Louisiana Office of Public Health
Infectious Disease Epidemiology Section
Phone: 1-800-256-2748
www.infectiousdisease.dhh.louisiana.gov

Information on Methicillin Resistant *Staphylococcus aureus* (MRSA)

What is MRSA?

MRSA is a kind of bacteria
1-that is resistant to Methicillin, but also to some other antibiotics
2-that sometimes causes diseases that are more severe than plain staph bacteria.

To understand MRSA it is helpful to learn about *Staphylococcus aureus* bacteria, often called "staph," (or abbreviated as SA) because MRSA is a kind of staph.

Do staph always make people sick?

No. Many people carry staph in their nose or on their skin for a period of time, and do not know they are carrying them. They do not have skin infections. They do not have any other signs or symptoms of illness. This is called "colonization". These people are colonized, or one can also say they are carriers.

How common is colonization or carriage?

About 25%-30% of the U.S. population carries staph on their bodies at any time. The staph are usually found in the nose but also in the armpits, groin, pernieum rectum and perirectal area.

There are also carriers of MRSA but there are less of them, about 2% among healthy people. Among people that are chronically ill, that are often in health care facilities, the carriers are more common, 8% to 10%.

What are the symptoms of an infection caused by staph or MRSA?

In general, signs of superficial skin and soft tissue infection (SSTI for short) are: redness, swelling, pain and heat. Furuncles, carbuncles and boils are the most common SSTI infections. Once they progress, they become filled with pus (a yellow patch under the skin). At that stage they must be incised (cut through the yellow "head") and allowed to drain. Often people think that these infections are caused by a spider bite.

Staphylococci can cause some illnesses: When an injury, such as a puncture wound, introduces the organism into some other part of the body, the staphylococcus bacteria can secrete toxic substances that tunnel into tissues, destroying and dissolving matter along the way. The bacteria can produce pus containing abscesses anywhere on, or in the body. These infections can be minor (such as pimples, boils, furuncles and carbuncles and other skin conditions) or more serious (such as blood infections or pneumonia).

Boils and skin infections: A boil starts as infection of a hair follicle. These are the tiny pits at the base of the hair. As the staph starts to multiply, white blood cells, which are part of the body's system of defense against bacteria, gather at the site to fight the infection. White blood cells, bacteria and dead skin cells form the pus in the infected area.

Carbuncles are groups of boils connected together.

Folliculitis is a smaller version of a boil. Small, white-headed pimples erupt around hair follicles anywhere on the body. Friction, blockage of the follicle, or injury (such as a cut from shaving) can cause a rash-like eruption.

Cellulitis is a skin infection that is not as well limited as a boil. A red, tender swelling develops in the skin and spreads gradually for a day or two. Red lines appear running from the infected area along lymph vessels to nearby lymph glands such as those in the groin. The lymph glands may swell, become red and fever appears.

Occasionally, staph and particularly MRSA can cause more serious infections such as surgical wound infections, bloodstream infections and pneumonia. The symptoms could include high fever, swelling, heat and pain around a wound, headache, fatigue and other symptoms.

How are staph or MRSA spread?

The source of SA and MRSA is always a human: 30% of all people are colonized (mainly in the nose) with SA, 2% of healthy people are colonized with MRSA. Both are transmitted from one person to the next:

by direct skin-to-skin contact, such as shaking hands, wrestling, or other direct contact with the skin of another person.

by indirect contact with items that have been touched by people with staph, for example towels shared after bathing and drying off, or shared athletic equipment in the gym or on the field, or surfaces that are frequently touched: door handles, light switches.

The recipient becomes colonized and depending on numerous factors that we do not understand clearly, the recipient develops an infection, usually a skin and soft tissue infection.

Staph infections start when staph gets into a cut, scrape or other break in the skin. People who have skin infections - painful, swollen pimples, boils and rashes - should be very careful to avoid spreading their infection to others.

What should I do if I think I have a staph or MRSA skin infection?

Keep the area clean and dry. See your doctor, especially if the infection is large, painful, warm to the touch, or does not heal by itself.

How will my doctor know if I have a MRSA infection?

The only way to tell the difference between MRSA and other staph infections is with lab tests (culturing the bacteria from the infected area or using other tests that identify MRSA). For minor SSTIs, lab tests are not absolutely necessary.

For more severe infections, lab tests will help your doctor decide which antibiotic should be used for treatment, if antibiotic treatment is necessary.

How are MRSA infections treated?

Most staph and MRSA skin infections are treated by good wound and skin care: keeping the area clean and dry, covering the infected area. Incision and drainage are the treatment of choice for infections that come to a head.

Sometimes treatment requires the use of antibiotics. Lab tests help your doctor decide which antibiotic should be used for treatment, if antibiotic treatment is necessary. If antibiotics are prescribed, it is important to use the medication as directed unless your doctor tells you to stop. If the infection has not improved within a few days after seeing your doctor, contact your doctor again.

How can I prevent a staph infection?
First, the personal protection:

• Regular handwashing is the best way to prevent getting and spreading staph, including MRSA. Keep your hands clean by washing them frequently with soap and warm water or use an alcohol-based hand sanitizer, especially after direct contact with another person's skin. Hand sanitizer is a good substitute for handwashing if your hands are not very dirty.

• When to wash or sanitize hands: Ideally after frequent contact with heavily contaminated items (counters, door handles, light switch...). Avoid touching your face, nose, mouth and use hand sanitizer before (easily said, not easily done).

• Take care immediately of small skin scratches, areas of redness, "spider bites". Do not touch, do not pick. Treat with an antiseptic areas of redness (tincture of iodine works well, do not use on an open wound, do not cover if you are using tincture of iodine, cover if you are using an antibiotic ointment). Keep cuts and scrapes clean and covered with a bandage until they have healed.

• Avoid contact with other people's wounds or bandages.

• Avoid sharing personal items such as towels, washcloths, toothbrushes and razors. Sharing these items may transfer staph from one person to another.

• Keep your skin healthy and avoid getting dry, cracked skin, especially during the winter. Healthy skin helps to keep the staph on the surface of your skin from causing an infection underneath your skin.

• Contact your doctor if you have a skin infection that does not improve.

How about treating the carriers?

The search and destroy approach (screen people to find carriers and treat them to eradicate carriers) does not work in a community setting. It is expensive; people resist it; screening always misses some carriers; abuse of ointments and antibiotics causes resistance; abuse of antibiotics decrease the normal flora of the nose for example and makes the person more susceptible to re-colonization.

How about disinfection of the environment?

Good and affordable environmental sanitation. Do a good job but be able to sustain it. Establish a regular schedule to disinfect areas frequently touched, but be realistic.

Do not go for a complete, thorough, fanatical disinfection then think that this is going to solve the problem. Your disinfection must be consistent over time.

Example of what NOT to do: Some schools have closed and spent $$$ to totally disinfect the school. As soon as they re-open, it would take one single student who is a nasal carrier to sneeze and start re-seeding MRSA throughout the school. In a school of 1,000 students, you can expect 20 carriers of MRSA. They can very quickly re-contaminate the school.

Laundry, kitchen utensils do not need to be disinfected. Uniforms washed in a washing machine and dishes and utensils washed in a washer with modern detergents do not need to be disinfected. (This is a recommendation accepted for hospitals.) Washing, detergents and drying eliminate bacteria.

How to handle an outbreak in an office, school, day care, athletic team, institution (long term care facility, jail or prison?

What to do?

1-Explain to people the source of SA and MRSA, the mode of transmission, and preventive measures

2-Explain the section above about personal protection

3-Explain the limitations of total disinfection. A lot of people tend to blame the environment and insist on total disinfection.

4-If someone asks about carrier eradication, explain that section. If necessary address the confidentiality issues.

5-Distribute this information sheet

6-Go to the website listed in the title to get more information, or call an Infectious Disease Epidemiologist for more explanations.

What NOT to do?

1-Close the place, do a thorough disinfection and reopen. You will NOT have solved anything.

2-Attempt an outbreak investigation: Try to find the culprit and isolate him or her. Colonization is so common that you are never sure of whom the source was.

3-Do some kind of mass treatment.