

**Management of  
Methicillin-Resistant  
*Staphylococcus aureus*  
(MRSA) Infections**  
**August, 2005**

(Federal Bureau of Prisons - Clinical Practice Guidelines)

Clinical guidelines are being made available to the public for informational purposes only. The Federal Bureau of Prisons (BOP) does not warrant these guidelines for any other purpose, and assumes no responsibility for any injury or damage resulting from the reliance thereof. Proper medical practice necessitates that all cases are evaluated on an individual basis and that treatment decisions are patient-specific.

# Clinical Practice Guideline: Management of MRSA (August, 2005)

## What's New in the Document?

The following changes have been made since the October, 2003 version of the guidelines:

### Treatment

- **A conservative initial approach to treating minor skin infections** is recommended prior to prescribing antibiotics. This includes the use of warm soaks and compresses and/or incision and drainage. Many skin infections can resolve with conservative treatment without use of antibiotics.
- **The use of rifampin is not routinely recommended.**
- **Dosage recommendations have changed** for clindamycin and trimethoprim-sulfamethoxazole.
- **Aggressively manage pruritic rashes** to control itching and prevent development of secondary skin infections is recommended, including use of topical ointments and, if ineffective, prescribing either hydroxyzine or diphenhydramine.

### Primary Prevention

- **Hand hygiene** is emphasized as critical for reducing MRSA transmission. The Infection Control Committee should monitor hand hygiene and assure that inmates with diagnosed MRSA are instructed in hand hygiene and have adequate handwashing supplies available.
- **Identify and regularly clean surfaces exposed to sweat**, e.g., exercise benches.
- **Modify hygiene practices for sweat lodge participants**, including showering before and after the sweat lodge and wearing clean shirts and shorts while participating.
- **Consider increasing influenza vaccination coverage in facilities experiencing a MRSA outbreak or endemic MRSA.** Consider vaccination regardless of individual influenza risk factors.

### Containment

- **Guidelines for housing inmates with suspected or confirmed MRSA** are clarified.
- **Patients with MRSA pneumonia** should be housed in a single cell. In an outbreak situation, inmates with similar antibiotic resistance patterns can be cohorted. Droplet precautions should be utilized in addition to standard precautions.

### Improved Appendices

- **Appendix 4 (Evaluation and Treatment of Skin and Soft Tissue Infections)** outlines general approach to managing skin and soft tissue infections.
- **Appendix 9 (MRSA Containment Guidelines)** provides a tool for decision-making about how to house MRSA patients.
- **Appendix 10 (MRSA Management Checklist)** outlines steps for managing a MRSA suspect, including decisions about containment, conducting the contact investigation and general risk management.
- **Appendices 6 and 7 outline Correctional Standard Precautions and Correctional Contact Precautions** and can be used as fact sheets for correctional workers.
- **Appendix 8 (Inmate Fact Sheet - General Instructions for Skin Infections)** is an educational tool to be used with inmates with skin infections.
- **Appendix 11 (Line Listing of Contacts to MRSA Cases)** is provided to as a tool to track identified contacts and the outcome of their evaluation.

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## 1. Purpose

The BOP Clinical Practice Guidelines for the Management of Methicillin-Resistant *Staphylococcus aureus* (MRSA) infections provide recommendations for the prevention, treatment, and containment of MRSA infections within Federal correctional facilities.

## 2. Introduction

MRSA infections are staphylococcal infections that are resistant to beta-lactam antibiotics including: penicillin, ampicillin, amoxicillin, amoxicillin/clavulanate, methicillin, oxacillin, dicloxacillin, nafcillin, cephalosporins, carbapenems (e.g., imipenem), and the monobactams (e.g., aztreonam).

Infection with MRSA has long been associated with exposure to a health care environment, particularly the inpatient hospital setting. Recent reports, however, indicate that new MRSA strains have evolved that are affecting previously healthy persons throughout the world without direct or indirect contact with health care facilities. These community-onset MRSA infections have particularly affected athletes in close-contact sports, military recruits, men who have sex with men, and inmate populations. Inmates are now at risk of acquiring MRSA infections not only during hospitalizations, but also *de novo* within the jail or prison setting, despite the absence of traditional risk factors for MRSA infection, such as a history of recent hospitalization, prior antibiotic usage, injection drug use, or long-term inpatient care.

Within the federal prison system, community-onset MRSA infections have been associated with illicit, unsanitary tattoo practices and poor inmate hygiene. MRSA transmission in other correctional systems has been linked to inmates sharing towels, linens, or other personal items potentially contaminated by wound drainage, as well as inmates lancing their own boils or other inmates' boils with fingernails or tweezers.

MRSA infections often present as mild skin or soft tissue infections, such as furuncles, that occur spontaneously without an obvious source. Inmates with MRSA skin infections commonly complain of "an infected pimple," "an insect bite," "a spider bite," or "a sore". Many MRSA infections cause minor inflammation without pain and infected inmates may not seek medical attention. Persons with complicating medical conditions such as diabetes, HIV infection, chronic skin conditions, indwelling catheters, post-surgical wounds, and decubiti are at increased risk of MRSA infections; however, even otherwise healthy individuals can develop very serious MRSA infections, such as cellulitis, deep-seated abscesses, necrotizing fasciitis, septic arthritis, necrotizing pneumonia, and sepsis.

### 3. Colonization

An estimated 10% to 30% of persons are colonized with *Staphylococcus aureus* in their nares, mucous membranes, or breaks in their skin. A smaller subset of these persons are colonized with MRSA. Colonized persons are more likely to develop staphylococcal infections, however, many colonized persons remain asymptomatic. Staphylococcal colonization occurs more commonly in injection drug users, persons with diabetes, hemodialysis patients, persons with acquired immunodeficiency syndrome (AIDS), surgical patients, and previously hospitalized patients.

### 4. Transmission

MRSA is transmitted from person to person by contaminated hands. MRSA may also be transmitted by sharing towels, personal hygiene items, athletic equipment, through close-contact sports, and by sharing injection drug use or tattoo equipment. Persons with MRSA pneumonia in close contact with others, can transmit MRSA by coughing up large droplets of infectious particles. Persons with asymptomatic MRSA nasal carriage can also transmit MRSA, especially when symptomatic from a viral upper respiratory infection. MRSA can also cause a toxin-mediated foodborne gastroenteritis.

### 5. Screening and Surveillance

**Intake screening:** All inmates undergoing intake medical screening and physical examinations should be carefully evaluated for skin infections.

**Recently hospitalized inmates:** All inmates who are discharged from the hospital should be screened for skin infections immediately upon return to the prison and specifically instructed to self-report any new onset skin infections or fever. (MRSA or other hospital-acquired infections may develop weeks after hospital discharge.)

**Inmates at greater risk of serious MRSA infections:** Inmates with risk factors such as diabetes, immunocompromised conditions, open wounds, recent surgery, indwelling catheters, implantable devices, chronic skin conditions, or paraplegia with decubiti should be evaluated for skin infections during routine medical evaluations.

**Monitoring bacterial culture results:** All bacterial culture results should be reviewed in a timely manner to detect new MRSA infections.

**Observations by correctional workers:** Inmates with minor skin infections may be reluctant to seek health care. Inmates with visible or reported sores or wounds, or who self-report “boils” or “insect or spider bites” should be referred to health services.

**Food handlers:** All inmate food handlers should be advised on the necessity of self-reporting all skin infections, no matter how minor. Food handlers should be routinely examined for visible skin infections. Food handlers with suspected or confirmed contagious MRSA should be removed from their duties until no longer infectious.

**Transfers:** Inmates with skin and soft tissue infections should ordinarily not be transferred to other institutions until fully evaluated and appropriately treated (see [Transfers and Releases](#), below).

**Employees:** Correctional workers (including health care workers) should report all skin infections and any confirmed MRSA infections to their supervisor. Supervisors should refer correctional workers with possible skin infections to their health care provider. Employees should be removed from direct inmate contact until medically cleared by their health care provider.

## 6. Diagnosis

Correctional health care providers should consider MRSA infection in the differential diagnosis for all inmates presenting with skin and soft tissue infections or other clinical presentations consistent with a staphylococcal infection.

**Skin examination:** A careful examination of skin infections should be conducted to determine if there is fluctuance, crepitus, any evidence of a drainable infection, or cellulitis with or without streaking. Deep-seated MRSA abscesses may not be clinically apparent and only diagnosed through imaging studies.

**Bacterial cultures:** MRSA infections cannot be clinically distinguished from staphylococcal infections that are sensitive to [beta-lactam antibiotics](#); therefore, routine bacterial cultures should be obtained whenever possible from purulent drainage from skin and soft tissue infections and aspirated material from potentially infected fluid collections. Blood cultures should also be obtained in febrile patients with suspected MRSA infections and whenever injection drug use or endocarditis is clinically suspected.

MRSA infections are diagnosed by routine aerobic bacterial cultures. Oxacillin-resistance on laboratory susceptibility testing also indicates methicillin-resistance. Positive cultures from blood and sterile body fluids (e.g., joint fluid, pleural fluid, cerebrospinal fluid) are diagnostic of MRSA infections. Positive cultures of drainage from nonsterile sites (e.g., wounds) may indicate bacterial colonization or infection. Wound cultures obtained from expressed pus (avoiding skin contamination) are diagnostically meaningful; whereas positive cultures obtained directly from the surface of a wound are of limited value in detecting true infection.

**Empiric diagnosis:** An empiric (i.e., suspected, but not confirmed) diagnosis of a MRSA infection should be considered in inmates with clinical evidence of a staphylococcal infection



with associated risk factors such as a presentation in the context of a known MRSA outbreak, recent hospitalization, previous anti-staphylococcal antibiotic usage, presence of an indwelling catheter, or a history of chronic wound drainage or repeated soft tissue infections.

**Assessing MRSA colonization: Obtaining bacterial cultures of the nares is not routinely indicated**, unless recommended by public health authorities in the context of a significant MRSA outbreak or as part of an inpatient surveillance program. The procedure for [obtaining nares cultures](#) is outlined in *Section 12 (Inpatient Units)*.

## 7. Reporting

All confirmed MRSA infections must be documented in the inmate's medical record and in Sensitive Medical Data (SMD). All suspected or confirmed MRSA outbreaks should be reported to the appropriate Regional Office, and the Central Office HSD, using [Appendix 1 \(MRSA Case Tracking and Reporting Form\)](#), and as required to public health authorities.

## 8. Treatment

**Warm soaks, drainage and removal of foreign devices:** A conservative, mechanical approach is the treatment of choice for minor skin and soft tissue infections, i.e., the lesion is localized and there are no signs of systemic illness. **Uncomplicated MRSA skin infections may resolve with warm soaks and/or drainage, without antibiotics.**

- **Warm soaks and compresses:** When treating minor skin and soft tissue infections, including confirmed MRSA infections, the use of warm soaks or compresses should be routinely considered. Soak the infected area for 20 minutes, ideally 2 to 3 times per day in warm water. Continue regularly soaking the wound until it looks clear of infection. Then cleanse the wound and change the dressing once a day until the wound has healed. If soaking is not feasible, apply a heating pad or warm, moist washcloth to the reddened area for 20 minutes, 2 to 3 times a day.

**Decisions about how to safely implement warm soaks and/or compresses in the correctional setting must be made on a case by case basis in consultation with the infection control officer.** Consideration should be given to how and where to safely perform the soaks and [safely dispose of bandages](#) to prevent further transmission of MRSA.

- **Incision and drainage (I & D):** Treatment should also include aggressive drainage of accessible fluid collections, particularly loculated soft tissue infections in conjunction with the use of warm soaks or compresses. Infections requiring drainage should be frequently reassessed to determine if repeated drainage is warranted.
- **Foreign devices:** Catheters and other foreign devices related to the infection should be

removed whenever possible.

**Antibiotic therapy (skin and soft tissue infections):** Community-onset MRSA infections are frequently caused by isolates that are sensitive to a wider range of antibiotics compared to MRSA infections acquired in the hospital setting. The selection of oral antibiotics to treat skin or soft tissue MRSA infections should be based on bacterial cultures and antibiotic susceptibility results whenever possible. In patients with mild, localized infections without systemic signs of illness, the effectiveness of warm soaks and/or I & D should be evaluated for several days before initiating antibiotic treatment. Antibiotics alone will be ineffective in treating fluctuant abscesses without incision and drainage.

- **Treatment regimens:** The optimal treatment regimen for community-onset skin and soft tissue MRSA infections that are susceptible to more than one antibiotic is unknown due to a lack of published data and the potential that *in vitro* antibiotic susceptibilities may not correlate with the *in vivo* (i.e., clinical) response. Limited clinical experience from recent community-based MRSA outbreaks suggests that many uncomplicated skin and soft tissue MRSA infections can be successfully treated with oral trimethoprim-sulfamethoxazole or clindamycin. Each of these antibiotics has its own advantages and disadvantages as a therapeutic choice as outlined in [Appendix 2](#) (*Oral Antibiotic Treatment Options for Skin and Soft Tissue MRSA Infections*).
- **Directly observed antibiotic administration is strongly recommended** for treating MRSA infections in the correctional setting.
- **The optimal dosaging of oral trimethoprim-sulfamethoxazole is unknown** for skin and soft tissue MRSA infections requiring antibiotics. Some experts recommend higher dosaging than the standard one DS tablet BID. Higher dosages are particularly recommended if rifampin is given along with trimethoprim-sulfamethoxazole since concomitant rifampin therapy will reduce serum concentrations of trimethoprim and sulfamethoxazole.
- **Trimethoprim-sulfamethoxazole should not be used if a Group A streptococcal (GAS) infection is suspected**, e.g., possible erysipelas. If a Group A streptococcal infection is suspected, therapy should include an agent active against this organism such as clindamycin, erythromycin, or a beta-lactam.
- **Special consideration is warranted when prescribing clindamycin for MRSA infection.** Many MRSA isolates are susceptible to clindamycin *in vitro*; however, routine susceptibility testing may not detect inducible *in vivo* resistance to clindamycin. Other tests, such as the double-disk diffusion test or “D” test, can detect inducible clindamycin resistance. In the D-test, the MRSA isolate is inoculated onto an agar plate with erythromycin and clindamycin susceptibility discs. For MRSA strains with inducible resistance, the circular zone of inhibition around the clindamycin disc is blunted by the adjacent erythromycin disc, creating a visible capital “D”. Inducible clindamycin resistance should be ascertained when utilizing the drug for inmates with either severe disease and a high organism load or whose

organisms are erythromycin-resistant and clindamycin-sensitive on routine susceptibility testing.

- **Clindamycin has much better bone penetration than trimethoprim-sulfamethoxazole.**
- **The addition of rifampin** to trimethoprim-sulfamethoxazole or clindamycin has been used to bolster the treatment of MRSA infections and promote decolonization, but the benefits of this strategy are unproven. Clinicians should carefully review potential drug interactions if considering rifampin as an additive treatment option. **Rifampin monotherapy is ineffective against MRSA due to the rapid development of resistance (regardless of *in vitro* laboratory susceptibility results) and should never be prescribed.**
- **Doxycycline or minocycline, 100 mg orally BID, is an alternative treatment option for MRSA infection.** *In vitro* susceptibility results of tetracyclines should be interpreted carefully in consultation with knowledgeable laboratory personnel. Isolates resistant to tetracycline *in vitro* but susceptible to doxycycline or minocycline, may develop resistance when exposed to doxycycline or minocycline therapy.
- **MRSA isolates may be sensitive to oral quinolones *in vitro*; however, the development of resistance with the use of these agents is a major concern.** If quinolones are prescribed for MRSA infections, the addition of rifampin should be strongly considered.
- **Oral vancomycin should never be prescribed** since it is poorly absorbed, and thus ineffective.
- **Topical mupirocin may be effective to treat mild folliculitis, but its administration for this purpose within the correctional setting is ordinarily not recommended** due to concerns about widespread empiric use by the inmate population and the development of mupirocin resistance.
- **Duration of treatment:** The duration of antibiotic therapy for MRSA skin and soft tissue infections depends on the severity of the infection, the site of infection, and the clinical response to therapy. Treatment for at least 7-10 days is indicated in uncomplicated infections that do not respond to warm soaks and/or I & D within several days. Inmates with skin infections should be examined periodically during therapy to determine if drainage or redrainage is warranted and to ensure that the infection is resolving. Once antibiotic therapy is discontinued the inmate should be reevaluated in frequent follow-up appointments to ensure that new lesions have not developed.

**Antibiotic therapy (serious MRSA infections):** Endocarditis and other endovascular infections, osteomyelitis, necrotizing fasciitis, pneumonia, and other deep-seated MRSA infections require treatment with IV vancomycin or other effective agent for an extended period of time, i.e., 4-6 weeks or more. A second or third antibiotic may also be indicated in combination with vancomycin for certain MRSA infections (e.g., prosthetic valve

endocarditis). **Consultation with a physician expert is recommended for serious MRSA infections.**

Intravenous vancomycin can be safely administered to medically stable inmates in most BOP institutions. Clinical directors should consult with their chief pharmacists on protocols for administering and monitoring vancomycin therapy in the outpatient setting. Linezolid is a newly available oral and intravenous antibiotic that may be an alternative to intravenous vancomycin for highly resistant MRSA infections and allow earlier hospital discharge on an oral antibiotic regimen. Treatment efficacy and drug toxicity data using linezolid for serious MRSA infections are limited, although linezolid may be superior to vancomycin in treating MRSA pneumonia. **Linezolid therapy**, as well as other newly available treatment options, including investigational agents, **should only be considered in consultation with a physician expert.** Antibiotic options for serious MRSA infections are outlined in [Appendix 3](#) (*Treatment Options for Serious MRSA infections*).

**Empiric antibiotic therapy:** Skin and soft tissue infections suggestive of staphylococcal infections that cannot be cultured or have nondiagnostic culture results should be evaluated and treated on a case-by-case basis. Empiric antimicrobial therapy may be appropriate for certain patients with suspected *S. aureus* skin and soft tissue infections, particularly individuals with significant cellulitis, abscess formation, fever or other systemic signs of infection, or underlying co-morbidities or immunosuppression. Empiric antibiotic therapy should be prescribed while considering the following:

- **Self-limited infections without systemic signs or symptoms** can often be effectively treated with warm soaks or warm compresses and/or I & D without antibiotics.
- **If no other MRSA risk factors are apparent and MRSA infections have not been recently documented in the correctional setting** then more serious infections (e.g., infected wounds and drained abscesses not responding to warm soaks or I&D) should be empirically treated with a first-generation cephalosporin, amoxicillin/clavulanate, or erythromycin.
- **If associated risk factors for MRSA infections are present** (e.g., presentation in the context of a known MRSA outbreak, recent hospitalization, previous anti-staphylococcal antibiotic usage, presence of an indwelling catheter, or a history of chronic wound drainage or repeated soft tissue infections), then empiric treatment for MRSA should be considered for more serious infections or minor infections not responding to warm soaks or I & D.
- **Intravenous antibiotic therapy in an inpatient setting** is indicated for pneumonia, toxic shock syndrome, skin and soft tissue infections associated with clinical evidence of sepsis or necrotizing fasciitis, or if the infection is clinically worsening despite oral antibiotic therapy.

**Life Threatening Infections:** Empiric therapy with IV vancomycin plus other antibiotics as warranted should be strongly considered for inmates who present with life threatening infections, such as pneumonia or sepsis, regardless of existing risk factors, due to the inherent risk of MRSA infection in the correctional setting.

**Recurrent/persistent infections:** Recurrent or persistent skin and soft tissue infections during or immediately following antibiotic therapy may indicate either patient nonadherence to the prescribed treatment regimen, the development of antibiotic resistance, or re-exposure to MRSA. Inmates with recurrent or persistent skin lesions should be evaluated on a case-by-case basis to assess the most likely cause and to determine the appropriate intervention.

**Decolonization following treatment:** Decolonization of the nares with topical mupirocin is not recommended for isolated cases of MRSA infection. Decolonization can be considered for inmates with recurrent MRSA infections on a case by case basis (e.g., 3 or more infections in less than 6 months) and in the context of a MRSA outbreak. **(Decolonization is of unproven benefit in controlling a MRSA outbreak in the correctional setting and is therefore not routinely indicated.)** The procedure for [decolonization](#) is outlined in *Section 12 (Inpatient Units)*.

An overall strategy for evaluating and treating MRSA infections is outlined in [Appendix 4 \(Evaluation and Treatment of Skin and Soft Tissue Infections in the Correctional Setting\)](#).

**Management of pruritic rashes:** Inmates with intensely pruritic rashes should be prescribed topical ointments or lotions, and if ineffective, treated with an oral antipruritic agent such as hydroxyzine or diphenhydramine to minimize scratching and the development of secondary bacterial infections.

## 9. Infection Control - Primary Prevention: Efforts to Prevent MRSA Infections

Containing MRSA infections in a confined setting, such as a prison, is extraordinarily difficult, time consuming, and resource-intensive. The majority of inmates with MRSA infection or colonization have acquired MRSA from an external source; therefore primary infection control measures are critical. **All potential opportunities for inmates to have close physical contact or share communal items should be carefully scrutinized within each correctional institution** to identify strategies to interrupt MRSA transmission. The following general interventions should be considered.

**Education:** Inmates and correctional staff should be provided information on the transmission, prevention, treatment, and containment of MRSA infections. Condensed information for inmates is outlined in [Appendix 5 \(MRSA Fact Sheet\)](#). Emphasis should be

placed on the importance of regular handwashing, and of promptly referring inmates with skin infections for a medical evaluation. Regular handwashing should be emphasized as the most important intervention to prevent a MRSA outbreak.

**Correctional standard precautions:** These measures require correctional workers to assume that all inmates are potentially contagious and to take precautions whenever direct contact is anticipated with blood, body fluids (e.g., secretions, excretions, feces, and urine), nonintact skin, and mucous membranes. Correctional standard precautions have been adapted from hospital standard precautions, including increased emphasis on sanitation in housing areas and adaptation to recently identified modes of transmission of MRSA, e.g., sharing of towels, use of exercise benches, and sweat lodge participation.

Correctional Standard Precautions are outlined in [Appendix 6a](#) (*Correctional Standard Precautions in the General Population*) and [Appendix 7a](#) (*Correctional Standard Precautions in the Health Care Setting*). Standard precautions include adequate hand hygiene; routine use of gloves whenever contact with body fluids is anticipated; routine cleaning and disinfecting environmental surfaces; treating all linen as potentially infectious; safe disposal of needles and other sharp instruments and devices; and placement of inmates who may contaminate the environment in a private room (in consultation with medical staff).

**Hand hygiene program:** Hand hygiene is the simplest and most important infection control measure for preventing and containing MRSA infections and yet the most difficult to implement. Specific hand hygiene procedures are outlined in [Appendices 6a](#) and [7a](#).

- **Oversight:** The hand hygiene program should be overseen by the institution's local infection control committee including ongoing observational studies and data collection (e.g., compliance with hand hygiene guidelines, amount of usage of hand hygiene supplies). The hand hygiene behaviors of all correctional workers who have contact with inmates should be assessed with subsequent ongoing feedback on the results of the evaluation.
- **Training:** Correctional staff, health care workers and inmates should be periodically provided education on the importance of hand hygiene and effective hand hygiene techniques during annual training and other venues.

**Sanitation:** MRSA is susceptible to most routinely used environmental cleaning agents. Sanitation measures are essential for preventing the spread of MRSA infections and are outlined in detail in [Appendix 6a](#) and [7a](#). Sanitation should be regularly assessed, and any lapses rectified, in accordance with local policies and procedures.

**Antibiotic prescribing practices:** Clinical directors should monitor antibiotic prescribing patterns at their institutions in consultation with their chief pharmacist to ensure that antibiotics are being appropriately prescribed and not used in lieu of recommended conservative treatments for uncomplicated MRSA, e.g., warm soaks or compresses and I & D.



The unnecessary use of broad-spectrum antibiotics should be strictly monitored and curtailed to reduce the development of antibiotic resistance among the inmate population.

## **10. Infection Control - Secondary Prevention: Efforts to Contain Detected MRSA Infections**

**Correctional Contact Precautions:** When health care providers and correctional personnel have direct contact with inmates with suspected or confirmed MRSA skin and soft tissue infections, correctional contact precautions should be utilized. Hospital contact precautions have been adapted to the unique requirements of the correctional setting and are outlined in detail in [Appendix 6b](#) (*Correctional Contact Precautions in the General Population*) and [Appendix 7b](#) (*Correctional Contact Precautions in the Health Care Setting*). General infection control principles for managing a MRSA infected inmate are outlined below.

**Inmate education:** All inmates with MRSA infections should be instructed in regular hand-washing, maintaining personal hygiene, including regular showers, and the importance of keeping wounds covered. Instructions for inmates with skin infections are outlined in [Appendix 8](#) (*Inmate Fact Sheet - General Information on Skin Infections*).

**Hand hygiene:** Adequate hand hygiene should be reemphasized with staff working with the inmate diagnosed with MRSA infections. Adequate handwashing supplies for the inmate diagnosed with MRSA and the staff in contact with them is critical. The availability of these supplies should be regularly assessed and remedied as necessary.

**Housing:** Inmates diagnosed with MRSA infections should be examined by a clinician to determine their risk of contagion to others. In general, inmates with non-draining wounds or wound with minimal drainage, contained by a simple dressing, can be housed in general population. Decisions about housing assignments should be made utilizing the guidelines outlined in [Appendix 9](#) (*MRSA Containment Guidelines*).

Factors entering into decisions about where to house inmates with MRSA infections include the degree to which wound drainage can be contained, the ability or willingness of an inmate to follow infection control instructions, and available housing options. Inmates with MRSA pneumonia should generally be housed in a single cell, utilizing [droplet precautions](#) (see *Definitions*) in addition to correctional standard precautions.

- **Activities and visitors:** Inmates with MRSA infections may be limited from certain activities on a case by case basis. For example, an inmate with a draining shoulder wound should be restricted from recreation activities, but not necessarily meals in the cafeteria if the drainage is contained. Visitor restrictions are rarely indicated and should be handled on a case by case basis in consultation with the infection control officer.

- **Discontinuing single cell housing:** Criteria for discontinuing single-cell housing for a MRSA suspect is outlined in [Appendix 9](#).

**Wound management:** Draining wounds must be remain adequately dressed to prevent contamination of environmental surfaces and dressings should be changed regularly. A plan should be developed to assure that dressings can be replaced if they are no longer effective. Clean, nonsterile gloves should be worn when contact with wound drainage is anticipated. Gloves must be removed and hands cleaned immediately before leaving the patient's room. For isolated patients with grossly draining wounds, a clean non-sterile gown should be worn whenever it is likely that a person will come into contact with wound drainage.

- **Disposal of bandages:** Bandages should be disposed of in accordance with OSHA policy and as determined by the local safety and security policy. Bandages which fully contain wound drainage can be disposed of in a leak-proof container (e.g., plastic bag or wax paper) and then placed in the regular trash. Bandages which are saturated and do not contain the drainage or may become liquefied and leak blood or contaminated materials should be handled in accordance with regulated waste procedures. Inmates should be instructed in proper disposal of used bandages in accordance with local policy.

**Sanitation:** Sanitation measures used for primary prevention of MRSA infections should be strictly enforced. All rooms of infected inmates should be decontaminated ("terminally cleaned") prior to occupancy by another inmate.

### **Inmate transfers and releases**

- **Inmates with contagious MRSA infections should ordinarily not be transferred** to other BOP institutions or halfway houses until their infection has been adequately treated and the risk of contagion controlled.
- **Required transfers:** Inmates with contagious MRSA infections absolutely requiring transfer for security reasons or medical care should have draining wounds dressed the day of transfer with bandages that adequately contain the drainage. The following should occur prior to the transfer.
  - Escort officers should be notified of the inmate's condition and educated on infection control measures including the importance of hand hygiene, protective measures, safe disposal of contaminated dressings, decontamination of security devices (e.g., handcuffs, leg irons, martin chains and other reusable restraints) and advised to use disposable restraints, when feasible.
  - The clinical director of the sending institution or designee should notify the receiving institution's clinical director or health services administrator of pending transfers of inmates with suspected or confirmed MRSA infections.
- **Releases:** Inmates with skin and soft tissue MRSA infections who are scheduled for release should:



- Have draining infections bandaged to adequately contain drainage prior to release;
- Be given enough antibiotics to complete treatment;
- Be counseled on practical infection control measures to prevent transmission to household members and other anticipated close contacts; and
- Should be given assistance with accessing follow-up medical services.

**Surveillance:** Upon the diagnosis of a single MRSA case, surveillance measures should be heightened to detect additional MRSA cases through the following procedures, summarized in [Appendix 10 \(MRSA Containment Checklist\)](#).

- **Interview index case:** The index case should be interviewed to identify potential sources of infection and close contacts. The date of onset of the infection should be ascertained to determine how far back in time the investigation should go and whether the onset was before or after intake into the correctional system. The content of the interview should include prior incarceration history at other facilities, recent hospitalizations, housing and work assignments, sharing of personal hygiene items with other inmates, participating in sweat lodge ceremonies, recent injection drug use, tattooing, sexual contact with other inmates, participation in close-contact sports, or exposures to other inmates with draining wounds or skin infections. Identified contacts should be listed on [Appendix 11 \(MRSA Contact Line-Listing\)](#).
- **Evaluate contacts:** Identified contacts at potential risk of acquiring MRSA should be examined for signs and symptoms of infection.
- **History of food handling:** The inmate's work assignments should be reviewed to determine if he or she has been a food handler.
- **Increased surveillance at routine visits:** Health care providers evaluating inmates during sick call visits and chronic care visits should be on the alert for inmates with skin or soft tissue infections or other evidence of MRSA infections.
- **Microbiology:** Bacterial cultures should be regularly monitored to detect any additional MRSA infections among the inmate population.

## 11. Outbreak Management

Detection of two or more cases of epidemiologically-related MRSA infections should prompt an immediate investigation to determine if an outbreak has occurred. Outbreak surveillance measures are not indicated if the MRSA infections are obviously unrelated (e.g., two inmates returning separately from a hospital where nosocomial MRSA infections are endemic or multiple MRSA infections separated in time without any epidemiologic linkage.) Once a MRSA outbreak is suspected the following measures should be taken.

**Laboratory confirmation:** MRSA isolates should be further evaluated for antibiotic susceptibilities. The evaluating laboratory should be instructed to save any cultures that are positive for MRSA for at least 30 days until a determination can be made whether molecular analysis is warranted. The 30-day period may be extended if necessary. The written instructions to the laboratory should be included on the requisition and should state:

*“Save for at least 30 days if positive for MRSA. Notify provider prior to discarding.”*

A MRSA outbreak is suggested if similar antibiotic susceptibility patterns are identified among two or more MRSA isolates from epidemiologically-linked patients. Further confirmation of a MRSA outbreak through molecular analysis of MRSA isolates (e.g., pulsed-field electrophoresis) should be considered in consultation with Central Office HSD and public health authorities if the outbreak is extensive or when otherwise warranted for specific epidemiologic or correctional reasons. When molecular analysis is indicated, the typing pattern for the isolates should be noted on [Appendix 1 \(MRSA Case Tracking and Reporting Form\)](#).

**Tracking:** Inmates with suspected or confirmed MRSA infections should be systematically tracked using the *MRSA Case Tracking and Reporting Form* in order to assess case clusters and help identify common source transmission.

**Containment:** In the context of a large MRSA outbreak, inmate cohorting of infected skin or soft tissue cases may be considered as long as the cohorted inmates have MRSA infections with similar antibiotic susceptibilities.

**Inmate transfers:** [Guidelines for inmate transfers](#) outlined above should be followed during a MRSA outbreak. **In addition, all inmates scheduled for transfer from an institution with a MRSA outbreak should be interviewed by a health care provider and have a targeted examination of the skin to determine if they have a previously undiagnosed skin or soft tissue infection.**

**Infection control measures:** In addition to the infection control measures described above, the following should be emphasized in the context of a MRSA outbreak.

- **Hand hygiene and the use of correctional contact precautions** should be strictly enforced for all health care providers and correctional workers.
- **The broader use of antimicrobial soaps, washes, or shampoos** in affected housing units, dormitories, or throughout the entire correctional facility should be considered on a case by case basis in the context of a MRSA outbreak.
- **More stringent infection control practices should be implemented**, i.e., routine cleaning and disinfection of patient care items, such as stethoscopes and blood pressure cuffs, after **all** patient contacts.

- **Diligently inspect and reinspect living, sleeping, bathroom, recreational, and all other areas within the correctional facility where close skin-to-skin contact or sharing of personal hygiene or communal items is likely to occur** in order to detect potential means of ongoing MRSA transmission. If the outbreak is confined to a certain housing unit or dormitory, all living, sleeping, and bathroom areas should be carefully inspected, including cell “shakedowns”, when necessary, to identify potential sources of infection such as unsanitary conditions or ongoing injection drug use or tattooing.
- **Influenza prevention:** Persons with influenza are at higher risk of secondary, pulmonary infections with *Staphylococcus aureus* and other bacteria. Necrotizing MRSA pneumonias affecting multiple inmates could occur during concurrent influenza and MRSA outbreaks within the correctional setting. If a MRSA outbreak occurs during influenza season or MRSA infections are endemic in the facility, clinical directors should consider more aggressive influenza prevention strategies including the following:
  - Influenza vaccination of the entire affected inmate population regardless of individual risk factors for influenza in consultation with Central Office HSD; and
  - Adopting a low threshold for administering antiviral influenza prophylaxis for all unvaccinated inmates or those only recently vaccinated (within the past two weeks) if influenza cases are documented in the facility.

**Surveillance:** Once a MRSA outbreak is suspected or confirmed, health care personnel should determine if inmates with MRSA infections have a common source of infection such as shared housing or work assignments, the same religious or recreational practices, the same social or gang affiliations, recent injection drug use activity, sexual contact with other inmates, new tattoos, hospitalization in the past 6 months, or a common primary health care provider.

Surveillance physical examinations for previously undetected MRSA infections should be considered in accordance with the following:

- **Common source outbreak suspected:** All potential inmate contacts should be examined, e.g., dormitory inmates, for unidentified skin or soft tissue infections or other evidence of MRSA infections.
- **Surveillance of high risk inmates:** If the outbreak involves multiple inmates or is sustained over time, targeted examinations should be considered for inmates who may be at higher risk of MRSA infections (e.g., inmates with diabetes, renal failure, surgical wounds, indwelling catheters, chronic skin diseases, or immunocompromised conditions) for both surveillance and diagnostic purposes.
- **Health care worker is possible source:** If a health care worker is the potential common source of MRSA infections, the health care worker should be interviewed by the clinical director or designee to determine if the worker has had any recent skin or soft tissue infections and to review the worker’s infection control practices such as hand washing and use of contact precautions. The health care worker should be referred to a physician for

medical evaluation and clearance if a MRSA infection is suspected clinically or epidemiologically.

- **Environmental surveillance cultures** (i.e., swabbing medical equipment, clinical areas or living areas) to detect MRSA are normally of limited benefit in controlling a MRSA outbreak and should only be considered in consultation with public health authorities with expertise in outbreak control.

**Decolonization of asymptomatic carriers:** [Nasal swab surveillance cultures](#) for MRSA and [decolonization](#) of asymptomatic carriers with mupirocin are not routinely recommended in the context of a MRSA outbreak. Mupirocin treatment does not eradicate colonization in all treated persons, does not prevent recolonization following future exposures to MRSA, and, when used broadly, can result in mupirocin-resistant MRSA strains. MRSA decolonization of health care workers and patients may be of benefit in eradicating MRSA from certain confined settings, such as inpatient units. Decolonization of asymptomatic carriers should only be considered after consultation with public health authorities and Central Office HSD.

**Education:** Educational efforts should target inmates, correctional workers, and health care personnel in order to contain a MRSA outbreak. The following educational initiatives should be considered:

- **Town hall meetings with inmates** to reinforce the importance of regular hand washing, good personal hygiene, routine showering, maintenance of a clean cell, regular laundering of bed linens, self-reporting of all skin lesions, importance of inmates keeping wounds covered, and refraining from any injection drug use, tattooing, and sexual contact with other inmates.
- **Recalls with correctional staff** to reinforce the importance of regular hand washing, [correctional standard precautions](#) when interacting with all inmates, the use of [correctional contact precautions](#) when interacting with inmates with MRSA infections, the routine inspection of inmate housing units for cleanliness, the examination of foodhandlers for visible skin infections, and the detection of prohibited tattooing practices, injection drug use, and sexual activity among inmates.
- **Meetings with health care personnel** to reinforce the importance of hand hygiene before and after every patient contact, decontamination of shared medical devices, as well as the appropriate use of correctional standard and contact precautions.

## 12. Inpatient Units

Inpatient units within correctional facilities should develop site-specific infection control practices to prevent the spread of resistant organisms. Infection control guidelines used for the hospital setting should be adapted to the correctional inpatient setting.

**Primary prevention:** The following primary prevention infection control measures should be considered for inpatient units:

- **Educating inpatient health care providers** on the importance of preventing the spread of antibiotic resistant organisms and the efficacy of control measures;
- **Strictly enforcing hand hygiene** before and after all patient contacts;
- **Avoiding inappropriate or excessive antibiotic usage** for inpatients (monitoring through the infection control and the pharmacy and therapeutics committees);
- **Dedicating noncritical patient-care equipment to a single patient** when contact or droplet precautions are indicated and when use of common equipment or items is unavoidable, adequately cleaning and disinfecting before use with other patients;
- **Strictly enforcing environmental disinfection of patient rooms**, including terminal cleaning at the time of patient discharge with a focus on environmental surfaces exposed to frequent hand contact (i.e., bed rails and door knobs);
- **Regularly monitoring bacterial cultures** of inpatients and recently discharged inpatients to detect clusters of MRSA infections; and
- **Appropriately assigning beds for new admissions with undiagnosed, potentially infectious conditions**, including MRSA, to avoid placement in rooms with other inmates at high risk for developing infections.

**Secondary prevention:** The following secondary prevention infection control measures should be considered for containing MRSA infections in inpatient units:

- **Aggressively evaluating, containing, and treating inpatients with suspected or confirmed MRSA infections** since these patients are at greater risk of serious disease; (Transmission of MRSA infections to others within the inpatient setting can occur easily and can cause serious illness to other medically compromised patients. Contact precautions and other recommended infection control practices should be strictly enforced.)
- **Heightened MRSA surveillance of other inpatients;** and
- **Assigning specific staff to care for contagious MRSA patients (when staffing permits) in order to minimize the risk of cross-infection.** (These staff members should not be also assigned to care for inmates at high risk of developing infection.)

**Outbreak management:** MRSA outbreaks within the inpatient setting can be extremely difficult to control and are affected by multiple factors that vary among inpatient units. The most effective methods to eradicate MRSA infections from the inpatient setting have involved the active surveillance and isolation of patients with MRSA infection and/or MRSA

colonization along with the use of strict contact precautions when managing these patients. Public health authorities should ordinarily be consulted to develop a specific infection control strategy due to the difficulties in managing MRSA outbreaks in the inpatient setting and the inherent risks to the patient population.

Strategies for controlling a MRSA outbreak in the inpatient setting beyond full implementation of primary and secondary infection control measures may include the following:

- **Careful and repeated examinations of all inpatients for undiagnosed MRSA infections.**
- **Aggressive culturing of all potential infections** and regular review of culture results.
- **Obtaining nares surveillance cultures for new inpatients and periodically, thereafter,** particularly for inmates at high risk of MRSA infection. (Persons at high risk of MRSA infection include persons with diabetes, immunocompromised conditions, open wounds, recent surgery, indwelling catheters, implantable devices, chronic skin conditions, and paraplegia with decubiti.) The following procedure should be used for obtaining nares cultures:
  - Individual should be instructed to blow their nose prior to obtaining a specimen;
  - Remove swab collection device from its packaging material;
  - Confirm that swab collection device has been pre-labeled with appropriate identifiers;
  - Insert dry swab approximately 2 cm into one naris;
  - Rotate the swab against the anterior nasal mucosa for 3 seconds;
  - **Using the same swab**, repeat for the other naris;
  - Return swab to transport sleeve; and
  - Follow other specific manufacturer’s recommendations for culture collection and transport, including storing swabs in refrigerator (with temperatures of 5°- 25°C) for no more than 7 days and shipping with a refrigerator pack.
- **Assign inpatients with MRSA infections and/or colonization to either single-cell housing or to cohorted housing** with other inmates who are similarly colonized.
- **Decolonizing procedure: Decolonization of targeted groups of inpatients and/or health care providers is rarely indicated and should only be pursued in consultation with Central Office HSD.** (Note: Ongoing or repeated decolonization should NEVER be employed.) The following procedure for decolonization should be used:
  - Apply approximately one-half of 2% calcium mupirocin ointment from the 1 gm single-use tube (Bactroban™) into one nostril and the other half of the ointment to the other nostril twice daily for 5 days, avoiding contact of the medication with the eyes.
  - The inmate should press the sides of the nose together and gently massage for one minute to spread the ointment throughout the inside of the nostrils.

Direct observation of the decolonization procedure is recommended for each administration of the ointment.

- **Treat inpatients with an antimicrobial wash and shampoo in conjunction with nares decolonization** in consultation with Central Office HSD.



## Definitions

**Beta-lactam antibiotics** include: penicillin, ampicillin, amoxicillin, amoxicillin/clavulanate, methicillin, oxacillin, dicloxacillin, cephalosporins, carbapenems (e.g., imipenem), and the monobactams (e.g., aztreonam).

**Colonization** is the presence of bacteria on or in the body without causing infection.

**Community-onset MRSA infections** develop outside a hospital or nursing home setting and may or may not be associated with a health care setting, e.g., recent hospitalization.

**Correctional standard precautions** are [hospital standard precautions](#) (see below) that have been adapted to the correctional setting taking into account security issues, inmate housing factors, and infection control concerns inherent to jails and prisons (see [Appendix 6a](#)).

**Correctional transmission-based precautions** are transmission-based infection control precautions (see [hospital transmission based precautions](#) below) that have been adapted to the correctional setting taking into account relevant security concerns, inmate housing factors, and infection control issues inherent to jails and prisons (see [Appendix 6b](#) and [7b](#)).

**Hospital standard precautions** are infection control practices used in the hospital setting to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection.

- **Standard precautions apply to:** blood, all body fluids, secretions, and excretions (except sweat), regardless of whether or not they contain visible blood; nonintact skin; and mucous membranes.
- **Standard precautions include:**
  - (a) adequate hand hygiene measures in accordance with CDC guidelines after touching blood, body fluids, secretions, excretions (includes wound drainage), and contaminated items, whether or not gloves are worn;
  - (b) the routine use of personal protective equipment such as gloves, masks, eye protection or face shields, and gowns whenever contact with blood, body fluids, secretions, excretions (includes wound drainage) is anticipated;
  - (c) ensuring that environmental surfaces in the health care setting are routinely cleaned and disinfected;
  - (d) ensuring that linens are handled and cleaned in a manner that prevents staff exposures to contaminated laundry and avoids the transfer of microorganisms from person to person or from place to place;
  - (e) the safe disposal of needles and other sharp instruments and devices in appropriate leakproof and puncture-resistant containers; and
  - (f) the placement of patients who may contaminate the environment or cannot be expected to maintain adequate hygiene or a sanitary environment in a private room.



**Hospital transmission-based precautions** are patient-specific precautions that are indicated for hospitalized patients with suspected or diagnosed infections that are either highly transmissible or epidemiologically important. The three types of transmission-based precautions include **airborne**, **droplet**, and **contact** precautions. Contact precautions apply to draining MRSA skin and soft tissue infections; and droplet precautions apply to MRSA pneumonia.

- **Contact precautions** are indicated for patients with pediculosis, scabies, impetigo and noncontained skin infections such as abscesses, cellulitis and decubiti; viral conjunctivitis; certain highly contagious enteric infections such as *Clostridium difficile* or patients with diarrhea and infection with hepatitis A virus, *Shigella*, or *Escherichia coli* O157:H7; and gastrointestinal, respiratory, skin or wound infections or colonization with certain multi-drug resistant bacteria such as MRSA.

Contact precautions include routine standard precautions as well as the following additional measures:

- The patient should be placed in a private room. Patients with the same infection can be housed together if private rooms are not available.
  - Clean, nonsterile gloves should be worn when entering the room. Gloves should be changed when grossly contaminated with potentially infectious material such as fecal material and wound drainage. Gloves must be removed and hands cleaned immediately (i.e., by washing with an antimicrobial agent or use of a waterless antiseptic agent) before leaving the patient's room. Once hands have been cleaned, care should be taken not to touch potentially contaminated environmental surfaces or items
  - A clean, nonsterile gown should be worn when entering the patient's room whenever direct patient contact or contact with environmental surfaces or items in the room is anticipated. The gown should be removed before leaving the patient's room, taking care not to have one's clothing contact potentially contaminated environmental surfaces.
  - The patient should leave the private room for essential purposes only. If the patient leaves the room, precautions should be taken to minimize the risk of transmission of microorganisms to other persons and to avoid contamination of environmental surface or items.
  - Noncritical patient-care equipment should be dedicated to a single patient. Common medical equipment that must be shared between patients must be adequately cleaned and disinfected before use by another patient.
  - No special requirements are indicated for eating utensils. Disposable or reusable utensils may be used. The use of detergent and washing procedures for decontamination are sufficient.
- **Droplet precautions** are indicated for patients with illnesses such as influenza, mumps, rubella, streptococcal pharyngitis or pneumonia, invasive *Haemophilus influenzae* type b disease such as pneumonia and epiglottitis, invasive *Neisseria meningitidis* disease such as meningitis and pneumonia.

*The use of droplet precautions is of unproven benefit in preventing MRSA transmission with MRSA pneumonia. Given the close proximity of inmates in a correctional setting, the Federal Bureau of Prisons recommends a conservative approach.*

(NOTE: Patients with an unknown respiratory illness compatible with tuberculosis should be managed with airborne precautions (i.e., requires patient isolation in a room with negative pressure and patient management by staff wearing adequate respiratory protection such as an N95 respirator) rather than droplet precautions until the diagnosis of tuberculosis has been excluded.)

Illnesses requiring droplet precautions are caused by infectious agents that are transmitted in large-particle droplets ( $> 5 \mu\text{m}$  in size) when an infectious patient coughs, sneezes, talks, or has certain procedures performed such as suctioning and bronchoscopy. Transmission of infection occurs when droplets containing the microorganism are propelled a short distance in the air and then deposited on the host's mouth, nasal mucosa, or conjunctivae. Large-particle droplets do not remain suspended in the air.

**Droplet precautions include routine standard precautions as well as the following additional measures:**

- The patient should be placed in a private room. (NOTE: The room does not require negative pressure or a special air handling system.) The door of the room may be opened without concern that the infectious agent will be transmitted to others. Patients with the same infection may be housed together if private rooms are not available.
- A mask, eye protection, or a face shield should be worn to protect mucous membranes of the eyes, nose, and mouth during procedures and patient-care activities that are likely to generate splashes or sprays. Masks should be worn when entering the room or when within 3 feet of the patient. An N95 respirator is not required.
- Contagious patients infected with pathogens transmitted by large-droplet particles should wear a surgical mask if they must leave their private room. Patient movement outside a private room should be limited to essential purposes.

**Methicillin-resistant *Staphylococcus aureus*** or “**MRSA**” are staph bacteria that have become resistant to beta-lactam antibiotics, including: penicillin, ampicillin, amoxicillin, amoxicillin/clavulanate, methicillin, oxacillin, dicloxacillin, cephalosporins, carbapenems (e.g., imipenem), and the monobactams (e.g., aztreonam). MRSA causes the same types of infections as staph bacteria that are sensitive to beta-lactam antibiotics.

**MRSA outbreak** is a clustering of two or more epidemiologically-related, culture-positive cases of MRSA infection. (NOTE: MRSA colonization data, when available, should also be considered when assessing outbreaks, since **new** cases of MRSA colonization without infection also indicate ongoing MRSA transmission.) Confirmation that a MRSA outbreak is caused by the same organism is suggested by similar isolate antibiotic susceptibilities and further supported if molecular analysis, such as pulsed-field gel electrophoresis, identifies a predominant MRSA strain.

**Primary prevention** is the implementation of screening, infection control, treatment, and administrative measures aimed at reducing the incidence of MRSA infections in the inmate population and identifying MRSA infections in inmates upon prison entry.

**Secondary prevention** is the implementation of augmented screening, infection control, treatment, and administrative measures aimed at preventing further MRSA infections after the initial detection of a MRSA infection within the inmate population.

*Staphylococcus aureus*, often referred to as “staph,” is a commonly occurring bacterium that is carried on the skin and in the nose of healthy persons. *Staphylococcus aureus* may cause minor skin or soft tissue infections such as boils, as well as more serious infections such as wound infections, abscesses, pneumonia, and sepsis.

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**Appendix 1.**

**MRSA Case Tracking and Reporting Form\***

FACL:		Date:		Contact Name/Phone #:				Page:		
Name	Age	Rm #	Hsg Unit	Facility admit date	Recent hospitalization Admit date	Past or recent invasive procedures? (describe)	Infection site	Date of first + culture	Nares colonized (yes, no, or not evaluated)	Case closure: Date clinically resolved
Registration Number				Transfer date (if < 30 days)	Discharge date		Onset date	Strain (if typed)		Final culture dates

\* List all cases and suspected cases of MRSA. Note: Use [Appendix 11](#) (MRSA Contact List) for contacts of MRSA cases. If cultures unobtainable or nondiagnostic, list as suspected MRSA infection based on clinical and epidemiologic factors.

<b>Appendix 2. Oral Antibiotic Treatment Options for Skin and Soft Tissue MRSA Infections</b>			
<b>Drug</b>	<b>Oral Dose</b>	<b>Monitoring</b>	<b>Adverse Reactions/ Drug Interactions / Comments</b>
<b>TMP-SMX</b>	1 DS tablet BID  (Consider higher dosing with more serious infections or concurrent rifampin use)	Routine lab tests are not indicated.  Monitor CBC/platelets, renal and hepatitis parameters with prolonged treatment or in complicated patients.	<b>Adverse effects:</b> Rash, erythema multiforme, Stevens-Johnson syndrome, hemolysis w/ G-6-PD deficiency, hepatitis, pancreatitis, bone marrow suppression. <b>Drug interactions:</b> Dapsone, anticoagulants, phenytoin, cyclosporine, diuretics, MTX. <b>Comments:</b> Maintain hydration with renal insufficiency to prevent crystalluria. Check for sulfa allergy.
<b>Clindamycin</b>	450 mg TID OR 300 mg QID	Routine lab tests are not indicated.	<b>Adverse effects:</b> GI upset and relatively high incidence of <i>C. difficile</i> -induced colitis compared to other antibiotics.  <b>Comments:</b> If isolate is erythromycin-resistant, <i>in vitro</i> , clindamycin resistance may develop during therapy; consult with microbiology laboratory prior to treatment. Advise inmate to report diarrhea immediately.
<p><b>Clinical Notes:</b></p> <ul style="list-style-type: none"> <li>▶ For less serious infections antibiotic treatment may be avoided utilizing a conservative approach, e.g., twice daily warm soaks or compresses and/or I &amp; D.</li> <li>▶ Select antibiotics based on susceptibilities.</li> <li>▶ Consider administration of medications by directly observed therapy.</li> <li>▶ Minocycline or doxycycline, 100 mg BID, may be an alternative treatment option, but carefully review laboratory susceptibility results.</li> <li>▶ MRSA isolates may be sensitive to quinolones <i>in vitro</i>, however, the potential for resistance limits the use of this class of antibiotics.</li> <li>▶ The addition of rifampin in the treatment regimen may help with the treatment of serious soft tissue infections and promote decolonization, but its use is of unproven benefit.</li> <li>▶ Recurrent/persistent skin lesions may indicate nonadherence to treatment, antibiotic resistance, or re-exposure to an infected source.</li> <li>▶ Resistant or serious infections usually require IV vancomycin or alternative agent.</li> </ul>			

<b>Appendix 3. Treatment Options for Serious MRSA Infections</b>			
<b>Drug</b>	<b>Dose<sup>1</sup></b>	<b>Monitoring</b>	<b>Adverse Effects/ Drug Interactions / Comments</b>
<b>Vancomycin (Vancocin®)</b>	500 mg IV q 6 hrs; OR  1,000 mg IV q 12 hrs  Infuse over 1 hour  <b>Ineffective given orally</b>	Monitor trough drug levels within 1 hour of next dose: target is 10-15 mcg/mL.   Auditory function Renal function/CBC	<b>Adverse effects:</b> <ul style="list-style-type: none"> <li>▶ Ototoxicity, nephrotoxicity, drug fever, hypotension, rash, pruritus, reversible neutropenia.</li> <li>▶ Use with aminoglycosides increases nephrotoxicity.</li> <li>▶ Histamine reaction; flushing.</li> </ul> <b>Drug interactions:</b> Anesthetics <b>Comments:</b> <ul style="list-style-type: none"> <li>▶ Infuse over 1 hour to reduce “red man syndrome”→ flushing, hypotension. Monitor BP. May need to extend infusion time.</li> <li>▶ Adjust dosage based on trough levels.</li> <li>▶ May require 2<sup>nd</sup> or 3<sup>rd</sup> antibiotic for serious infections.</li> </ul>
<b>Linezolid<sup>2</sup> (Zyvox®)</b>	600 mg BID oral or IV  Can take with or without meals	CBC with differential/platelet count weekly  Monitor BP - if hypertensive or taking a sympathomimetic	<b>Adverse effects:</b> Diarrhea (including pseudomembranous colitis), bone marrow suppression, nausea, headache; serious neuropathies with extended use. <b>Drug interactions:</b> Avoid adrenergic and serotonergic agents, including decongestants. <b>Comments:</b> <ul style="list-style-type: none"> <li>▶ Avoid consuming foods containing large amounts of tyramine<sup>3</sup>.</li> <li>▶ Use cautiously if patient is hypertensive.</li> </ul>

<sup>1</sup> Sepsis requires at least 2 weeks of IV antibiotics. Endovascular infections such as endocarditis, osteomyelitis, and other deep-seated infections require 4-6 weeks of therapy and may require combination antibiotic therapy; consult with expert on treatment regimen and length of treatment.  
<sup>2</sup> Linezolid is a new antibiotic with limited efficacy and toxicity data: prescribe only in consultation with a physician expert.  
<sup>3</sup> Avoid foods with very high tyramine content such as packaged soups, pickled/smoked fish, orange pulp, fava beans, and aged cheeses.



## Appendix 4. Evaluation and Treatment of Skin and Soft Tissue Infections in the Correctional Setting

### Initial Assessment

- ▶ Conduct targeted history and physical: check for fluctuance, crepitus and cellulitis
- ▶ Assess risk factors for MRSA infection, including recent hospitalization
- ▶ Assess risk factors for systemic infection, e.g., recent injection drug use, prior endocarditis
- ▶ Diagnostic tests:
  - If signs of systemic infection (lymphangitis, fever, tachycardia) → blood cultures
  - If wound drainage available → wound cultures
  - If MRSA pneumonia suspected → chest x-ray and sputum cultures

### Conservative Treatment

- For uncomplicated infections, without systemic S/S, use conservative treatment prior to antibiotics.
- ▶ **Warm soaks and compresses:** Soak infected area or apply warm compresses for 20 minutes, 2 to 3 times per day until infection clears. Perform on a case by case basis, consulting with the infection control officer regarding how to safely implement.
  - ▶ **Incision and drainage (I & D):** In conjunction with the use of warm soaks or compresses, drain accessible fluid collections, particularly loculated soft tissue infections. Frequently reassess to determine if repeated drainage is warranted.
  - ▶ **Foreign devices:** When possible, remove catheters / foreign devices related to the infection.

### Empiric Therapy for Suspected *S. aureus* Infection

- ▶ **If systemic infection/sepsis possible** → admit as inpatient and consider empiric IV vancomycin
- ▶ **If mild to moderate illness** (e.g., significant cellulitis associated with abscess, fever, lymphangitis) and cultures unobtainable or nondiagnostic → consider empiric antibiotic therapy:
  - **If no MRSA risk factors and no other MRSA infections in population** → empiric treatment with first generation cephalosporin, or amoxicillin/clavulanate, or erythromycin
  - **If MRSA outbreak or MRSA risk factors** → treat with TMP-SMX or clindamycin

### Targeted Antibiotic Therapy

- ▶ **If cultures and antibiotic sensitivities are available** → target antibiotic therapy accordingly
  - Highly resistant MRSA isolates and serious infections → usually require IV vancomycin
  - If susceptible → consider treatment with TMP-SMX or clindamycin
  - Can consider other antibiotics based on susceptibility results
- ▶ Monitor closely since *in vitro* sensitivities may not correlate with clinical response
- ▶ Persistent or recurrent disease may indicate nonadherence, new infection, or resistance

### Decolonization

In context of significant MRSA outbreak → can consider decolonization of nares with 2% mupirocin BID for 5 days. Consult first with Central Office HSD given benefit is unproven.

### Treatment Follow-up

- ▶ Re-evaluate 1 week after completion of antibiotic treatment and examine for recurrent lesions
- ▶ For uncontained draining lesions → document clinical improvement and 2 consecutive negative wound cultures 72 hours apart before discontinuing containment. Periodic follow-up as clinically warranted.

<b>Appendix 5.</b>	<b>MRSA Fact Sheet</b>
<b>What is MRSA?</b>	
<p><i>Staphylococcus aureus</i>, often referred to as “staph,” is a common type of bacteria that is found on the skin and in the nose of healthy persons. Staph bacteria may cause minor skin infections such as boils or more serious infections such as pneumonia and blood poisoning. Certain “staph” bacteria that have become resistant to first-line antibiotics are called MRSA. MRSA infections are more difficult to treat, but usually respond to incision and drainage and/or antibiotics.</p>	
<b>How is MRSA spread from person to person?</b>	
<p>MRSA is usually spread through direct physical contact with an infected person, but may also be transmitted through contact with contaminated objects or surfaces. MRSA is not spread by coughing unless the infected person has pneumonia.</p>	
<b>How can I prevent becoming infected with MRSA?</b>	
<ul style="list-style-type: none"><li>▶ <b>Wash your hands</b> thoroughly with soap and water throughout the day, particularly every time you use the toilet and before every meal.</li><li>▶ Never touch another person’s wounds, infected skin, or dirty bandages.</li><li>▶ Don’t scratch skin rashes.</li><li>▶ Maintain excellent personal hygiene through regular showers and by keeping your living space clean, including the regular laundering of your bed linens.</li><li>▶ Don’t ever share personal hygiene items with others, including toiletries and towels.</li><li>▶ Clean off any surfaces shared with others such as weight benches.</li><li>▶ Use a towel or shirt as a barrier between your bare skin and exercise equipment.</li><li>▶ Shower after participating in close-contact recreational activities whenever possible.</li><li>▶ Don’t get a tattoo in prison.</li><li>▶ Don’t use injection drugs.</li><li>▶ Don’t have sexual contacts with other inmates.</li></ul>	
<b>How does a person know that he or she has a MRSA infection?</b>	
<p>Culturing pus from a skin infection is the most common way to detect MRSA.</p>	
<b>Can MRSA be treated?</b>	
<ul style="list-style-type: none"><li>▶ MRSA skin infections are often treated first with frequent warm soaks and draining the wound. Strong antibiotics can be effective in treating MRSA. Serious or highly resistant MRSA infections may require intravenous (IV) antibiotics in the hospital.</li><li>▶ <b>Always seek medical attention if you develop a boil, red or inflamed skin, insect or spider bite, or a sore that does not go away.</b></li></ul>	

<b>Appendix 6a. Correctional Standard Precautions in the General Population<sup>1</sup></b>		
The following precautions should be observed by routinely by all correctional workers to prevent spread of disease.		
<b>Control Measure</b>	<b>Indicated (X)</b>	<b>Notes:</b>
<b>Hand Washing</b>	X	Hands should be routinely washed with soap and running water: before eating, after using the lavatory, when hands are visibly dirty, and when there has been contact with blood or other body fluids. Wash hands with soap & running water for at least 15 seconds.
<b>Personal Protective Equipment (PPE)</b>	Not routinely	Personal protective equipment is indicated only if contact with blood/body fluids likely, i.e., gloves to protect hands from contact or mask, face/eye wear, gowns to protect from sprays and splashes.
<b>Sharps</b>	X	Dispose of in a leak-proof, puncture-resistant container. Never recap, bend, break or otherwise manipulate used needles by hand.
<b>Single cell</b>	Not routinely	Place potentially infectious inmates in a private room (in consultation with medical staff). Consider for inmates with poor hygiene practices.
<b>Sanitation</b>		Routine cleaning with an Environmental Protection Agency (EPA)-registered disinfectant ( <a href="http://www.epa.gov/oppad001/chemregindex.htm">http://www.epa.gov/oppad001/chemregindex.htm</a> ). Use according to the manufacturer's instructions. All washable (non-porous) surfaces should be cleaned <b>during</b> and <b>after</b> (terminal) cell occupancy. Correctional workers should conduct sanitation inspections of living & bathroom areas to identify visibly dirty areas.
<b>Laundry</b>	X	Collect at bedside or inmate may self-laundry. If wet or soiled, handle as little as possible and bag in a leakproof bag at the location it was used, in accordance with local policy on management of contaminated linens. Machine wash and dry.
<b>Activities</b>	X	<b>Shared equipment</b> , weight benches or any other surface exposed to sweat should be disinfected <i>daily</i> and <i>routinely</i> wiped clean between users with a clean dry towel. Inmates should use barriers to bare skin, such as a towel or clean shirt while using exercise equipment. <b>Inmates participating in Sweat Lodges</b> should shower before-hand and wear clean shorts and shirt, and afterwards, shower and again put on clean clothes. Routinely clean blankets/towels used during the ceremony.
<b>Report Skin Infections</b>	X	Correctional workers with possible skin infections should report them promptly to their supervisor. Inmates with possible skin infections should be sent promptly for a medical evaluation.
<sup>1</sup> General Population refers to all correctional settings except health care settings.		

<b>Appendix 6b. Correctional Contact Precautions in the General Population<sup>1</sup></b>		
Observe the following precautions (in addition to routine Correctional Standard Precautions) when working with an inmate known to have a skin infection.		
<b>Control Measure</b>	<b>Indicated (X)</b>	<b>Notes:</b>
<b>Hand Washing</b>	X rigorously	Hands should be routinely washed with soap and running water for at least 15 seconds. Perform hand washing BEFORE and AFTER every contact with an infected inmate, even if gloves were worn.
<b>Personal Protective Equipment</b>	as needed	Use gloves if touching contaminated items/contact with blood/infectious body fluids is likely. Use other personal protective equipment (mask, face/eye wear, gowns) if contact with sprays or splashes likely.
<b>Sharps</b>	X	Dispose properly in a leak-proof, puncture-resistant container. Never recap, bend, break or otherwise manipulate used needles by hand.
<b>Housing</b>	varies	Medical determines the appropriate housing for an inmate with a skin infection. Inmates with skin infections may be housed in general population if the wound drainage can be contained in a dressing and the inmate is cooperative. Inmates with wounds that have significant drainage should generally be housed in a single cell. In an outbreak situation, inmates with MRSA may be housed together.
<b>Sanitation</b>	X	Routine cleaning with an Environmental Protection Agency (EPA)-registered disinfectant ( <a href="http://www.epa.gov/oppad001/chemregindex.htm">http://www.epa.gov/oppad001/chemregindex.htm</a> ). Inmates are responsible for daily sanitation of cell. Instruct inmates to safely dispose of bandages in a leak-proof container according to local security policy. Remove trash <i>daily</i> . Clean all washable surfaces during and following (terminal) cell occupancy. Correctional workers should conduct sanitation inspections of living & bathroom areas.
<b>Laundry</b>	X	Change linens every other day (more often if visibly soiled). Linen bagged by the inmate in the cell. Change towels / wash cloths <i>daily</i> . Machine wash and dry.
<b>Inmate Hygiene</b>	X	Monitor inmate hygienic practices particularly if mentally impaired. Inmates with skin infections should shower daily.
<b>Activities/Visitors</b>	case-by-case	Medical will decide about any restrictions on activities or visitors for inmates with skin infections. Restrictions on visitors rarely indicated.
<b>Equipment</b>	X	Single-use disposable is recommended, e.g., security devices. Clean hand cuffs, etc., after use.
<b>Transports</b>	Only when essential	If transfer is <b>required</b> for security or medical reasons the following procedures should be followed: (1) Wound should be dressed on the day of transfer with clean bandages that contain wound drainage; (2) Use contact precautions as described above (hand-washing, gloves if touching wound drainage & safe disposal of dressings). If soiling of security devices likely, use disposable restraints (if feasible). If not, decontaminate after use. (4) Place clean sheet on cloth seats in vehicle (not needed if vinyl). Decontaminate, if visible contamination occurs.

<sup>1</sup> General Population refers to all correctional settings except for health care settings.

## Appendix 7a. Correctional Standard Precautions in the Healthcare Setting<sup>1</sup>

The following precautions should be observed routinely by all correctional workers and clinicians who work in healthcare (HC) settings.

Control Measure	Indicated (X)	Notes:
<b>Hand Washing</b>	X rigorous	Perform BEFORE and AFTER every patient contact, whether or not gloves were worn. If not visibly soiled, clean hands with a small quantity, e.g., 2-3 mL, of an alcohol-based handrub containing at least 60% alcohol (if permitted) or an antimicrobial soap. If visibly soiled, hands should be washed with soap (antimicrobial or regular) and running water using friction. Liquid soap dispensers at sinks preferred. Consider routine use of antimicrobial soap in clinical areas.
<b>Personal Protective Equipment (PPE)</b>	X	Access to single use, disposable gloves when contact with infectious body fluids or mucous membranes is anticipated. Latex-free gloves for latex-sensitivities. Gloves may be sterile or nonsterile, depending on the task. All HC staff should clean their hands before and after use of sterile/nonsterile gloves. Use other PPE if spray/splash is likely.
<b>Sharps</b>	X	Properly dispose in leak- & puncture-proof container per OSHA standards. Needles: Never recap, bend, break or manipulate by hand.
<b>Room Assignment</b>	Not routinely	Place potentially infectious inmates in a private room. Consider for those with poor hygiene.
<b>Sanitation</b>	X strictly enforced	Routinely clean all countertops, treatable surfaces in HC facilities per local schedule. Emphasis on frequently touched surfaces (i.e., door knobs, bed rails) & after any contamination with blood/body fluids. Use an appropriate quaternary ammonium (chloride containing) disinfectant. Change solutions on a <i>daily</i> basis and clean the container to prevent contamination. Ensure that patient care items and potentially contaminated surfaces are cleaned & disinfected after use. Barrier protective coverings, as appropriate, for surfaces that are touched frequently with gloved hands during patient care or may become contaminated with blood/body fluids or are difficult to clean.
<b>Laundry</b>	X	Collect & bag at bedside using standard precautions. Hot water, machine wash and dry regularly. Distribute when thoroughly dry.
<b>Patient Care Equipment</b>	X	Safely handle contaminated patient-care equipment to prevent skin and mucous membrane exposures, contamination of clothing & transfer of microorganisms to other patients & environments. Ensure that reusable equipment is decontaminated & reprocessed between each patient use. Discard all single-use items properly. Promptly decontaminate reusable equipment if contaminated with infectious body fluids or visibly soiled.
<b>Report Skin Infections</b>	X	HC staff should follow local procedures on reporting infections. Staff with suspected skin infections should report them to their supervisor.

<sup>1</sup> “Healthcare Setting” refers to areas where health care is delivered such as: medical/observation room, ambulatory or chronic care clinics, dental offices or inpatient units.

## Appendix 7b. Correctional Contact Precautions in the Health Care Setting<sup>1</sup>

Observe the following precautions (in addition to Correctional Standard Precautions) when evaluating and treating inmates with skin or soft tissue infections in health care (HC) settings.

Control Measure	Indicated (X)	Notes:
<b>Hand Washing</b>	X rigorously	Perform hand washing BEFORE and AFTER every contact with an infected inmate, in accordance with Standard Precautions.
<b>Personal Protective Equipment (PPE)</b>	X as needed	Clean, non-sterile gloves for patient care. Change gloves after contact with infective material. Remove gloves before leaving the patient's room; immediately wash hands with an antimicrobial. After glove removal, avoid touching potentially contaminated surfaces/items to avoid transfer of germs. Other PPE if drainage contact, likely.
<b>Sharps</b>	X	Dispose properly in a leak-proof, puncture-resistant container. Never recap, bend, break or otherwise manipulate used needles by hand.
<b>Room Assignment</b>	private or cohort	<b>Outpatient:</b> Private exam room, if suspect/confirmed to have MRSA. <b>Inpatient:</b> Private, if extensive draining lesions (keep covered) or MRSA pneumonia. May cohort if same antibiotic resistance. See <a href="#">Appendix 9</a> .
<b>Sanitation</b>	X	Cleaned routinely per local schedule. Emphasis on high touch areas. Use quaternary ammonium. All patient care items & potentially contaminated surfaces must be cleaned & disinfected after use. Use barrier protective coverings, as appropriate, for surfaces that are frequently touched with gloved hands during patient care, or if likely to become contaminated with blood/body fluids, or if difficult to clean. Dispose of dirty bandages in accordance with local waste management policy.
<b>Laundry</b>	X	Use routine standard precautions. No separate "isolation linen".
<b>Patient Care Equipment</b>	X single-use, if feasible	Safely handle contaminated patient-care equipment to prevent skin and mucous membrane exposures, contamination of clothing & transfer of germs to other patients & environments. Ensure that reusable equipment is decontaminated & reprocessed between each patient use. Discard all single-use items properly. Promptly decontaminate reusable equipment if contaminated with infectious fluid or visibly soiled.
<b>Report Infections</b>	X	HC staff should follow local procedures on reporting MRSA infections. Staff with suspected skin infections should report to their supervisor.
<b>Movement</b>	Essential purposes only	Limit movement outside room to <i>essential purposes only</i> . Cover wound with clean dressing. If MRSA pneumonia, surgical mask indicated.
<b>Transfers</b>		<b>In general, do not transfer</b> inmates with contagious MRSA infections. If transfer is required for security or medical reasons: (1) On day of transfer, securely dress draining wounds to prevent seepage. (2) Use contact precautions (above). If soiling of security devices likely, use disposable restraints (if feasible). If not, decontaminate after use. (3) Place clean sheet on cloth seats in vehicle (not needed if vinyl). Decontaminate vehicle if visible contamination. (4) Have the clinical director (CD)/designee notify receiving CD/health services administrator of pending transfer with MRSA infection.

<sup>1</sup> "Healthcare Setting" refers to areas where health care is delivered such as medical/observation room, ambulatory or chronic care clinics, dental offices or inpatient units.



<b>Appendix 8.</b>	<b>Inmate Fact Sheet</b>
<b>General Instructions for Skin Infections</b>	
<b>The following instructions are for inmates diagnosed with a skin infection.</b>	
<b>Handwashing and General Hygiene</b>	
<ul style="list-style-type: none"><li>▶ Regularly wash your hands with soap and water for at least 15 seconds, especially:<ul style="list-style-type: none"><li>▶ before and after using the toilet</li><li>▶ before and after touching your wound</li><li>▶ before eating.</li></ul></li><li>▶ Shower frequently and put on clean clothes. Change clothing whenever it is soiled with wound drainage.</li><li>▶ Change linens regularly and whenever soiled with wound drainage.</li><li>▶ Do not share personal items such as razors, towels, wash cloths, bars of soap, etc.</li><li>▶ If you have an open wound, it should be covered at all times with a bandage.</li><li>▶ Do not allow other inmates to touch your wound.</li><li>▶ If your bandage comes off, dispose of it carefully in a leak-proof container as instructed by health services staff. Wash your hands. Inform a correctional worker that you need a new bandage.</li></ul>	
<b>Warm soaks and compresses</b>	
You may be instructed to soak your skin infection regularly in warm salt water or apply moist compresses for 20 minutes at a time. Carefully follow the instructions you receive. If your wound begins to drain, report it to the health center.	
<b>Antibiotics</b>	
Take all medications prescribed by your doctor exactly as you are told to.	
<b>Report any of the following to the health center:</b>	
<ul style="list-style-type: none"><li>▶ Fever</li><li>▶ Red streaks up from the wound.</li><li>▶ Increased foul smell from wound drainage</li><li>▶ Increased wound drainage.</li></ul>	

<b>Appendix 9. MRSA Containment Guidelines</b>		
<b>MRSA Status</b>	<b>Containment Guidelines</b>	<b>Precautions</b>
<b>Non-draining MRSA skin infections</b>	<b>Single cell housing not required.</b> Instruct in personal hygiene and to report worsening of infection and draining wounds.	<sup>1</sup> Correctional Standard Precautions
<b>Small draining MRSA skin infections</b> easily contained by simple dressing	<b>Single cell housing usually not required.</b> Single cell housing should be considered for mentally ill, cognitively impaired and uncooperative inmates. Visitor restrictions are generally not indicated.	<sup>1</sup> Correctional Standard Precautions
<b>MRSA skin infections with uncontained drainage</b> (e.g., weeping cellulitis, purulent catheter-site infections, non-healing abscesses, infected surgical wounds, etc.)	<b>Single cell housing recommended. In outbreak situations cohorting MRSA infected inmates with similar antibiotic resistance patterns is acceptable.</b> <ul style="list-style-type: none"> <li>▶ Restrict from recreation and common areas</li> <li>▶ Visitor restrictions rarely indicated– handle on a case-by-case basis</li> <li>▶ Separate shower and toilet facilities preferred; priority for inmates with draining peri-rectal or thigh lesions.</li> </ul>	<sup>1,2</sup> Correctional Standard & Contact Precautions
<b>MRSA pneumonia</b>	<b>Single cell housing required.</b>	<sup>1,3</sup> Correctional Standard & Droplet Precautions
<b>MRSA Status</b>	<b>Criteria for Discontinuing Containment</b>	
<b>Healed wounds</b>	Release 24 hours after wound drainage has ceased (even if antibiotic therapy incomplete).	
<b>Draining wounds</b>	Release once wound drainage can be contained with a simple dressing OR after documenting clinical improvement <u>and</u> 2 consecutive negative cultures, at least 72 hours apart.	
<b>MRSA pneumonia</b>	Release after documenting clinical improvement and 2 consecutive negative sputum cultures, at least 72 hours apart.	
<p><sup>1</sup> The components of Correctional Standard Precautions are outlined in <a href="#">Appendix 6a</a> and <a href="#">7a</a>.</p> <p><sup>2</sup> The components of Correctional Contact Precautions are outlined in <a href="#">Appendix 6b</a> and <a href="#">7b</a>.</p> <p><sup>3</sup> <b>Droplet Precautions</b> include placing patient in a private room (negative pressure not required) or congregating patients with same infection; wearing mask eye protection or face shield during activities likely to generate splashes; wearing masks when entering room or within 3 feet of patient (N-95 not required); allowing patients to leave room only for essential purposes, always wearing a surgical mask. (See <i>Hospital Based Transmission Precautions</i> in the <i>Definitions</i> section for more detail.)</p> <p><b>Note:</b> Use of droplet precautions is of unproven benefit in preventing MRSA transmission with MRSA pneumonia; however, given the close proximity of incarcerated inmates, a conservative approach seems prudent.</p>		



<b>Appendix 10.</b>		<b>MRSA Containment Checklist</b>		<b>(page 1)</b>
✓	<b>Task(s)</b>	<b>Index Case Follow-up</b>		
<b>Index Case Last name:</b>		<b>First name:</b>		<b>Registration #:</b>
	<b>1. History of current illness</b> <input type="checkbox"/> Non-draining skin infection (location): _____ <input type="checkbox"/> Draining wound (location) _____ Description: _____ Onset Date: __/__/__ <input type="checkbox"/> I & D Date: __/__/__ _____ <input type="checkbox"/> I & D Date: __/__/__ _____ <input type="checkbox"/> Pneumonia Onset Date: __/__/__ <input type="checkbox"/> History of fever (obtain blood cultures)			
	<b>2. Culture Results:</b> <input type="checkbox"/> Culture/Sus Source: _____ Date: __/__/__ Organism: _____ Resist: _____ <input type="checkbox"/> Culture/Sus Source: _____ Date: __/__/__ Organism: _____ Resist: _____ <input type="checkbox"/> Culture/Sus Source: _____ Date: __/__/__ Organism: _____ Resist: _____			
	<b>3. Containment.</b> The following housing is recommended (see <a href="#">Appendix 9</a> ) <input type="checkbox"/> <b>General population</b> (generally non-draining lesions or lesions with contained drainage) <input type="checkbox"/> <b>Single cell housing</b> (draining lesions, MRSA pneumonia, uncooperative inmates with MRSA) <input type="checkbox"/> Separate toilet facility preferred <input type="checkbox"/> Separate toilet facility required (thigh/peri-rectal lesions, etc.) <input type="checkbox"/> Droplet precautions - MRSA pneumonia (see <a href="#">Definitions-Droplet Precautions</a> ) <input type="checkbox"/> <b>Cohorted housing</b> (outbreak situations) - inmates with MRSA with similar susceptibility patterns			
	<b>4. Inmate teaching / restrictions</b> (Check all that apply) <input type="checkbox"/> teach inmate about wound care / precautions - <a href="#">Appendix 8</a> ( <i>General Instructions for Skin Infections</i> ) <input type="checkbox"/> restrict from work assignment ( _____ ) until not infectious <input type="checkbox"/> restrict from recreation - until not infectious <input type="checkbox"/> restricted or <input type="checkbox"/> not restricted from dining hall (check one) <input type="checkbox"/> visitor restrictions (rarely indicated – determine on a case by case basis)			
	<b>5. Case interview to identify potential sources of infection</b> Date: __/__/__ <input type="checkbox"/> history of MRSA <input type="checkbox"/> hospitalization or surgery (where/when?) _____ <input type="checkbox"/> sharing of personal hygiene items _____ <input type="checkbox"/> recent injection drug use _____ <input type="checkbox"/> tattoo while incarcerated _____ <input type="checkbox"/> other medical risk, e.g., diabetes, dialysis, etc. _____ <input type="checkbox"/> sexual contact with other inmates _____ <input type="checkbox"/> participation in close-contact activity _____ <input type="checkbox"/> exposure to other inmates with draining lesions <input type="checkbox"/> recent transfer			
	<b>6. Identify potential contacts: Record on <a href="#">Appendix 11</a> (MRSA Contact Line-list)</b> <input type="checkbox"/> review infection data, sick-call, e.g., trends, more cases? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> interact with providers, e.g., more cases? <input type="checkbox"/> other positive laboratory cultures identified? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> work assignment: _____ <input type="checkbox"/> housing assignment(s) (dorm/room): _____			
	<b>7. Discontinue Containment:</b> __/__/__ <input type="checkbox"/> <b>Healed wounds:</b> Release 24 hours after wound drainage ceased (even if antibiotic TX incomplete) <input type="checkbox"/> <b>Draining wounds responding to TX:</b> Release if cooperative and drainage contained by simple bandage OR after 2 consecutive, negative cultures, at least 72 hrs apart. <input type="checkbox"/> <b>MRSA pneumonia responding to TX:</b> Release after 2 negative sputum cultures, 72 hrs apart.			
	<b>8. Follow up visit to monitor for potential reoccurrence.</b>			<b>Date:</b> __/__/__

<b>Appendix 10.</b>		<b>MRSA Containment Checklist</b>		<b>(page 2)</b>
✓	Task(s)	<b>Contact Follow-up/General Infection Control</b>		
<b>Index Case Lastname:</b>		<b>Firstname:</b>	<b>Registration #:</b>	
		<p><b>9. Implement appropriate barrier precautions &amp; promote good hand hygiene.</b></p> <p><input type="checkbox"/> insure appropriate staff communication</p> <p><input type="checkbox"/> insure processes to maintain access to appropriate hand hygiene supplies are in place for infected inmate and staff.</p> <p><b>Describe:</b></p> <p style="text-align: right;"><b>Date:</b> __/__/__</p>		
		<p><b>10. Communicate risks, educate on transmission, infection control &amp; prevention.</b></p> <p><input type="checkbox"/> inmates</p> <p><input type="checkbox"/> correctional workers</p> <p><input type="checkbox"/> clinician staff - include management training, as necessary</p> <p><b>Describe:</b></p> <p style="text-align: right;"><b>Date:</b> __/__/__</p>		
		<p><b>11. Screen all close contacts for symptoms.</b> (List on <a href="#">Appendix 11</a>).</p> <p><b>Date completed:</b> __/__/__</p> <p>Screen for localized symptoms or systemic symptoms/potential sepsis, e.g., fever, tachycardia, tachypnea, hypotension, mental status changes. <b>Expedite</b> to hospital, as indicated.</p>		
		<p><b>12. Evaluate symptomatic cases and treat and contain as indicated.</b> Refer as necessary.</p> <p>Obtain culture and susceptibility testing on draining lesions. If MRSA is suspected refer back to steps 1 to 8 of this checklist.</p>		
		<p><b>13. Report MRSA outbreak to:</b></p> <p>(2 or more epidemiologically related cases with similar antibiotic resistance pattern)</p> <p><input type="checkbox"/> Not applicable</p> <p><input type="checkbox"/> Warden __/__/__</p> <p><input type="checkbox"/> Regional Office __/__/__</p> <p><input type="checkbox"/> Central Office HSD __/__/__</p> <p><input type="checkbox"/> Local health department __/__/__</p>		
		<p><b>14. Continue surveillance to identify potential cases.</b></p> <p>If transmission-linked cases is evident, consider mass screening of implicated areas</p>		
		<p><b>15. Provide feedback and address areas where improvement is indicated.</b></p>		
<p>_____</p> <p>Investigating Employee (Last Name, First - Print)</p>		<p>_____</p> <p>Date Completed</p>		
<p>_____</p> <p>Employee Signature</p>				

