understand the need to wash or sanitize their hands or to cover their coughs

and sneezes. These challenges probably helped the bacteria spread between people on the unit. To control the outbreak, all of the patients were given antibiotics to get rid of the bacteria from the nose and stronger hand washing practices were used.

[Mike Miller] Are these kinds of outbreaks common?

[Katherine Fleming-Dutra] Outbreaks of *Streptococcus pneumoniae* infections occur from time to time in settings with close contact among people, such as childcare facilities and military barracks, and in settings with people who have medical conditions that increase their risk for *Streptococcus pneumoniae* infections, such as hospitals and nursing homes. This outbreak occurred in a pediatric psychiatric unit where the children had close contact with each other and with staff members, which allowed the bacteria to be easily passed between patients and staff.

[Mike Miller] Well apparently, one particular strain of *Streptococcus pneumoniae* was responsible for the confirmed cases in the outbreak. Could you tell us a little about this strain?

[Katherine Fleming-Dutra] We know there are over 90 strains of *Streptococcus pneumoniae* and vaccines are available for some of the most common ones. The pneumococcal conjugate vaccine, given primarily to children, covers 13 strains, while the adult vaccine covers 23 strains. This strain that caused the outbreak is not covered by either vaccine. In 2009, this strain caused about five percent of invasive pneumococcal disease cases in the northeastern United States, and less than three percent of invasive pneumococcal disease cases in the rest of the United States.

[Mike Miller] Are precautions in place to prevent the transmission of disease in medical care facilities?

[Katherine Fleming-Dutra] Absolutely. Medical facilities prevent outbreaks of *Streptococcus pneumoniae* and many other diseases using infection control practices, like hand washing and what we call “cough etiquette.” That’s when patients and staff are encouraged to cover any cough or sneeze with an arm or a mask.

[Mike Miller] Hand hygiene rules require medical staff to wash their hands before and after making contact with a patient. I understand from your survey that the staff at this psychiatric unit only washed their hands about half the time. Were you surprised by how low this percentage was?

[Katherine Fleming-Dutra] Unfortunately, no. Many surveys of other health care facilities show that staff don’t always wash their hands before and after patient care, even though this is the most important step to stop the spread of infections among patients and between patients and staff.

[Mike Miller] Well, do you have any recommendations for reducing the risk of disease transmission in a clinical setting?

[Katherine Fleming-Dutra] Sure. As simple as it sounds, washing hands can be remarkably effective at preventing spread of these infections. It’s easy to do, cheap, and highly effective

against a wide range of infections. Many hospitals are doing a great job of making it easy for their employees and visitors to wash their hands by placing hand sanitizer in numerous, easy-to-reach locations throughout their facilities. Facilities should monitor how often their staff members are washing their hands. If a facility finds that staff members are not washing or sanitizing their hands as often as they should, the facility can educate their staff and make changes before infections or an outbreak occur.

[Mike Miller] Well, how can people protect themselves from becoming infected with *Streptococcus pneumoniae*?

[Katherine Fleming-Dutra] People can protect themselves by getting vaccinated. Vaccines will protect against the most important *Streptococcus pneumoniae* strains. Also, *Streptococcus pneumoniae* can cause infections in people who have the flu, so people can also protect themselves by getting their yearly flu vaccine. Finally, as we said, handwashing can be remarkably effective. So, to protect yourselves and your family, ask your doctor if you or your child are up-to-date with your pneumococcal and flu vaccinations and remember to wash your hands. For more information on vaccines, visit www.cdc.gov/vaccines.

[Mike Miller] Well thank you, Dr. Fleming-Dutra. I've been talking with Dr. Katherine Fleming-Dutra about her study, *Streptococcus pneumoniae* Serotype 15A in a Psychiatric Unit, Rhode Island, USA, 2010–2011, which appears in the November 2012 issue of CDC's journal, *Emerging Infectious Diseases*. You can see the entire article online at www.cdc.gov/eid.

If you'd like to comment on this podcast, send an email to eideditor@cdc.gov. I'm Dr. Mike Miller, for *Emerging Infectious Diseases*.

[Announcer] For the most accurate health information, visit www.cdc.gov or call 1-800-CDC-INFO.