

MRSA Lurks at Loon Lagoon

A Case Study in Assessment Mid-America Regional Public Health Leadership Institute - Year 16

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Case Introduction

Information is obtained and processed in many different ways...through the news, a book, a newspaper or a friend. Occasionally, the significance of this information may not be apparent until it becomes the equivalent of a fire alarm or a flashing red light. The time lag between seeing and grasping the real significance of 'information' can delay an effective response to control or mitigate its effects. Frequently, the reasons for this are multifaceted and complex, as chronicled in this case study.

On September 21, 2006 the chair of the local Board of Health, an infectious disease practitioner, discussed an initial report of a community associated Methicillin-Resistant Staphylococcus aureus (CA-MRSA) outbreak at Loon Lagoon State College. This was news to the Looney Lake County Health Officer since MRSA is not a reportable communicable disease and this was the first she had heard of its presence in the community. Of the forty people identified with recently acquired skin infections, an incredible twenty of them were MRSA-positive! Now the race to control this outbreak was off to a really s-l-o-w start.

While up to 30% of the population is colonized with staph bacteria, only about 1% of the general public is colonized with MRSA. These infections usually appear as a pimple or boil in otherwise healthy individuals. The risk with this infection is that it may progress to pneumonia or other serious conditions if not treated in the early stages of eruption. MRSA is transmitted from an infected to an uninfected person through close person-to-person contact, wound discharge, contact with open cuts and abrasions, contaminated

surfaces, crowded living conditions and poor institutional or personal hygiene. All of these factors were present at Loon Lagoon State College and compounded by the lack of understanding the significance of the 'information' by college officials and the delay in reporting the information to the Looney Lake County Health Department regarding the infected students.

This case study will examine the importance of the core public health function of *assessment* in the process of controlling emerging diseases within a community. The sequence of events which led to the CA-MRSA outbreak at Loon Lagoon State College will be revealed along with the subsequent response by the local public health department. Two essential public health services linked to this key core public health function are *monitoring health status to identify and solve community health problems* and *diagnosing and investigating health problems and health hazards in the community*¹.

Case Body

It is a dark and stormy September 1, 2006, and 2,500 college students begin to arrive at Loon Lagoon State College to begin their academic studies for the school year. Students live in six resident halls at this institution with in-state and out-of state students. Tuition ranges from \$35,000 annually for in-state students and \$50,000 annually for out-of-state students. The college is well renowned for their sport teams and are represented in state and national circuits for basketball, volleyball, and soccer.

One student (case 1) arrives with a skin infection. His symptoms include boils that are red, swollen and have pus draining. The angry, red boils are located on the back of his neck under the hair and in his armpits. He has been accepted on the state champion men's varsity soccer team.



A second student (case 2) on the men's volleyball team has been diagnosed with a MRSA infection and has been told by his family physician, Dr. Gil Grissom whose practice is out-of-state, to cover the wounds until healed. Dr. Grissom did not restrict this student from sports or any school based activities.

On Saturday, September 2nd, men's soccer practice starts at 7:30 AM for twenty-six team members, including the player (case 1) with a skin infection (boils located on the back of his neck and under his hair and in his armpits). The men's soccer team practices outside on the field for four hours with the outdoor temperature reaching 94 degrees. The soccer

practice consists of running drills using kicks along with head and shoulder hits. During this practice session the team members share kneepads, wristbands, and personal towels.

The team breaks for the day and heads to the showers where the men's volleyball team is also finishing up a morning of practice. The showers have been heavily used this morning, are crowded, and need cleaning. The common showers have shared soap dispensers. Towels are provided onsite and are beginning to become scarce. They are overflowing from the laundry bins and scattered on the floor. Some team members are shaving and one team member shares his disposable razor with another.

As a way to cut costs, college officials extended the holiday break for their janitorial staff. No other college staff are re- assigned to clean and maintain the locker room.

Sunday, September 3rd, the local high school boy's football team has its practice at the college and uses the locker room and showers. The soap dispensers are empty. Towels are not available for everyone on the team and they are shared among the players. The team has been practicing at this field during the summer months and has arranged to continue to do so on Sundays.

Three weeks later, September 21, 2006, at the Looney Lake County Board of Health meeting Dr. Albert Robbins, Board of Health Chair and infectious disease practitioner, discusses CA-MRSA that is occurring at the local college with board members. The board is comprised of a dentist, family practice physician, local businessman, nurse, community member, and the local health officer.

Dr. Robbins reports that an emergency room physician who works at the nearest hospital, which is across the state border thirty miles away, called him to consult on forty-plus individuals with skin infections. Dr. Robbins has privileges at the hospital and regularly reviews cases of infectious disease. Of these, twenty individuals are wound culture positive for MRSA. Dr. Robbins states the hospital has requested that he review the medical records of the individuals who have confirmed cases of MRSA. Upon completion of the review, he will report the information to the state communicable disease and local health departments.

The Looney Lake Health Department and the board were unaware of this situation in their community until now. CA-MRSA is not a reportable disease in the state and not required to be reported to the local public health department. Catherine Willows, Health Officer for Looney Lake Health Department, is irate and feels she has been blind-sided. However, she gathers her wits, takes a deep breath, and proceeds to explain the role of the health department and the importance of the public health function of assessment, especially when a communicable disease is emerging in the community.

Ms. Willows states "this is the first I have heard of this outbreak. It is critical that I be notified of communicable disease outbreaks at their onset." She goes on to say "in order to be effective, public health officials need to provide essential public health services that include monitoring the spread of disease, following-up with individuals to assure treatment, and setting up surveillance systems to coordinate activities between the college, medical community, and the public. Dr. Robbins, I will be calling you after the meeting for more information."

That same day at 1:00 PM, Ms. Willows contacts Dr. Robbins for additional details about the cases and to discuss ways to improve communication. As she discusses the cases with Dr. Robbins, she realizes that fifteen out of the twenty confirmed cases are associated with Loon Lagoon State College and are all athletes.

After ending her discussion with Dr. Robbins, Ms. Willows telephones Sara Sidle, the school nurse at Loon Lagoon College. Sara reports that she is aware of two students who were hospitalized for skin infections, but she does not know the details on the condition of the students. Sara suggests Ms. Willows contact the athletic director for more information. Several attempts are made to call the athletic director, but the calls are not returned.

At 2:00 PM, Ms. Willows gathers her staff, a public health nurse, sanitarian, health educator, and office program assistant, for an emergency meeting. She informs them on the reported communicable disease findings from Dr. Robbins and outlines what she knows so far about the occurrence of CA-MRSA cases at Loon Lagoon College.

During the staff meeting, Ms. Willows telephones the state communicable disease epidemiologist to have her join in the discussion. The state epidemiologist forwards an e-copy of "Community Associated Methicillin Resistant Staphylococcus aureus (CA MRSA), Guidelines for Controlling Transmission among Students and Athletes²" to the health department for their review. She also provides the following definition for a CA-MRSA outbreak, "CA-MRSA outbreak is defined as three or more cases of skin infections among close contacts (e.g. students from the same classroom, athletes on the same sports team, or athletes sharing the same facilities) in which CA-MRSA has been isolated from a culture of the infected area." The state official declares that although it is unnecessary to do local surveillance or data collection for sporadic cases of CA-MRSA, twenty related and wound culture-confirmed cases of MRSA certainly constitutes an outbreak."

Ms. Willows and her staff map out a management plan, which is based on the communicable disease health priorities identified in the national health plan titled *Healthy People 2010*, and Wisconsin's state health plan, *Healthiest Wisconsin 2010*. Communicable disease issues need to be identified so that the public health system can appropriately assess and respond to their occurrence. A well-coordinated surveillance system is a key factor in the success of all communicable disease control efforts.

The management plan developed by the local public health department includes the following activities:

- Obtain list of identified cases from Dr. Robbins.
- Assess the cases and determine who has a staph infection versus a confirmed case of CA-MRSA diagnosed for this specific strain of bacteria through a wound culture.
- Determine any association between the cases; i.e., common school, common sports teams and place of residence.

- Utilize the following communicable disease resources as reference tools for case management and community education: *Community Associated Methicillin Resistant Staphylococcus aureus (CA MRSA)*, Guidelines for Controlling Transmission among Students and Athletes and the CDC guidelines *Strategies for Clinical Management of MRSA in the Community*, March 2006.
- Review transmission, treatment measures and hygienic practices with each case.
- Initiate a surveillance system to coordinate communicable disease outbreak reporting from the community and border counties, including the area hospitals and primary care providers.
- Inspect Loon Lagoon College swimming pool, locker room, and review of disinfection guidelines with the janitorial staff.
- Assess the hygienic practices of athletes in locker room setting.
- Educate college officials and staff on the transmission and symptoms of skin infections and CA-MRSA, personal and environmental hygienic practices and control measures.
- Contact local high school officials to initiate a surveillance system and offer to provide a communicable disease education workshop for school staff on skin infections and CA-MRSA.
- Educate the community on the prevention of skin infections and MRSA by developing and distributing an informational brochure.
- Educate parents of school-age children on the prevention of skin infections by developing an information letter and distributing to parents in elementary, middle and high schools in the community.
- Assure cooperation from Loon Lagoon College Athletic Director and school officials in following CA-MRSA guidelines for prevention and control.
- Continue surveillance measures to assure control measures are effective and evaluate outcomes.

Sunday, September 23, 2006, the Looney Lake County Gazette runs a front-page article on the outbreak of MRSA in the community. The article is written by the newspaper's health reporter, Lois Pane, and comes on the heels of several brief Associated Press articles published during previous weeks about MRSA and associated deaths of young people in other parts of the nation. In the article, Ms. Pane quotes an anonymous source who claims the local cases are linked to Loon Lagoon State College and specifically the arrival of out-of-state students for the start of the school year. She ends the article by saying that repeated attempts to get a statement from school officials were unsuccessful.

Monday, September 24, 2006 by 9:00 AM, the Looney Lake County Executive's office receptionist, Nick Stokes, has taken eight messages from county residents expressing fear about themselves or their children catching MRSA from the sick students. One caller is a local ice cream shop operator who employs several students from Loon Lagoon College. All want to know what the county is doing about this outbreak. Mr. Stokes informs the county executive of the numerous calls received from the public. The County Executive contacts Ms. Willows at the Looney Lake County Health Department and requests an immediate explanation of what is being done to remedy this situation.

Ms. Willows revises the health department's management plan to begin utilizing the local media to educate the public on the prevention of skin infections and CA-MRSA. The local radio station and newspaper are contacted.

The health department and public school officials have scheduled a meeting to discuss prevention of communicable disease and methods to educate staff, students and parents. When meeting with the high school officials, the resource tool "CA-MRSA Guidelines for Controlling Transmission among Students and Athletes" is discussed and school officials indicate their intent to implement the resource tool. The guidelines address prevention of transmission, identification of cases and outbreak criteria, environmental cleaning practices, and increased hand washing among students and staff with soap and warm water. Another information tool titled, "Skin Infections in Athletes" is provided to the school for distribution to the athletes.

Ms. Willows still has not heard from the Loon Lagoon College athletic director and contacts the college president to schedule a meeting.

Monday, October 2, 2006, college officials, health department staff, and Dr. Robbins meet to develop a communicable disease prevention plan for all students. The plans emphasizes improved environmental cleaning practices, improved communication, and enhanced surveillance for emerging communicable diseases. College officials agree to improve their standards for locker room maintenance, but indicate that they have difficulty understanding the role of the local health department in communicable disease reporting and notification.

Thursday, October 19, 2006, there were no more related cases reported to the health department. The health department completes the case list and forwards it to the state epidemiologist for analysis and completion of an epi-curve. In preparing a final summary report of the CA-MRSA outbreak, the health department meets with the state epidemiologist to discuss the epi-curve, investigation, other actions, and outcomes. Recommendations for changes in the future include incorporating student screening practices, review of existing school protocols to assure they are consistent with current communicable disease control guidelines, and work towards enhancing partnerships within the community.

Case Closing

Due to an unusual October snowstorm, the October 13th high school homecoming football game is rescheduled for Friday evening, October 20th. Unfortunately, the college homecoming is the same weekend, with the big game scheduled for Saturday

afternoon. Both the high school and college will be using the same locker room and ball field.

Ms. Willows receives phone calls from the high school and college coaching staff between 3:00 and 3:30 PM on Friday just before the homecoming parade is scheduled to begin. The staff relay concern expressed by some of the parents and players. They are asking if the health department has any suggestions so all the sharing and mess doesn't start all over again?

Ms. Willows will be out of town on vacation, leaving Friday at 4:00 PM.

Study Guide

1. What barriers to effective public health leadership can be identified in this case?
2. Does the Health Insurance Portability and Accountability Act (HIPAA) – privacy act - become a barrier?
3. What role does the media present in this case – a barrier to, or a tool of, effective public health leadership?
4. Does political pressure present a barrier or an opportunity?
5. How many assessment and prevention strategies can a leader implement in an hour, and who will serve in his/her absence?
6. Which prevention strategies can be described, monitored and evaluated most efficiently over the weekend?
7. Which community partners can be enlisted to convey the necessary message throughout the weekend activities?
8. Who will meet for follow-up on Monday to evaluate the effectiveness of the risk reduction strategies?

¹ “Public Health Leadership – Putting Principles into Practice”. Louis Rowitz, PhD, 2001, Chapter 5

² “Community Associated Methicillin Resistant Staphylococcus aureus (CA MRSA), Guidelines for Controlling Transmission among students and Athletes”. Wisconsin Division of Public Health, Bureau of Communicable Diseases and Preparedness, PPH 42179, October 2007