

**Recommendations for the Transfer of Patients
Colonized with Antibiotic Resistant Bacteria
between Facilities and the Control of
Methicillin-Resistant *Staphylococcus aureus*
in Acute and Extended-Care Facilities**

**Oklahoma State MRSA Working Group
in conjunction with the
Oklahoma State Department of Health**

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GLOSSARY

CARRIER

A person who is colonized with methicillin-resistant *Staphylococcus aureus* (MRSA). The organism may be present in the nares (nose), sputum, urine, an open wound, in the stool or on the skin without clinical manifestations of disease. A carrier may transmit the organism to another person through direct contact, usually by contact with hands.

COHORT

A group of MRSA positive patients (infected or colonized) who are physically separated, grouped together, and cared for by staff who do not care for MRSA negative patients.

COLONIZATION

Presence of MRSA on tissue without the presence of symptoms or clinical manifestations of illness or infection. A carrier is colonized with MRSA.

DECOLONIZATION

Elimination of MRSA carried by persons through use of infection control measures and/or antibiotics. This decreases the risk of transmission to high risk individuals (immunocompromised or otherwise highly susceptible persons) or to others in an outbreak situation.

ENDEMIC

The usual rate or prevalence of persons infected and/or colonized with MRSA in a facility. Endemic rate in each facility will be unique.

EPIDEMIC

Three or more cases of nosocomially-acquired MRSA infections which are epidemiologically related in a nursing home or a substantial increase in number from the endemic rate.

ERADICATION

Elimination of infections and/or colonization of MRSA in a facility through implementation of infection control and hygiene measures and/or antibiotics.

INFECTION

Invasion and multiplication of MRSA in tissue with the manifestation of clinical symptoms of infections such as increased white blood cell count, fever, lesions, boils, drainage from a break in skin continuity, and erythema. Infection does warrant treatment.

INVASIVE DISEASE

Clinical manifestations of symptoms caused by MRSA such as furuncles, boils, pneumonia, carbuncles, septicemia, or osteomyelitis.

MODE OF TRANSMISSION

The method by which MRSA is spread into the environment and to other persons. MRSA is transmitted primarily by direct person-to-person contact (i.e. from the hands of one individual to a susceptible individual). It is not thought that bed linens or environmental surfaces play a significant role in MRSA transmission. However, proper techniques for cleaning of linens and disinfection of environmental surfaces are appropriate to reduce the bacterial load.

MRSA (METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS*)

A gram-positive bacteria that grows in clusters like grapes; MRSA is not affected by methicillin and many other antibiotics. Antibiotic therapy of choice for infections caused by MRSA is vancomycin, given intravenously. Oral vancomycin is not effective against MRSA.

OUTBREAK

Epidemic; three or more epidemiologically linked cases of infection caused by MRSA which are acquired nosocomially (i.e. in the hospital or nursing home).

SA (*STAPHYLOCOCCUS AUREUS*)

A gram-positive bacteria which grows in clusters like grapes; SA is sensitive to methicillin, cephalosporins, nafcillin, and oxacillin.

SURVEILLANCE

Monitoring of patient data to determine an increase in number of new infections and distribution in a facility.

SUSCEPTIBILITY TESTING

A laboratory test to determine if an organism can be effectively treated with a particular antibiotic.

SYNOPSIS

- Methicillin-resistant *Staphylococcus aureus* (MRSA) is a bacteria that can colonize or infect people. It is distinguished from most other bacteria because it is particularly antibiotic resistant. In this regard it is similar to *Pseudomonas spp.* MRSA indicates resistance (some lab reports may read "oxacillin-resistant") to most antibiotics including all penicillins and cephalosporins.
- MRSA is transmitted by direct person-to-person contact.
- Body substance isolation must be practiced (i.e. handwashing before and after care of each and every patient and gloving when contact with moist body substances is anticipated). Every patient must be considered potentially colonized.
- MRSA infection means the patient does have symptoms or illness due to MRSA. A physician makes this determination.
- MRSA infection is often grounds for hospital admission. However, some MRSA infections (e.g. minor skin wounds) can be effectively treated in an extended-care facility.
- Treatment of choice for MRSA infection is usually intravenous vancomycin. Oral vancomycin is not effective against MRSA.
- MRSA colonization means the patient is carrying the organism but doesn't have symptoms or illness due to MRSA. The colonized patient can be, however, infectious to others.
- Colonization, by itself, is not grounds for admission to a hospital or for prolonged hospitalization if already hospitalized.
- Colonization, by itself, is not grounds for exclusion from a nursing home, or for not accepting a patient.
- Decolonization of the patient with antibiotics may or may not be indicated and may or may not be effective. The decision to attempt decolonization must be made by the attending physician, and attempts should be evaluated on an individual basis.

INTRODUCTION

The increasing number of patients in Oklahoma institutions such as nursing homes and hospitals affected by resistant strains of bacteria [including Methicillin-resistant *Staphylococcus aureus* (MRSA)] and concern regarding treatment, control, and transfer of these patients prompted these guidelines.

Even though we are addressing these guidelines to MRSA in particular, this organism and its attending problems must not be blown out of perspective. It is a relatively antibiotic resistant bacteria, not unlike *Pseudomonas aeruginosa* in this respect. Attention must be paid to basic infection control principles such as **handwashing**. Additional measures such as exclusion from admission to nursing homes are neither necessary nor reasonable.

An advisory committee composed of representatives from acute health care facilities, interested private physicians, the Oklahoma City-County Health Department, and the nursing home industry was formed with the purpose of addressing several key issues regarding MRSA. The purpose of the committee included:

- (1) Identification of health care professionals throughout Oklahoma interested in the control of MRSA.
- (2) Discussion of the options available for planning statewide guidelines.
- (3) Development of a plan for future meetings.

The key problems identified by this group of health care professionals at the first meeting included:

- (1) The need for open and adequate communication between acute and extended health care facilities.
- (2) The increasing incidence of MRSA colonization and infection in patients from acute and extended health care facilities.
- (3) The need for education about MRSA for health care professionals in all types of health care facilities.
- (4) The epidemiological necessity to view acute and extended care facilities together in the overall provision of patient care.

(5) The need to develop guidelines to control the spread of MRSA.

The need for open and frank communication about patient MRSA colonization or infection in and between acute and extended-care facilities is paramount in the effort to control and contain the spread of MRSA within these institutions. Effective communication and identification of MRSA patients is mandatory for the purposes of early treatment, the identification of risk factors, and the promotion of infection control precautions in the receiving institution. It is an unacceptable practice to transfer a known MRSA infected or colonized patient without notifying the receiving facility.

We recognize that education concerning the epidemiology, control, and treatment of MRSA colonization and infection in Oklahoma is critical for the effective implementation of these guidelines. For that reason, a separate section of the guidelines addresses this issue.

These guidelines and the epidemiological principles behind them are derived from many sources, including all available medical literature on the subject. However, special recognition should go to the Kentucky State Health Department for providing an excellent model of state MRSA guidelines.

BACKGROUND

Staphylococcus aureus (Gr. "a bunch of golden grapes") is a gram-positive coccus named for its tendency to grow in clusters, like grapes, as seen when examined microscopically. *S. aureus* can multiply on human skin and on mucous membranes for long periods of time without causing symptoms (colonization). Alternatively, *S. aureus* can multiply and invade host tissue causing symptoms of disease (infection), especially in patients who are immunocompromised, malnourished or debilitated, or who have chronic illnesses such as diabetes and renal failure.

The organism was first identified in 1880 by a surgeon, Alexander Ogston, who noted that the majority of abscesses he studied which were inflamed and warm to the touch were caused by the same organism. In 1928, penicillin was discovered and was found to be effective in treating *S. aureus* infections. Due to the antibiotic selective pressure of penicillin usage, *S. aureus* evolved the enzyme penicillinase. Penicillinase inactivates penicillin by breaking its structural beta-lactam ring, rendering the penicillin ineffective.

In 1959, the first semi-synthetic penicillin, methicillin (then called celbenin), was produced by altering the chemical composition of penicillin. Two years later, the first methicillin resistant strains of *S. aureus* (MRSA) were reported in England and in the United States. However, there is some evidence that methicillin resistance may predate widespread methicillin use.

Staphylococcus aureus is transmitted primarily through direct person-to-person contact. It can remain viable in the environment for long periods of time in clothing, linens, and dust. However, it is not thought that fomites or environmental surfaces represent significant risk of infection if appropriately handled. *Staphylococcus aureus* has also been found through air sampling techniques, but outbreaks caused by airborne transmission of the organism are rare. The most significant mode of transmission is by direct person-to-person contact.

The first documented nosocomial (hospital-acquired) outbreak of MRSA in the U.S. occurred at the Boston City Hospital in 1968. The investigation of this outbreak supported transmission by the direct contact of hands of the personnel to patients in the ward. Since the Boston City Hospital outbreak, numerous outbreaks have been described in nursing homes, hospitals, neonatal units, intensive care units, hospital wards, and in the community at large.

Methicillin-resistant *S. aureus* (MRSA) colonization and infection in acute and extended-care facilities have increased dramatically over the past two decades. This is evidenced by the increasing number of reported outbreaks in the medical literature. Although no official statewide data are collected on MRSA infection in Oklahoma (because MRSA is not a reportable disease), the General Communicable Diseases Division of the Oklahoma State Department of Health (OSDH) has received an increasing number of outbreak reports from acute and extended-care facilities. Outbreaks are no longer just reported from large, tertiary

care, medical school affiliated hospitals in Oklahoma. We have received reports from smaller, community based hospitals and nursing homes. The organism is becoming more prevalent in nature and more important as a cause of acute infections in patients and personnel. It must be noted here that MRSA is no more pathogenic or virulent than susceptible *S. aureus*. However, according to some reports it may be a more efficient colonizer. It simply is resistant to more antibiotics. It is not a superbug or an andromeda strain. It is, however, causing significant morbidity and mortality and is presenting significant logistic problems concerning patient care and treatment, isolation, hospitalization, and transfer between nursing homes and hospitals, due to the lack of education regarding resistant bacteria.

DIAGNOSIS/TREATMENT

It is important for the health care professional to understand the difference between colonization and infection. Colonization indicates the presence of the organism *without* symptoms of illness. Colonization can occur in the nares, trachea, skin folds, rectum, or in an open wound such as a decubitus ulcer. The patient does not exhibit symptoms when colonized. Seventy to 90% of all individuals are intermittently colonized with *S. aureus* (methicillin susceptible or resistant) in the anterior nares. *Staphylococcus aureus* permanently colonizes in the anterior nares of about 20-30% of the general population. Hospital workers are more likely to be colonized than persons in the general population, presumably because of increased exposure. In comparison with the general population, physicians are 50% more likely to be colonized, nurses are 70% more likely to be colonized, and hospital ward attendants are 90% more likely to be colonized. Thus, a higher colonization rate with *S. aureus* is seen in health care workers who provide direct patient care. It is the responsibility of the physician to determine if a patient is colonized or infected. Colonization with MRSA is not an indication for hospital admission. Furthermore, MRSA colonization does not require further hospitalization if appropriate arrangements for disposition can be made (e.g. discharge to home).

Treatment for the purposes of decolonization may or may not be indicated or effective. Decolonization is not usually recommended. However, scientific data and personal experiences vary. The effectiveness of permanent decolonization seems marginal, but special circumstances may warrant an attempt. Examples of special circumstances include patients who are immunosuppressed and colonized, and therefore, might develop particularly serious infections or patients who are more likely to spread the organisms, due to behavior (e.g. the mentally retarded). A physician should assess each situation.

The definition of infection is tissue invasion by the organism with consequent clinical illness. Clinical manifestations of infections caused by *S. aureus* can range from superficial skin lesions such as boils to deeper infections such as pneumonia which can progress to death. In addition to local symptoms and signs of infection, systemic manifestations of disease such as fever, malaise, and leukocytosis are often present.

Treatment for an infection due to MRSA is usually an indication for hospital admission. The standard antibiotic therapy for infections caused by MRSA is intravenous vancomycin. Vancomycin can have serious side effects, especially in elderly persons. These side effects could include ototoxicity (loss of hearing or other auditory damage), nephrotoxicity (damage to the kidneys or renal system), and allergic reactions such as fever and rash. Infusion of vancomycin, especially when too rapid, can result in flushing, hypotension, and tachycardia known as the "red man syndrome". Vancomycin given by mouth is not effective against MRSA.

When present, *S. aureus* colonization of the nares, rectum, or skin can be detected by culture of these areas. Clinical infection caused by *S. aureus* can be identified by cultures

of blood, sputum, urine, percutaneous aspiration, or surgically obtained specimens as appropriate for the particular infection.

After *S. aureus* is identified, susceptibilities should be performed. Oxacillin susceptibility testing by the Kirby Bauer technique is the preferred method of identifying MRSA. Resistance to oxacillin also defines resistance to all penicillins. Cephalosporin susceptibilities should not be reported on MRSA isolates since all isolates are considered to be resistant *in vivo*, regardless of *in vitro* susceptibilities. Reference laboratories should be consulted when questions arise.

SURVEILLANCE

The issue of MRSA status (negative, colonized, or infected) with regard to hospital and nursing home admission and discharge warrants deliberate attention to detail. This issue is of great practical significance in light of the current misinformation, fear, and the natural inadequacies of complete, preventive control measures for infection and colonization.

Hospital Admission:

Hospital admission because of MRSA infection is acceptable medical practice. However, MRSA colonization does not, by itself, warrant hospital admission. Treatment for infection with MRSA can best be accomplished in an acute-care setting. However, given special circumstances, treatment for infection can be accomplished in an extended care facility or at home. This decision is based on the clinical judgement of the attending physician.

Hospital Discharge:

Upon completion of appropriate therapy for MRSA infection, and when the clinical manifestations have resolved (even if the patient has a positive culture) hospital discharge may be indicated. A patient colonized with MRSA while hospitalized for another illness may be discharged once that illness is under control. In other words, a patient may be discharged from an acute-care setting with a positive MRSA culture. When this occurs, the hospital should notify, in advance, any institution receiving the patient that s/he is colonized with MRSA.

Nursing Home Admission:

There are no reasons to deny nursing home admission for a person colonized with MRSA. MRSA, along with other bacteria, may be present in any patient. Therefore, strict attention to handwashing is indicated at all times. A patient colonized with MRSA should be admitted to a nursing home. The MRSA colonized patient can be placed with another colonized patient (this is not mandatory), if one has been identified, but should be placed in a room with a patient who is not at high risk for MRSA infection (ie. a patient with a tracheostomy or a gastrostomy tube). A patient with clinical MRSA infection, however, may be admitted to a nursing home under special circumstances (e.g. minor skin/wound infection, UTT's, or terminal illness) provided clinical judgment, familial consent, and nursing home administration agree.

Nursing Home Discharge:

A patient may be discharged to home while colonized with MRSA. If the colonized patient is transferred to an acute-care setting, the receiving facility should be notified, in advance.

MRSA Outbreak:

Upon the recognition of an outbreak (or epidemic) of MRSA in an acute or extended-care facility, several special precautions should be implemented. The common definition of a MRSA epidemic is: (1) several (e.g. three or more nosocomially-acquired) cases which are epidemiologically associated by person, time, or place or (2) a substantial increase in the number of MRSA cases in a facility endemic for MRSA. Each facility must decide the criterion to define an outbreak. For example, one MRSA case in a high risk area like a burn unit might constitute an outbreak, whereas three nosocomially-acquired cases in a lower risk area might be required. In a nursing home, an outbreak is defined as three or more nosocomially-acquired cases which are epidemiologically associated. When recognized, immediate reinforcement of infection control procedures (e.g. handwashing and body substance isolation) to all staff is necessary. When recognized, all patients in the unit or wing where cases have occurred should be cultured for MRSA. Personnel should only be cultured if symptomatic or epidemiologically linked to transmission. Culture-positive staff should be assessed on a case-by-case basis with the Employee Health Guidelines of the institution.

During an outbreak and when extra control measures are required, all MRSA positive patients should be physically separated with no staff crossover to MRSA negative patients (i.e. if feasible and necessary, a cohort should be established). Two consecutive negative cultures 24 hours apart obtained 48 hours after completion of antibiotics are grounds for release from the cohort.

Decolonization of patients or staff is not routinely recommended. This has not proven to be an effective control measure, because recolonization occurs. The exceptions to this rule are listed in a previous section.

Immediate body substance isolation (use of gloves and handwashing) and perhaps even strict isolation (mandatory gowns) should be established for the MRSA positive cohort, and careful surveillance for additional infections or colonizations should be undertaken. The local county health department should be notified of the epidemic.

Epidemic analyses of the outbreak should be made, including collecting information such as:

1. Patient's location in the institution (before and after cohorting).
2. Date of admission and recent previous admissions.
3. Which caregivers had direct contact with the patient.
4. Body site of infection or colonization.

5. Age, sex, and race.

6. Diagnosis.

7. Treatments given.

During a MRSA outbreak, there are no reasons the nursing home or hospital should be closed to new admissions, provided there is room. The nursing home should not be prevented from discharging patients, provided the guidelines for admissions/discharges are followed. However, restriction of admissions or discharges will occur if it is determined that the facility is not following the proper protocols in caring for the residents already in the facility.

INFECTION CONTROL/PREVENTION

The preventive issues of infection control for MRSA include attention to **handwashing, gloving, linen handling, environmental cleaning, and body substance isolation.**

Handwashing is the single most important factor in preventing the spread of MRSA. Hands of caregivers must be washed after any skin-to-skin contact with a patient. Turning, lifting, or dressing patients involves extensive skin-to-skin contact. Handwashing should be done after any and all of these work related tasks. Handwashing should also be done between care of different anatomical sites on the same patient, before eating, drinking, and before leaving work.

Gloving, as outlined in the CDC guidelines on universal blood and body fluid precautions, should be done for any hand contact with a wound, sore, invasive site, or mucous membrane of a patient. Gloves should be worn when contact is anticipated with any body substance (e.g. weeping lesions, sputa, urine, feces, etc.). This should be done for any patient, regardless of MRSA status. Body substance isolation is the minimum standard of infection control for all patients, regardless of MRSA status.

Fomites (bed linens, towels, pajamas, etc.) have not been implicated as a vector in the transmission of MRSA. Environmental surfaces, in most instances, are not important vectors of MRSA. However, fomites and environmental surfaces should be routinely cleaned with a disinfectant to reduce the bacterial load.

Body substance isolation must be maintained in the facility, for every single patient, regardless of infection or colonization status. This involves the mandatory use of plastic or latex gloves when there is contact to a mucous membrane or body substance. Also, gowns may be worn if extensive soiling is likely. Masks are indicated if exposure to aerosols generated by a coughing patient is likely.

The MRSA colonized or infected patient can be placed with another colonized patient (this is not mandatory), if one has been identified, but should be placed in a room with a patient who is not at high risk for MRSA infection (ie. a patient with a tracheostomy or gastrostomy tube).

CONTINUING HEALTH EDUCATION/COMMUNICATION

As mentioned in the introductory remarks, communication among health care providers is vital to the implementation of these guidelines. The key element in communication is education about MRSA: its epidemiology, treatment, and control measures. Health care workers who have struggled with this problem in other states say that education and communication are the most important steps in control of MRSA. We agree.

It is our charge in Oklahoma to develop one or more core working teams of Infection Control Practitioners who can provide inservice training about MRSA to acute and extended care staff in Oklahoma (including physicians, nurses, aides, etc.). This can be accomplished in several ways. One possibly would place the responsibility on each major hospital in Oklahoma to send their staff to the nursing homes they serve. This is not very efficient, and the uniformity of information is not controlled. In addition, the Oklahoma Nursing Home Association should assume responsibility for the education of their employees. A second possibility solicits the support from the Central Oklahoma Practitioners of Infection Control (COPIC) in providing a group of volunteers to staff the inservice team(s). The committee's goal is to develop this team, assist in preparing slides, outlines, literature for their use, and provide funding for time and travel expenses.

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APPENDICES

APPENDIX I

MRSA FACT SHEET FOR EMPLOYEES

WHAT IS MRSA?

MRSA stands for methicillin-resistant *Staphylococcus aureus*. It is a strain of *S. aureus* that is distinguished from most other bacteria by its resistance to most antibiotics including all penicillins and cephalosporins. MRSA can affect people in different ways. People can carry it in the nose or on the skin without showing any symptoms of illness. This is called MRSA colonization. MRSA can also cause infections such as boils, wound infections, and pneumonia.

HOW IS MRSA TRANSMITTED?

MRSA is spread from person-to-person by direct contact. This means that if a person has MRSA on his skin (especially on the hands) and touches another individual, he may spread MRSA. A person may have MRSA on his hands as a result of being a carrier or from touching another person who is a carrier or infected with MRSA.

WHAT CAN I DO TO PREVENT THE SPREAD OF MRSA?

Handwashing, using soap and warm running water for 20 seconds, is the single most important measure necessary to control the spread of MRSA. Proper handwashing should be performed after the care of each patient, after handling soiled dressings and clothing and after wearing gloves. Other measures to prevent becoming infected or transmitting infection to others include avoiding cross-contamination between clean and dirty linen, daily environmental cleaning, wearing gloves for all dressing changes, proper handling of infectious waste, and observing isolation procedures. Report illness including unusual skin rashes or boils to your nursing director before working with patients. **WASH YOUR HANDS BEFORE AND AFTER CONTACT WITH EACH PATIENT!**

WILL I TAKE MRSA HOME TO MY FAMILY?

MRSA can live on linens and clothing but these generally do not transmit the organism. Wear a protective garment at work if you are at risk of contaminating your clothing with wound or other body fluids or drainage. If you have contaminated your clothing with wound drainage or other potentially infectious body fluids or drainage, change your clothes before going home. Report any unusual rashes or skin lesions to your physician. Always thoroughly wash your hands before going home from work. Normal healthy people are not usually at risk of serious invasive MRSA disease.

HOW IS MRSA TREATED?

Persons who are carrying MRSA but are not exhibiting symptoms usually do not need to be treated. The antibiotic used to treat persons with MRSA infections is vancomycin given intravenously. Oral vancomycin is not effective against MRSA. Vancomycin can have serious side effects.

APPENDIX II
NURSING HOME
INFECTION CONTROL GUIDELINES*
Routine Precautions For All Patients

For patients with draining lesions at any site:

- Draining lesions should be covered whenever possible.
- Contain dressings or linen visibly soiled with drainage in separate bags.
- Wear gloves when touching drainage and wash hands well before and after gloving.
- Wear gowns only if soiling of clothes is likely. Gowns may be kept in the patient's room and reused until they become soiled; however, replace them with new gowns each shift. Do not wear gowns outside the patient's room.

For patients with urinary catheters:

- Change catheters when necessary, such as when they become crusted or clogged.
- Always use a closed drainage system. Keep drainage bags off the floor, but below the level of the patient's bladder.
- Use a separate graduate container for each patient, and thoroughly clean it after each use. Avoid touching the catheter bag or draining spout to the side of the graduate container.
- Wash the patient's perineal area with soap and water and thoroughly dry it each day and when it becomes soiled. Avoid tension or movement of the catheter.
- Wash hands well after manipulating the catheter system.

For patients with respiratory symptoms:

- Teach the patient to cough into a tissue, and provide a bag for tissue disposal.
- If the patient has MRSA and is coughing, personnel should wear masks when in close contact with the patient (i.e. when suctioning or giving mouth or tracheostomy care).
- Use good handwashing after removing gloves when touching respiratory secretion:

APPENDIX II (Continued)

NURSING HOME INFECTION CONTROL GUIDELINES* MRSA Precautions

For patients with MRSA colonization of the respiratory tract:

- Place patients in a private room or cohort them with other MRSA colonized patients if possible. This is not mandatory.
- Avoid placing them in rooms with high risk patients.
- Wear masks only if the patient is coughing or when performing suctioning procedures.
- Wear gowns only if clothes are likely to become soiled.
- Practice good handwashing and wear gloves when handling respiratory secretions.

For patients with MRSA colonization of the urinary tract:

- Use routine precautions, Page 18.
- Use good handwashing and wear gloves when emptying the catheter.
- Masks are not needed.
- Wear gowns only if soiling of clothes is likely.

For patients with MRSA colonization of skin lesions and decubiti:

- Use routine precautions.
- Cover the area with a dressing.
- Use good handwashing and wear gloves when touching the area.
- Masks are not necessary.
- Wear gowns only if soiling is likely.

APPENDIX II (Continued)

- If a patient is undergoing physical therapy for treatment of his lesion or decubitus, schedule him as the last appointment of the day. Personnel in physical therapy must follow body substance isolation techniques (Appendix III). Also, careful disinfection of the whirlpool or tub with an E.P.A. approved disinfectant is indicated.

General recommendations for patients colonized with MRSA:

- If the patient is discovered to be colonized with MRSA, evaluate the patient's roommate for risk factors which may predispose s/he to serious infection. To determine colonization in the absence of overt symptoms of MRSA infection, culture the patient's anterior nares.
- Once a patient is determined to have MRSA, consider him colonized until two negative cultures are obtained 24 hours apart and when he has been off all antibiotics for 48 hours.
- The physician will make the decision whether or not to treat the patient colonized with MRSA. However, treatment for colonization is seldom indicated because MRSA is difficult to permanently eradicate.
- Disposable dishes are an unnecessary added expense. Never allow patients to eat food from another patient's tray.

LINEN

- All soiled linen should be bagged at the location where it is used. It should not be sorted or rinsed in the patient care area. Linen that is heavily soiled with moist body substances that may soak through a linen bag must be placed in a plastic bag to prevent leakage. Linen handlers must wear barrier protection which includes gloves, and take special precautions with soiled linen by bagging to prevent leakage. Soiled linen need not be washed separately.

TRASH

- Routine waste from all patient's rooms is considered dirty, not infectious.
- Persons assigned to handle trash should wear gloves, wash hands, and report all accidents. It is important that all persons be discouraged from searching through trash (e.g. for aluminum cans). Contaminated dressings should be placed in a separate plastic or foil lined bag and tied before placing in the trash receptacle.

* Adapted from Guidelines prepared by Patricia Lynn Meyer, R.N., M.P.H., and Becky Clapper, R.N., St. Louis, Mo.

APPENDIX III

Body Substance Isolation Precautions

1. Wash hands often and well, paying particular attention to around and under fingernails and between the fingers. Wash hands before and after gloving and before and after any and all direct patient care.
2. Wear gloves when it is likely that hands will be in contact with moist body substances (blood, urine, feces, wound drainage, oral secretions, sputum, or vomitus).
3. Protect clothing with a gown when it is likely that clothing will be soiled with body substances.
4. Wear masks and/or eye protection when it is likely that eyes and/or mucous membranes will be splashed with body substances (e.g., when suctioning a patient with copious secretions).
5. Discard uncapped needle/syringe units and sharps in puncture-resistant containers designed for this purpose.
6. Discard trash in impervious plastic bags.
7. Bag linen so that no leakage of moist body substances will occur.

Jean K. Leavitt, M.D.
Commissioner

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APPENDIX IV

POLICY STATEMENT ADDRESSING ANTIBIOTIC-RESISTANT ORGANISMS, INCLUDING METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS*

The prevalence of antibiotic-resistant organisms, such as methicillin-resistant *Staphylococcus aureus* (MRSA) and certain gram negative bacilli, is increasing. Methicillin-resistant *Staphylococcus aureus* has drawn particular attention.

The following recommendations are suggested to help control the spread of antibiotic-resistant bacteria:

1. Since it is often not possible to know which persons are colonized or infected with resistant organisms, **all persons should be considered potential carriers.** This is analogous to the concept of universal precautions applied to the prevention of HIV transmission.
2. Handwashing should be practiced before and after contact with all patients. A program for implementation of handwashing must be formulated by all institutions. Gloves should be worn when in contact with all body substances, but this does not preclude the importance of handwashing. Gowns should be worn if soiling is likely. Masks are indicated only when close contact with infected aerosols (e.g. respiratory droplets from a coughing patient) may occur. Physical isolation of individual patients colonized with resistant organisms is not indicated under most circumstances.
3. Colonization with a resistant organism is neither an indication for hospitalization nor a reason to restrict admission to a nursing home.
4. Infections should be evaluated and treated on a case-by-case basis.