Prevention, Treatment, and Containment of Methicillin-Resistant *Staphylococcus aureus* Infections in County Jails

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We acknowledge the Federal Bureau of Prisons Clinical Practice Guidelines for the Management Of Methicillin-Resistant Staphylococcus Aureus (MRSA) Infections, April 2012 for general organization and content of this document.
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Introduction

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. S. aureus may cause minor skin or soft tissue infections (SSTI’s) such as boils, as well as more serious infections such as wound infections, abscesses, pneumonia, and sepsis.

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. The difference between MRSA and methicillin-sensitive Staphylococcus aureus (MSSA) is their susceptibility to beta-lactam antibiotics.

Initially, infection with MRSA was associated with exposure to a health care environment, particularly the inpatient hospital setting. However, MRSA strains have evolved that affect previously healthy persons without contact with health care facilities. Inmate populations are an at-risk group for acquiring MRSA infections [1-4]. Inmates’ life circumstances prior to incarceration such as homelessness, alcohol and injection drug abuse and poor access to health care increase their susceptibility to carriage and active infections. The closed environment of correctional facilities has the potential to facilitate pathogen spread.

MRSA infections often present as mild skin or soft tissue infections, such as furuncles, which occur spontaneously without an obvious source. Inmates with MRSA skin infections commonly complain of “an infected pimple,” “an insect or spider bite,” or “a sore”. Many MRSA infections cause minor inflammation without pain and infected inmates may not seek medical attention. In the Texas Department of Criminal Justice (TDCJ) prison system, persons with circulatory disease, cardiovascular disease, diabetes, end-stage liver disease, end-stage renal disease, and human immunodeficiency virus (HIV) infection or acquired immunodeficiency syndrome (AIDS) had elevated rates of MRSA infection [1]. Persons with a history of underlying illness, immunosuppressive therapy, emphysema/COPD, current smoking, and injection drug use are at increased risk of invasive MRSA infections [5]; however, even persons without such risk factors can develop invasive MRSA infections [6].

Colonization

Colonization is the presence of bacteria on or in the body without causing infection. According to the 2001-02 National Health and Nutrition Examination Survey [7], 29.9% of the civilian noninstitutionalized U.S. population carry Staphylococcus aureus in their nares and 0.8% of this population is colonized with MRSA. In a 2004 study of staphylococcal nasal carriage among recently booked inmates in an urban county jail, DSHS found that while the Staphylococcus aureus carriage rate of 28.5% closely matched NHANES findings, 4.5% of newly booked
inmates were MRSA carriers (Felkner, Rohde, Valle-Rivera, Baldwin, Newsome; unpublished data; April 2005). Similarly, Texas Department of Criminal Justice has found that inmates have MRSA carriage rates ranging from 3-15%, significantly higher than that of the uninstitutionalized population [8]. Risk of infection is increased among those colonized with S. aureus [9] and MRSA [8,10-13]. MRSA colonization in the United States occurs more commonly in injection drug users [10], persons positive for HIV or AIDS and persons with a history of recent antibiotic use [14], hospitalization or other healthcare association [10, 14-16](Felkner, et al; unpublished data), persons with diabetes and hemodialysis patients.

**Transmission**

MRSA is transmitted from person-to-person by **contaminated hands**. Lack of access to hand hygiene products can increase the risk of transmission [3]. **Additional risk factors** that have been documented in MRSA outbreaks in correctional facilities have included sharing personal products such as towels or nail clippers, infrequent showers and hand washing, inmates lancing their own boils or other inmates’ boils with fingernails or tweezers, and potential cross contamination of laundered items [2, 3, 17]. Another mode of transmission noted within the federal prison system is illicit, unsanitary tattoo practices [18]. In other settings close physical contact [19, 20], body shaving, turf burns [19] and sharing athletic equipment [21] have been associated with MRSA transmission. Persons with asymptomatic MRSA nasal carriage can shed MRSA resulting in transmission to other persons [22] or contamination of food that may cause toxin mediated acute gastroenteritis [23].

**Screening and Surveillance**

All inmates undergoing intake **medical screening** should be carefully evaluated for skin infections. In a review of medical records of an urban jail, DSHS found that 14% of those requesting wound care requested care within 48 hours of booking, indicating pre-existing infections (DSHS unpublished data). Healthcare providers should also evaluate inmates for skin infections at physical examinations or medical evaluations for other conditions. The DSHS medical record review indicated that skin infections were detected in inmates whose initial complaint was unrelated to skin and soft tissue infections.

**Inmates** should frequently be reminded to **self-report** any new onset skin infections or fever. Correctional officers should routinely refer inmates with visible or reported sores or wounds or inmates who self-report “boils,” “lumps,” “sore bumps” or “spider bites” to health services. To encourage inmates to seek treatment, any barriers to inmates’ accessing healthcare for SSTI should be identified and addressed. The National Commission on Correctional Health Care has specifically addressed co-pay and healthcare access. This position statement is included in the Appendices.

All **bacterial culture** results should be **reviewed** in a timely manner to detect new MRSA infections. In the event of a **transfer** the Texas Uniform Health Status Update form should be used to inform the receiving facility of inmates with known skin and soft tissue infections.
All inmates who are given work privileges (trusties) should be oriented on the importance of good hygiene and necessity of self-reporting all skin infections, no matter how minor. Correctional personnel should perform visual inspections of trusties’ hands/wrists and faces for sores at the time the trusty reports for duty. To prevent transmission to other persons, inmates with MRSA infection on the hand/wrist or face should be removed from responsibilities involving direct inmate contact, such as food services, healthcare or hospice, laundry, barbershops, and any situations that might bring the wound or wound drainage into contact with other persons or personal items. To insure prompt resolution of infections, trusties may be removed from any responsibility in which the infected area could become exposed, wet, or soiled. Inmates with lesions at sites other than the hand/wrist or face may continue to work in that area if the lesion is covered and drainage is contained. Food handlers with suspected or confirmed MRSA should be removed from duties until no longer infectious.

Correctional workers (including health care workers) should report all draining skin infections and any confirmed MRSA infections to their supervisor. Supervisors should refer correctional workers with possible skin infections to their health care provider. The degree of work restriction for employees who have active lesions is dependent on the location of the lesion and the work site of the infected employee. Staff with MRSA infection on the hand/wrist or face should be restricted from direct inmate contact and any situations that might bring the wound or wound drainage into contact with other persons or personal items until they have received a release to work from their personal healthcare provider. Staff with lesions at sites other than the hand/wrist or face may continue to work in that area if the lesion is covered and drainage is contained.

**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. During the initial assessment the healthcare provider should conduct a targeted history assessing risk factors for MRSA. Physical assessment should include observing for fluctuance, crepitus and cellulitis. Only culture and susceptibility testing can rule out MRSA as a pathogen, and all draining lesions should be considered MRSA unless proven otherwise. Appropriately collected wound cultures should be considered as an option. Blood cultures should be considered if there are signs of systemic infection. Sputum cultures and chest x-rays should be considered if MRSA pneumonia is suspected.

**Reporting**
MRSA is not subject to mandatory disease reporting in Texas. However, correctional facility staff may consult their local, regional, or state health departments for guidance in preventing and controlling MRSA.
Vancomycin intermediate \textit{S. aureus} (VISA) and vancomycin resistant \textit{S. aureus} (VRSA) are reportable conditions in Texas. All suspected cases of vancomycin intermediate (MIC $\geq$ 4mcg/mL) \textit{Staphylococcus aureus} (VRSA) and vancomycin resistant (MIC $\geq$ 16mcg/mL) \textit{Staphylococcus aureus} should be immediately reported to the health department by phone (512) 458-7676. All \textit{S. aureus} isolates with a vancomycin MIC $>$ 2 mcg/mL should be shipped to DSHS laboratory (Attn: Specimen Acquisition, 1100 West 49th Street, Austin, TX 78756-3194) for further analysis.

Please refer to the following for additional information and recommendations on VISA/VRSA: [http://www.cdc.gov](http://www.cdc.gov). Select CDCA-Z Index. Select VISA/VRSA.

**Treatment of Skin and Soft Tissue Infections**

A conservative, mechanical approach is the treatment of choice for MRSA infections, especially minor SSTI's (<5cm). Small furuncles may resolve with warm soaks and/or drainage, without antibiotics [25]. Soak infected area or apply warm compresses for 20 minutes, 2 to 3 times per day until infection clears. Whirlpools should not be used for soaking by the infected individual. Cutaneous abscesses, larger furuncles, and all carbuncles require incision and drainage (I&D) in addition to warm soaks [25].

**Incision and drainage alone** has been shown to be as effective as I&D plus antibiotic [26], and antibiotics have not been demonstrated to shorten wound resolution time in wounds without systemic complications (DSHS, unpublished data). I&D is particularly important when there are deep-seeded soft tissue infections. The infection should be frequently reassessed to determine if repeated drainage is warranted. Fluid should be allowed to drain spontaneously, from deep abscesses. For this level of infection, the effectiveness of warm soaks and/or I&D should be evaluated for several days before initiating antibiotic treatment.

Antibiotic use is indicated in the following circumstances [25, 26]:

- multiple lesions or size of SSTIs (>5cm)
- cutaneous gangrene
- severely impaired host defenses
- cellulitis
- extremes of patient age
- location of abscess in areas that are difficult to drain or associated with septic phlebitis of major vessels
- lack of response to I&D alone
- signs or symptoms of systemic infection and other serious manifestations

Antibiotics alone will be ineffective in treating fluctuant abscesses without incision and drainage. Community-acquired 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. If
an antibiotic is prescribed empirically, reevaluation should occur after 24 to 48 hours to verify clinical response [25].

The optimal treatment regimen for community-acquired skin and soft tissue MRSA infections that are susceptible to more than one antibiotic is unknown. *In vitro* antibiotic susceptibilities may not correlate with the clinical response. Clinical experience suggests that many uncomplicated MRSA SSTI’s can be successfully treated with oral trimethoprim-sulfamethoxazole (TMP-SMX) or clindamycin. Clindamycin and doxycycline have better tissue penetration than trimethoprim-sulfamethoxazole. **MRSA isolates that are susceptible to clindamycin *in vitro* may have inducible clindamycin resistance *in vivo*. Isolates resistant to erythromycin and sensitive to clindamycin should be evaluated for inducible clindamycin resistance (MLSB phenotype) using the “D test.” Consult with your reference laboratory to determine if “D testing” is routine or must be specifically requested. If inducible resistance is present, an alternative agent to clindamycin should be considered. Furthermore, in Texas urban jail (DSHS, unpublished data) and a children’s hospital [27], MRSA isolates are showing resistance to clindamycin. Therefore, susceptibility testing prior to prescribing an antibiotic is recommended. Local susceptibility patterns should be tracked so that in the event that cultures are unobtainable or nondiagnostic, the optimal antibiotic for that jail can be selected. Correctional facilities may contact the Department of State Health Services for assistance in determining their antibiograms.

Considerations for various therapeutic choices are outlined in the following table, on the next page.
Guidelines for Oral Antimicrobial Treatment of Inmates with Suspected MRSA Skin and Soft Tissue Infections (SSTIs)

Selection of empiric therapy should be guided by local *S. aureus* susceptibility and modified based on results of culture and susceptibility tests. The duration of therapy for most SSTI is 7-10 days but may vary depending on severity of infection and clinical response. **Note: Before treating, clinicians should consult complete drug prescribing information in the manufacturer’s package insert or the Physician’s Desk Reference (PDR).**

## Mild to Moderate Infections

<table>
<thead>
<tr>
<th>Antimicrobial Generic</th>
<th>Antimicrobial Brand</th>
<th>Adult Dose</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Trimethoprim-sulfamethoxazole DS</td>
<td>- Trimethoprim-sulfamethoxazole</td>
<td>1 double strength tablet, twice daily: 160 mg TMP/800 mg, oral</td>
<td>28-30</td>
</tr>
<tr>
<td>- Co-trimoxazole</td>
<td>- Bactrim DS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- TMP-SMX DS</td>
<td>- Septra DS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Clindamycin</td>
<td>- Clindamycin hydrochloride</td>
<td>300-450 mg, 3 times daily, oral</td>
<td>18</td>
</tr>
<tr>
<td>- Cleocin</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Minocycline Hydrochloride

| Tablets 100 mg: Minocycline Hydrochloride | Dynacin  | 200 mg initially followed by 100 mg, bid (every 12 hours), oral | 30, 34-36 |
| Capsules 100 mg: Minocycline Hydrochloride | Myrac  |  |  |

## Serious Infections

<table>
<thead>
<tr>
<th>Antimicrobial Generic</th>
<th>Antimicrobial Brand</th>
<th>Adult Dose</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancomycin</td>
<td>Vancocin</td>
<td>15-20 mg/kg/dose (actual body weight) every 8-12 hours, not to exceed 2 g per dose. Infuse over 1 hour <em>ineffective orally</em> For most non-obese patients with normal renal function, a dose of 1 gm every 12 hours is adequate.</td>
<td>18</td>
</tr>
<tr>
<td>Linezolid</td>
<td>Zyvox</td>
<td>600 mg twice daily, orally, or IV Can take with or without meals</td>
<td></td>
</tr>
</tbody>
</table>

**Clinical Notes:**

- Minocycline or doxycycline, 100 mg twice daily, may be an alternative treatment option; however, laboratory susceptibility results must be carefully reviewed.
• Resistant or serious infections usually require IV vancomycin or an alternative agent.
• Sepsis requires at least 2 weeks of IV antibiotics. Combination therapy may be required, consult with an expert.

Other considerations related to antibiotic selection include the following:

**If Group A streptococcal (GAS) infection is suspected**, oral therapy should include an agent active against this organism (β-lactam, macrolide, clindamycin). Tetracyclines and trimethoprim-sulfamethoxazole, although active against many MRSA, are not recommended treatments for suspected GAS infections.

**Fluoroquinolones** (e.g. ciprofloxacin, levoflacin, moxifloxacin, gatifloxacin) and **macrolides** (e.g. erythromycin, clarithromycin, azithromycin) should NOT be used for treatment of MRSA because of high resistance rates. If fluoroquinolones are being considered, consult with an infectious diseases specialist before use [30, 33, 36, 37].

**Linezolid** [38, 39] is costly and has great potential for inappropriate use, inducing antimicrobial resistance, and toxicity. Although it is 100% bioavailable and effective in SSTI, it is not recommended for empiric treatment or routine use because of these concerns. It is strongly recommended that linezolid only be used after consultation with an infectious diseases specialist to determine if alternative antimicrobials would be more appropriate.

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 not recommended against MRSA due to the rapid development of resistance (regardless of *in vitro* laboratory susceptibility results) and should never be prescribed alone in treating MRSA infection.

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 or another susceptible antibiotic should be strongly considered.

*In vitro* susceptibility results of **tetracyclines** should be interpreted 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.

Oral **vancomycin** should never be prescribed for MRSA infection since it is poorly absorbed from the gut and thus ineffective.
Rigorous inmate hygiene is preferable over **topical mupirocin** for treating folliculitis. Mupirocin is not recommended due to concerns about widespread empiric use by the inmate population and high likelihood of mupirocin resistance.

The decision to administer antibiotics by directly observed therapy (DOT) or to allow inmates to administer their own antibiotic (KOP) should be made with the goal of consistent administration, i.e. timely dosage and completion of the regimen. DOT should be used if the patient is mentally ill, cognitively impaired, noncompliant, or is not improving despite having been prescribed antibiotic. Response to antibiotic therapy should be monitored closely since *in vitro* sensitivities may not correlate with clinical response. The **duration of antibiotic therapy** for MRSA SSTI’s 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 resolves. **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 the physician should prescribe the appropriate intervention. Inmates with intensely pruritic rashes should be treated to minimize scratching and the development of secondary bacterial infections.

**Decolonization** can be considered for inmates with recurrent MRSA infections on a case-by-case basis (e.g., an inmate with 3 or more infections in less than 6 months) [40]. 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. Rigorous personal hygiene should be emphasized in conjunction with decolonization. Decolonization of the nares with topical mupirocin is not recommended for colonization or isolated cases of MRSA infection. Decolonization of targeted groups of inmates and/or health care providers is rarely indicated, and ongoing or repeated decolonization should never be employed. With the exception of clindamycin, systemic antibiotics typically do not attain adequate levels in the nasal secretion to result in decolonization [25].

Chlorhexidine gluconate solution (CHG) 4% solutions for decolonization lack supportive evidence within correction facilities [18].
Surveillance cultures following decolonization are not recommended, unless there is suspicion of infection [18].

**Infection Control--Primary Prevention: Efforts to Prevent MRSA Infections**

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 jail entry. Primary infection control measures are critical in containing MRSA infections in a confined setting, such as a jail. Failure in primary infection control measures such as inadequate supplies and staff for wound care, difficulty in infection control training due to high medical staff turnover, and lack of recognition of MRSA as a cause of skin infections has contributed to correctional facility outbreaks [3]. Inmates and correctional staff should be provided information on the transmission, prevention, treatment, and containment of MRSA infections. Prompt referral of inmates with skin infections for a medical evaluation should be emphasized.

Regular **hand washing** is the most important intervention to prevent MRSA transmission. Correctional staff, health care workers and inmates should periodically receive education on the importance of hand hygiene and effective hand hygiene techniques. 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, mucous membranes, or broken skin. Wash hands with soap and running water for at least 15 seconds. Plain liquid soap is as effective as antimicrobial soaps with the active ingredient triclosan in reducing skin flora [41].

Inmates should have access to needed supplies and sufficient opportunities for good personal hygiene. 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. **Personal protective equipment** is indicated if healthcare personnel, correctional officers, or other inmates are likely to have contact with blood/body fluids, e.g., gloves to protect hands from contact; mask or face/eyewear and gowns to protect from sprays and splashes.

DSHS studies of environmental contamination with MRSA in correctional facilities and other settings indicate that environmental contamination is a less likely reservoir of infection than human carriage; therefore environmental sanitation cannot substitute for personal hygiene (DSHS, unpublished data). However, MRSA does exist on environmental surfaces, most commonly bathrooms (DSHS, unpublished data). All washable (non-porous) surfaces of bathrooms and living areas should be cleaned routinely including during cell occupancy.
Cleaning should be done with a 1:100 bleach solution (1 tablespoon bleach in 1 quart water) or an Environmental Protection Agency (EPA)-registered disinfectant (http://www.epa.gov/oppp001/chemregindex.htm) [26] according to the manufacturer’s instructions. Correctional workers should conduct sanitation inspections of living and bathroom areas, and any lapses in sanitation should be rectified in accordance with local policies and procedures. Bandages that are ‘full’ and contain all drainage and blood may be disposed of with routine garbage [42]; they should be carefully placed in a leak-proof container first if needed.

A DSHS study of laundry contamination with MRSA in correctional facilities indicated that clothing is a less likely reservoir of infection than human carriage; effective laundering procedures cannot substitute for personal hygiene (DSHS unpublished data). The dilution and agitation of laundered items for twenty minutes at any water temperature removes some bacteria [43]. When laundry is washed at cool water temperatures (≥72°F or 22.2°C), a detergent formulated for cold water should be used. The disinfectant capability of chlorine bleach is well established, and its use is the most effective means of reducing the bacterial count in laundered items at any temperature [44]. The relative antimicrobial effectiveness of oxygenated (color safe) bleaches has not been established [44].

Shared equipment or any other surface exposed to sweat should be disinfected daily with an EPA registered disinfectant or a 1:100 solution of diluted bleach (1 tablespoon of bleach in 1 quart of water) and routinely wiped clean between users with a clean dry towel. Persons using exercise equipment should use barriers to bare skin, such as a towel or clean shirt while using exercise equipment.

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 infections, e.g., warm soaks or compresses and I&D. The unnecessary use of broad-spectrum antibiotics should be curtailed to reduce the development of antibiotic resistance among the inmate population.

**Infection Control—Secondary Prevention: Efforts to Contain Detected MRSA Infections**

Secondary prevention is the implementation of augmented screening, infection control, treatment, and administrative measures aimed at preventing MRSA infections once an inmate is identified with MRSA. All measures used in primary prevention should be continued during secondary prevention. The following additional measures should be implemented:
Education of the inmate regarding the infection is of fundamental importance. Written educational information using appropriate language and educational level should be given to any infected inmate, and the information should be carefully explained. The Appendices contain a sample fact sheet that may be reproduced for distribution. The decision to allow inmates to change their own bandages should be made on a case-by-case basis considering the inmate’s mental status and any risks to security this might pose. Inmates who are allowed to change their own bandages will need access to gloves, soap and water, bandages, and plastic trash bags. They should receive instruction on the proper procedure for changing a bandage in order to minimize the possibility of cross-contamination. The Appendices also contain an instruction sheet on changing bandages that may be reproduced for distribution to inmates.

Health care staff should examine inmates diagnosed with MRSA infections to determine the risk of contagion to others. Decisions about housing assignments should be made utilizing the guidelines outlined below:

Inmates with MRSA pneumonia may be cared for in the jail, however decision about their housing should be made on a case-by-case basis. Inmates with copious secretions or those likely to contaminate the environment should be housed in separate rooms and contact precautions utilized. Otherwise, they should be referred to a hospital.

Inmates with MRSA skin infections with drainage so severe that it cannot be contained (e.g., weeping cellulitis, purulent catheter-site infections, non-healing abscesses, infected surgical wounds, etc.) may remain at the jail if the jail has an infirmary. For information on prevention, treatment, and containment of MRSA infections in an infirmary, please refer to “SHEA Guideline for Preventing Nosocomial Transmission of Multidrug-Resistant Strains of Staphylococcus aureus and Enterococcus” [45]. If an infirmary is not available at the jail, an inmate with an infection of this severity should be referred to a hospital.

Inmates with uncontained drainage who remain at the jail should be restricted from recreation and common areas. Separate toilet facilities are preferred and are a priority for inmates with draining peri-rectal or thigh lesions. Inmates with uncontained drainage should not shower at the same time as the general population; they should be issued two towels and instructed to use one to sit on as a barrier when using the bench in the dressing area [TDCJ]. Toilet, shower, and dressing areas should be cleaned with a detergent and disinfected before the general population uses the facility again. These precautions may be discontinued 24 hours after the wound has resolved (drainage can be contained with a simple dressing or drainage has stopped) even if antibiotic therapy is incomplete.

Single cell housing is not required for persons with non-draining MRSA skin infections or draining infection that can be contained by a simple dressing. The patient should be
instructed in personal hygiene and told to report worsening of infection and draining wounds. Single cell housing should be considered for mentally ill, cognitively impaired and uncooperative inmates, and the terminal cleaning of the cell should be done prior to assigning the cell to another inmate. The healthcare provider will decide about any restrictions on activities. Inmates with MRSA infections may be limited from certain activities on a case-by-case basis. For example, an inmate with a shoulder wound with contained drainage should be restricted from recreation activities but not restricted from meals in the cafeteria. Restrictions on visitors are rarely indicated.

Regardless of where the inmate is housed, sanitation measures should be strictly enforced. Dispense clean clothing to the inmate anytime clothing has become soiled with drainage. Change linens every other day (more often if visibly soiled). Have the inmate bag the linens in the cell. Change towels and washcloths daily. Machine wash and dry as recommended in primary prevention. Trash should be removed daily. If a MRSA infected inmate has been in single cell housing, the cell should be terminally cleaned prior to housing another inmate in that cell.

Inmates with skin infections should shower daily. Chlorhexidine gluconate products (e.g. Hibiclens) have been demonstrated to significantly reduce more skin flora than plain soap or antibacterial soaps with triclosan [41]. Monitor inmate hygienic practices particularly if the inmate is mentally impaired.

**Hand hygiene** should be reemphasized with staff working with the inmate diagnosed with MRSA infections. Hands should be routinely washed with soap and running water for at least 15 seconds. Clean, non-sterile gloves should be worn when contact with wound drainage is anticipated. Perform hand washing BEFORE and AFTER every contact with an infected inmate, even if gloves were worn. Hand washing 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. Staff who might have contact with inmates with grossly draining wounds should wear clean non-sterile gowns during the contact and immediately discard the gown before contact with any other persons or surfaces. If soiling of security devices (e.g., handcuffs, leg irons, martin chains and other reusable restraints) is likely, use disposable restraints if feasible. If not, decontaminate with disinfectant after use.

During transfers, interruption in MRSA care should be minimized. If inmates with MRSA infections are transferred, the receiving institution’s healthcare personnel should be made aware of the pending arrival of infected inmates. The transferring facility should also notify the receiving facility of the inmate’s condition through use of The Texas Uniform Health Status Update form. In addition, escort officers should be notified of the inmate’s condition and educated on infection control measures.
At the time of transfer, the wound should be dressed with clean bandages to full contain wound drainage. Transfer officer should follow the same precautions as described above (hand-washing, gloves if touching wound or drainage, safe disposal of dressings, single-use disposable equipment or equipment disinfection). If appropriate for wound site, seats should be covered with an impermeable disposable sheet. A DSHS study of environmental MRSA contamination found that three of ten vehicles had MRSA on seats or chairs in which inmates had been seated. Dispose of the protective sheet after inmate exits the vehicle and decontaminate if visible contamination occurs in any part of the vehicle.

Inmates with MRSA SSTI who are scheduled for release should:

- Have draining infections bandaged to adequately contain drainage prior to release
- Be offered enough antibiotics to complete treatment
- Be counseled on practical infection control measures to prevent transmission to household members and other anticipated close contacts.
- Be advised to obtain/provide assistance in obtaining follow-up medical services.

Outbreak Management

By definition, a MRSA outbreak is a clustering of two or more epidemiologically related, culture-positive cases of MRSA infection. However, labeling MRSA cases an “outbreak” and conducting an outbreak investigation is of minimal importance in MRSA control for multiple reasons. Most MRSA patients are not linked to an outbreak [26]. Approximately 5% of inmates are colonized with MRSA; even if treated with antibiotic, carriers typically become recolonized making it impossible to eradicate the organism from the population as can be done with many food borne pathogens. Unlike food borne outbreaks, it is rare for a nonhuman point source of infection to be identified in MRSA “outbreaks.” Therefore, generally resources should be directed toward ongoing quality improvement in hygiene and infection control practices rather than investigating outbreaks.

In investigations of MRSA outbreaks in correctional facilities in three states, The Centers for Disease Control and Prevention identified four factors that contributed to spread of MRSA among inmates.

First, investigators identified barriers to routine inmate hygiene. Access to soap often was limited or was restricted for security reasons, and new alcohol-based hand rubs were difficult to introduce because of misuse of these products. Mental health and
behavior problems among inmates might have contributed to poor adherence and hindered efforts to improve hygiene. Inmates’ clothing was washed by hand or in bulk loads, and potentially contaminated laundry might not have undergone sufficiently high water temperatures or drying to eliminate bacteria. Second, proper access to medical care was hindered by co-payments required for acute care visits and by inadequate supplies and staff for wound care. Third, frequent medical staff turnover was a challenge to providing education on proper infection-control procedures. Finally, MRSA might have been an unrecognized cause of skin infections among inmates; wounds often were attributed to spider bites, and cultures might have been collected infrequently even in cases in which antimicrobial treatment failed [3].

If it is necessary to formally investigate an outbreak, antibiotic susceptibilities should be compared. Similar antibiotic susceptibilities suggest transmission of the same organism strain. Similar molecular analysis patterns, such as pulsed-field gel electrophoresis, further support that infections are of the same origin. MRSA colonization data, as well as data on lesions, should be considered when assessing outbreaks because new cases of MRSA colonization without infection also indicate ongoing MRSA transmission.

Correctional facility officers may contact their local, regional, or state health department if they need assistance in preventing, treating, or containing MRSA.
References


## Original 2005 Workgroup Members

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<tr>
<td>What To Do About Your Skin Infection</td>
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</table>
| **Wash your hands** | • Use soap and warm water  
  ▪ For at least 15 seconds each time  
  ▪ Before and after using the toilet  
  ▪ After touching your skin infection  
  ▪ Before eating |
| **Shower** | • Daily, or as often as permitted |
| **Change into clean clothes** | • After you shower  
  ▪ When wound drainage gets on your clothes |
| **Use the laundry** | • Send clothes, sheets, pillowcase, towel, and blanket as often as permitted.  
  ▪ Ask for clean bedding if wound drainage gets on it. |
| **Do not share personal items** | • Such as razors, towels, washcloths, or bars of soap |
| **Do not let other inmates touch your infection** | |
| **Keep your wound covered with a bandage all the time** | • If your bandage comes off, throw it away in the trash and wash your hands  
  ▪ Tell a correctional officer that you need a new bandage. |
| **Warm soaks and compresses** | • You may be told to soak your skin infection in warm water or to apply a moist compress for 20 minutes at a time.  
  ▪ Listen carefully to the nurse’s instructions and do what they say.  
  ▪ If your infection begins to drain, report it to a correctional officer. |
| **Medication** | • Don’t share medicine with anyone.  
  ▪ Take all the medicine the doctor gives you.  
  ▪ If you don’t take all the antibiotics the doctor gives you, the germs causing your infection may start another infection. |
| **Report to the correctional officer** | If you develop  
  • fever  
  • red streaks from the wound |
| If your infection starts to  
  • smell bad  
  • drain more |
<table>
<thead>
<tr>
<th>¿Qué Debes Hacer Tocante Tu Infección De La Piel?</th>
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<tbody>
<tr>
<td><strong>Lávate las manos</strong></td>
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<tr>
<td><strong>Date una ducha</strong></td>
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<tr>
<td><strong>Cámbiate y ponte ropa limpia</strong></td>
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<tr>
<td><strong>Usa la lavandería</strong></td>
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<tr>
<td><strong>No compartas artículos personales</strong></td>
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<tr>
<td><strong>No dejes que otros presos toquen tu infección.</strong></td>
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<tr>
<td><strong>Mantén siempre tu herida cubierta con una venda.</strong></td>
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<td><strong>El remojar con agua caliente y el aplicar una compresión</strong></td>
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<td><strong>Medicamentos</strong></td>
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<td><strong>Repórtese con el guardia o la clínica</strong></td>
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Taking Care of Wounds That Are Draining Or Have Not Healed

How to Change Your Bandage

- Gather your supplies for changing the bandage
  - Plastic trash bag
  - Plastic gloves
  - Soap or alcohol based hand sanitizer
  - Bandage
  - Q tip

- Wash your hands with soap and warm water or use alcohol-based hand sanitizer
- Put on clean gloves just before touching the skin around the wound
- Follow the directions from the nurse or doctor for changing the bandage
- Put used bandages in the trash bag
- Put dirty supplies, such as Q tips in the trash bag
- Take off the plastic gloves and put them in the trash bag
- Close the trash bag and put the bag in the common garbage
- Wash hands again with soap and hot water or use alcohol based hand sanitizer, even if you wore gloves.

While Changing Your Bandage

**DO NOT TOUCH ANY OTHER PARTS OF YOUR BODY**
**DO NOT TOUCH ANY OF YOUR SURROUNDINGS-BED, SINK, FAUCET, TOWEL**
**DO NOT TOUCH ANY OTHER PERSON**

When to Change a Bandage

- As often as the doctor or nurse tells you
- Any time that you can see pus or drainage on the bandage
Cómo cuidar las heridas que drenan o no han sanado

Cómo cambiar su propio vendaje:

- Reúna sus artículos para cambiar el vendaje
  - Bolsa de basura plástica
  - Guantes plásticos
  - Jabón o desinfectante para manos que tenga alcohol
  - Vendaje
  - Cotonete

- Lávese las manos con jabón y agua caliente o utilice desinfectante para manos que tenga alcohol

- Póngase guantes limpios justo antes de tocar la piel alrededor de la herida

- Siga las indicaciones de la enfermera o médico para cambiar el vendaje

- Ponga el vendaje utilizado en la bolsa de basura

- Ponga todos los artículos sucios, como los cotonetes, en la bolsa de basura

- Quítese los guantes plásticos y póngalos en la bolsa de basura

- Cierre la bolsa de basura y ponga la bolsa en la basura común

- Lávese las manos otra vez- aun cuando haya traído guantes puestos -con jabón agua caliente o utilice desinfectante para manos que tenga alcohol

Mientras cambie el vendaje:

  NO TOQUE NINGUNA PARTE DEL CUERPO

  NO TOQUE NADA A SU ALREDEDOR- COMO LA CAMA, EL LAVABO, LA LLAVE DEL AGUA O TOALLAS

  NO TOQUE A NINGUNA OTRA PERSONA

Cuándo cambiar el vendaje:

- Tantas veces como el médico o enfermera le indique
- Cuando vea pus o drenaje en el vendaje
National Commission on Correctional Health Care

National Commission on Correctional Health Care Position Statement

Charging Inmates a Fee for Health Care Services

Background

Based upon more than 20 years of intensive evaluation of health care systems in jails and prisons, the National Commission on Correctional Health Care recognizes that lack of access to health care is a serious problem in detention and correctional institutions.

Charging inmates for health services is a subject that recently has become a prominent issue in the delivery of correctional health services. While there are a few examples of such charges that date back ten or more years, only in the past two years has the concept been activated to the extent that many jails and prisons either have such a program or are looking at the possibility of creating a fee for health services program — also sometimes referred to as an inmate co-payment system — in their facilities.

At the end of 1994, the National Commission on Correctional Health Care conducted a survey of 190 jail jurisdictions participating in its accreditation program. Of the 117 jail systems responding, 34 percent stated they had a program that charged inmates for health services and another 15 percent indicated they were exploring such a program for implementation in their next fiscal year. Most programs in place required a fixed payment — typically between $2 and $10 — for certain health services encounters.

Clearly, there are reasons one might argue either for or against the imposition of charges for health care services provided to inmates, although there is limited research on the efficacy of such programs. Some of the arguments for charging inmates a fee for health care services are:

- The cost of medical care is an increasingly heavy burden on the financial resources of the facility, state, or county. The cost needs to be controlled legally without affecting needed care.
- Sick call can be and is abused by some inmates. This abuse of sick call places a strain on available resources, making it more difficult to provide adequate care or inmates who really need the attention.
- Inmates who can spend money on a candy bar or a bottle of shampoo should be able to pay for medical care with the same funds — it is a matter of priorities.
• It will do away with frivolous requests for medical attention.

• It cuts down on security's problems in transporting inmates to and from sick call by reducing utilization.

• It instills a sense of fiscal responsibility and forces the inmate to make mature choices on how to spend his or her money.

On the other hand, some of the arguments against charging inmates a fee for health care services are:

• Access is impeded. A fee-for-service program ignores the significance of full and unimpeded access to sick call and the importance of preventive care.

• Inmates are almost always in an "indigent" mode. They seldom have outside resources and most have no source of income while incarcerated. They most often rely on a spouse, mother or other family member to provide some funds they can use for toiletries, over-the-counter medications like analgesics and antacids, telephone call, writing paper and pens, sanitary napkins, candy, cigarettes, etc. These "extras" become extremely important to one who is locked up twenty-four hours each day. The inmate may well choose to forego treatment of a medical problem in order to be able to buy the shampoo or toothpaste.

• The program sets up two tiers of inmates — those who have funds to get medical care and commissary privileges, and those who have to choose between the two.

• Avoiding medical care for "minor" situations can lead to serious consequences for the inmate or inmate population, since the minor situation can deteriorate to serious status or lead to the infection of others.

• Because of crowded conditions, there is a risk of spreading infections, and effective measures need to be taken to reduce this risk. Daily sick call should be encouraged rather than discouraged.

• A properly administered sick call program keeps costs down through a good triage system, which has a lower level of qualified staff see the complaining inmate first, with referral on to higher levels of staff only as medically indicated.

• Charging health service fees as a management tool does not recoup costs; rather, when looking at the increased administrative work involved or the long-term effect of the program, charging health service fees can cost more to implement than what is recovered.

**Position Statement**

The National Commission on Correctional Health Care strongly believes access to health care services is at the foundation of any acceptable correctional health services program. Such access should not be obstructed, because without ready access to necessary health care services — as determined by qualified health staff — the health of the inmate population, as well as that of the staff and the public, may be jeopardized.

The NCCHC recognizes that lack of access to health care remains among the most significant characteristics of prison, jail, and juvenile correctional systems in the United States. Because of their disproportionate poverty and incidence of drug use, inmates have higher morbidity and mortality from treatable
serious medical problems. Therefore, the NCCHC is opposed to the establishment of a fee-for-service or co-payment program that restricts patient access to care.

If a fee-for-service program is to be implemented, the NCCHC recommends that it be founded on the principle that access to health services will be available to all inmates regardless of their ability to pay. To insure access to care is not blocked, the following guidelines should be followed.

1. Before initiating a fee-for-service program, the institution should examine its management of sick call, use of emergency services, system of triage, and other aspects of the health care system for efficiency and efficacy.

2. Facilities should track the incidence of disease and all other health problems prior to and following the implementation of the fee-for-service program. Statistics should be maintained and reviewed. The data should demonstrate that infection levels, or other adverse outcome indicators, as well as incidents of delayed diagnosis and treatment of serious medical problems within the facility, are either consistent with or lower than the levels before implementation. Data that show an increase high infection levels or other adverse outcomes may indicate that the fee-for-service program is unintentionally blocking access to needed care.

3. All inmates should be informed on the details of the fee-for-service program upon admission, and it should be made clear that the program is not designed to deny access to care. Inmates should have a full working knowledge of the situations in which they will or will not be assessed a fee as well as any administrative procedures necessary to request a visit with a health care provider.

4. Only services initiated by the inmate should be subject to a fee or other charges. No charges should be made for the following: admission health screening (medical, dental, and mental) or any required follow-up to the screening; the health assessments required by facility policy; emergency care and trauma care; hospitalization; infirmary care; perinatal care; in-house lab and diagnostic services; pharmacy medications to maintain health; diagnosis and treatment of contagious disease; chronic care or other staff-initiated care, including follow-up and referral visits; and mental health care including drug abuse and addiction.

5. The assessment of a charge should be made after the fact. The health care provider should be removed from the operation of collecting the fee.

6. Charges should be small and not compounded when a patient is seen by more than one provider for the same circumstance.

7. No inmate should be denied care because of a record of non-payment or current inability to pay for same.

8. The system should allow for a minimum balance in the inmate's account, or provide another mechanism permitting the inmate to have access to necessary hygiene items (shampoo, shaving accessories, etc.) and over-the-counter medications.

9. The facility should have a grievance system in place that accurately tracks complaints regarding the program. Grievances should be reviewed periodically, and a consistently high rate of grievances should draw attention to the need to work with staff to address specific problems that may have accompanied the fee-for-service program.

10. The continuation of any fee-for-service health care program should be contingent on evidence it does not impede access to care. Such evidence might consist of increased infection rates, delayed diagnosis and treatment of medical problems, or other adverse outcomes.

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