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The Rise of Methicillin-Resistant *Staphylococcus aureus* in U.S. Correctional Populations

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Abstract

Methicillin-resistant *Staphylococcus aureus* (MRSA) is an emerging threat to public health, especially in correctional settings. Outbreaks have been seen in jails and prisons in Mississippi, California, Texas, and Georgia in recent years. Also, many correctional settings have seen an increase in MRSA infection greater than in the general population. This article examines the lessons that have been learned about MRSA in correctional settings and ponders what is yet to be learned about this disease in these populations.

Keywords

methicillin-resistant *Staphylococcus aureus*; CA-MRSA; infection control; inmates; correctional health care

Staphylococcus aureus (*S. aureus*) is a gram-positive coccus clustered bacteria that is capable of infecting the host and causing skin or soft tissue infections (SSTIs) that present as a rash, boil, or other form of broken skin (Farley, 2008). During the 1970s, resistance of methicillin among *S. aureus* began to emerge. During this time, methicillin-resistant *S. aureus* (MRSA) was associated only with hospitals because it only occurred in hospital or nursing home settings (Centers for Disease Control and Prevention [CDC], 2005). In the 1980s, medical professionals started seeing MRSA infections in the community in persons who had a recent health care procedure or contact with someone who had a health care-associated risk factor (CDC, 2005). MRSA was confined to hospital settings and contacts until the 1990s, when community-associated (CA)-MRSA infections emerged in community members with no hospital risk factors (CDC, 2005).

CA-MRSA strains are distinct from hospital-associated (HA)-MRSA strains with regard to molecular characteristics (type of strain), clinical spectrum (type and location of infection), epidemiology (location of outbreaks), and resistance pattern (susceptibility to antibiotics; Beam & Buckley, 2006). Most importantly, CA-MRSA strains are more virulent and have greater associated morbidity and mortality than HA-MRSA strains, including increased SSTIs (Aiello, Lowy, Wright, & Larson, 2006; Tristan et al., 2007). CA-MRSA has proved more troublesome than HA-MRSA because, unlike HA-MRSA, it has caused mortality and morbidity in otherwise healthy persons (Aiello et al., 2006).

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Because CA-MRSA is a relatively new phenomenon, the percentage of persons in the United States who have tested positive for CA-MRSA outside of a hospital setting is far below the percentage of hospital patients who have tested positive for HA-MRSA. In 2007, the SENTRY Antimicrobial Surveillance Program, which surveys 35 hospitals in the United States during the last 3 months of every year, estimated that *S. aureus* accounted for approximately 65.5%of all isolates recovered from SSTIs among hospitalized patients, and over half (54.4%) of positive *S. aureus* samples were methicillin-resistant (JMI Laboratories, 2008). *S. aureus* infections in hospitals increased 42% and MRSA infections increased 81% since 2000, when *S. aureus* comprised of 45.9% of all isolates from SSTIs and MRSA made up about 30% of *S. aureus* infections in U.S. hospitals (Rennie, Jones, Mutnick, & SENTRY, 2003). In contrast, the 2003–2004 National Health and Nutrition Examination Survey estimated the prevalence of *S. aureus* in the community at 27.1%, a decrease from 30.8% in 2001–2002, and the prevalence of MRSA in the community at 1.5%, an increase from 0.8% in 2001–2002. Of all positive *S. aureus* samples, 5.4% were positive for MRSA in 2003–2004, compared to 2.5% in 2001–2002. Surprisingly, positive *S. aureus* cultures in the community have decreased slightly. However, MRSA in the community (and proportion of positive *S. aureus* samples in the community) nearly doubled in 2 years (National Center for Health Statistics, 2004, 2006).

Even though the prevalence of MRSA among persons without health care-associated infections remains low (0.24%), awareness of this phenomenon has increased because of outbreaks reported among previously healthy members of the community (Beam & Buckley, 2006; Graham, Lin, & Larson, 2006; Salgado, Farr, & Calfee, 2003). These outbreaks of CA-MRSA have emerged in unique and varied populations that are unassociated with health care settings, such as prison and jail inmates, athletic teams, men who have sex with men, children in day care centers, intravenous drug users, indigenous populations, military recruits, and homeless populations (Beam & Buckley, 2006).

U.S. Correctional Population and CA-MRSA

One of the most important populations in which recent outbreaks of CA-MRSA have occurred is the correctional population. Correctional populations may be an important source for CA-MRSA transmission because of the presence of numerous risk factors for MRSA infection and colonization. The United States has the second highest rate of incarceration in the world (1 per 136 adults in 2005) and this rate has grown 300% since 1980. Each year about 10 million people are processed in the U.S. correctional system and nearly 600,000 state prison inmates are released into the community annually. More than 2.5 million adults are incarcerated in U.S. correctional facilities (Aiello et al., 2006; U.S. Department of Justice, 2008). The correctional system may therefore be an important reservoir of MRSA colonization and infection in the community.

Outbreaks of MRSA have been reported in correctional systems in California, Georgia, Illinois, Texas, Missouri, and Mississippi (CDC, 2001, 2003). Studies from these outbreaks have suggested not only a high prevalence of MRSA infection and/or colonization in these populations but also a noted increase of MRSA infection/colonization in the past decade.

Table 1 shows that MRSA varies widely in incarcerated populations. Although the prevalence of *S. aureus* in the New York state prisons and Texas county jail was comparable to that in the general population (25.5% and 28.5%, respectively, vs. 27.1%), prevalence in the Cook County jail (94%) was more than three times the prevalence in the general population (David, Mennella, Mansour, Boyle-Vavra, & Daum, 2008; Felkner, Rohde, Valle-Rivera, Baldwin, & Newsome, 2007; Graham et al., 2006; Lowy et al., 2007).

Prevalence of *S. aureus* in the Baltimore booking facility (40.4%) was nearly 33% greater than *S. aureus* in the general population (Farley, 2008).

The proportion of *S. aureus* isolates positive for MRSA and the prevalence of MRSA in the study population also varied widely by geographic location. However, MRSA prevalence in all but one of the correctional facilities that had such data was at least 1.8 times (2.7–79.7%) that seen in the general population (1.5%; David et al., 2008; Farley, 2008; Felkner et al., 2007; Graham et al., 2006; Lowy et al., 2007). The two New York state prisons had MRSA prevalence about three times the national prevalence, and the Chicago jail had MRSA prevalence over 50 times the national rate (David et al., 2008; Lowy et al., 2007). The Texas prison system was the only correctional setting where MRSA prevalence was lower than the national prevalence. This was by far the largest sample of any of the correctional settings (336,668 inmates), but it had the lowest MRSA prevalence, 0.33%, which is less than one fourth the prevalence of the general population (Baillargeon, Black, et al., 2004). The MRSA prevalence in this setting may have been underestimated because not all of the inmates in the study received routine screening for every infectious disease or condition included in the study, which was the basis of the data. This geographic variation of MRSA may reflect the underlying prevalence of MRSA in the respective community. However, it is clear that MRSA is more prevalent in a correctional population than in the general population.

Studies have shown risk factors for MRSA infection in correctional populations. These risk factors include prolonged incarceration, outdoor work assignment, previous antibiotic use, self-draining of boils, sharing soap, washing clothes by hand, close contact with persons known to have MRSA, comorbidities, history of antimicrobial use, factors associated with crowding and inadequate hygiene, and (possibly) gender (Baillargeon, Kelley, et al., 2004; CDC, 2001, 2003). In addition, incarcerated individuals have higher prevalences of other risk factors for MRSA, such as history of intravenous drug use and concomitant infections (HIV, hepatitis B and C, and tuberculosis; Aiello et al., 2006). Consistent with this knowledge, Baillargeon, Kelley, et al. (2004) found that all comorbidities except skin conditions led to a moderate increase in the risk of MRSA infection in Texas county inmates compared to inmates with no comorbidities. Young age may also be a risk factor for MRSA infection. Baillargeon et al. (2004b). Baillargeon, Black, et al. (2004) and Lowy et al. (2007) found that older inmates had a significantly decreased risk of MRSA infection. Farley (2008) found that inmates aged 30 to 49 years were significantly more likely to have MRSA colonization than inmates in the 20 to 29 years and > 50 years age groups (relative risk = 2.57, 95% confidence interval [CI] = 1.45, 4.58). Younger inmates may be more susceptible to MRSA infection since they are new to the environment or may have more risk factors than older inmates (Lowy et al., 2007).

Investigators of a study of an MRSA outbreak in a Mississippi prison reported that significantly more females were colonized with MRSA compared with males (5.9% vs. 2.5%; $p = .003$). Similarly, female inmates in the Texas prison system had a slightly higher prevalence of MRSA infection than males and also had an incidence of MRSA infection that was twice that of males (Aiello et al., 2006; Baillargeon, Kelley, et al., 2004). Lowy et al. (2007) reported that the MRSA rate in a New York women's prison, Bedford Hills, was approximately seven times that in the men's prison, Sing Sing (20.0% vs. 2.9%; $p = .0026$). The explanation for this gender difference is unclear, but females may be more likely to have their infections diagnosed due to their more frequent use of correctional health care services compared to their male counterparts (Baillargeon, Kelley, et al., 2004), or there may be differences in the nature of physical contact in women's prisons compared to men's prisons (Lowy et al., 2007).

The answers to two questions will help to determine the link between CA-MRSA in the community and CA-MRSA in correctional populations, which will lead to better prevention and intervention strategies in both settings. One, is there a molecular association between CA-MRSA in the community and CA-MRSA in correctional facilities? Two, is the person-to-person within-facility transmission of CA-MRSA in correctional facilities contributing to the rise of CA-MRSA in the community or is the rise of CA-MRSA in the community contributing to the increase of MRSA in correctional facilities?

CA-MRSA Strains in Correctional Populations

Clones identified from incarcerated populations appear to have come from clones circulating within the global community setting. Four of the six major multilocus sequence typing clonal groups (ST30:Z, ST8:S, ST8:C, and STS:D) identified among San Francisco jailed inmates belonged to three of five globally epidemic MRSA clonal groups (CC30, CC8, and CC5; Pan et al., 2003). In fact, the second most prevalent strain in the San Francisco jails, ST8:S, was found to not be unique to the region. It has a clonal profile similar to that of the predominant strain during the CA-MRSA outbreaks of the Los Angeles County Jail (LACJ) system in 2002, the predominant strain infecting Chicago jail inmates, and a strain that has caused outbreaks in communities across the United States. This strain may have a widespread geographic distribution and there may be between-jail transmission as well as community-to-jail transmission (Pan et al., 2003). There may be a link between CA-MRSA isolates obtained from jailed patients and circulation of these strains in the community setting. Indeed, less than 30% of typed MRSA isolates from inmates in San Francisco, Chicago, and Texas jails were considered unique for those incarcerated populations (David et al., 2008; Felkner et al., 2007; Pan et al., 2003). Results may suggest relations between strains, but they do not contribute to knowledge about transmission dynamics of MRSA (Pan et al., 2003).

Studies have shown that general community and correctional settings have a considerable overlap in circulating MRSA strains; however, there is not a positive link between transmission in correctional populations and transmission in the community. There remains a question of whether person-to-person within-facility transmission of CA-MRSA in correctional facilities contributed to the rise of CA-MRSA in the community or vice versa. Infectious disease transmission models may be used to answer this question.

Transmission of MRSA in Correctional Settings

Two primary types of correctional settings, jails and prisons, have different characteristics that are important to CA-MRSA transmission dynamics. Jails, which are temporary holding facilities for individuals awaiting trial or serving terms up to 1 year, house fewer inmates than prisons so they have fewer susceptible and infected persons at any one time. This lessens the possibility of CA-MRSA transmission within the jail. However, they also have a higher turnover rate, receive the majority of admissions to correctional facilities, and have a shorter average length of time served (9 months vs. 30 months), meaning they may receive more infected or colonized individuals from the community and may send more newly infected or colonized individuals into the community. Prisons are more permanent holding facilities, although incarceration is rarely permanent, for inmates serving long sentences (typically > 1 year, depending on jurisdiction). They receive fewer inmates than jails and therefore may have fewer infected or colonized individuals entering their system from the community. However, the less frequent discharge of inmates may create greater opportunities for within-prison transmission of CA-MRSA (U.S. Department of Justice, 2008).

Kajita, Okano, Bodine, Layne, and Blower (2007) conducted a model of transmission dynamics of CA-MRSA during the LACJ outbreak from January 2002 to September 2002, which involved 628 clinical infections from skin lesions (565 male inmates and 63 female inmates). In total, 8,448 cases of CA-MRSA were reported from LACJ inmates between 2002 and 2005. The authors modeled the spatial dynamics of the outbreak to determine whether this LACJ outbreak was caused by within-jail transmission and whether it was the result of high CA-MRSA transmission in the community (Kajita et al., 2007).

The authors ran 1,000 scenarios and determined that within-jail transmission was low for the LACJ outbreak and that the high incidence of CA-MRSA in the community may have contributed more to the LACJ outbreak than within-jail transmission contributed to the rising incidence in the community. Within-jail transmission of CA-MRSA was not sufficient enough to sustain, contributing only about 5% to the prevalence of CA-MRSA during the outbreak (Kajita et al., 2007). The main reason the LACJ outbreak continued despite low transmission in the jail was because of the continuous inflow of infected and colonized inmates from the community. As long as this inflow continued, the outbreak would not die out (Kajita et al., 2007).

Within-jail transmission may have been low because of the relatively short incarceration times of this LACJ inmate population (47 days, males and 33 days, females). Incarceration times would have had to increase to 83 days for males and 60 days for females for within-jail transmission to sustain the outbreak (Kajita et al., 2007). Indeed, if these critical incarceration times had been achieved during the LACJ outbreak, infection in the jail would have increased 40% and several thousand infected and colonized individuals would have been released to the community (Kajita et al., 2007). Although this particular model may not be applicable to a prison environment because jails have smaller incarceration times and larger release rates, it did show that longer incarceration times may breed more MRSA colonization and infection in a correctional setting (Kajita et al., 2007).

Studies of outbreaks in Mississippi, Georgia, California, and Texas correctional facilities found a positive association between length of exposure to prison and likelihood of MRSA colonization (CDC, 2001, 2003). David et al. (2008) found that inmates with *S. aureus* SSTIs had longer incarceration times (mean 132 days; median 53 days) than the general incarcerated population. Still, in some regions, shorter incarceration times increase risk of MRSA. Baillargeon, Kelley, et al. (2004) found that Texas state jail inmates had a risk of MRSA infection 1.9 times (95%CI [1.7, 2.0]) greater than Texas prison inmates. These findings mean that within-facility transmission of MRSA may be more important in prison settings than in jails because of more frequent contact between inmates. However, in some regions, a higher frequency of influxes of inmates infected with MRSA may overwhelm within-jail transmission and make jails a more likely breeding ground for MRSA infection than prisons. Due to the transmission dynamics of CA-MRSA identified by Kajita and colleagues (2007), jails may only be successful at identifying MRSA colonization and infection in incoming inmates because transmission between inmates is so low, whereas prisons may need to focus on both identifying MRSA in incoming inmates and preventing transmission between inmates.

Prevention and Control of MRSA in Correctional Populations

Before the recent MRSA outbreaks in U.S. correctional facilities, the Federal Bureau of Prisons (FBOP) developed general guidelines for infection control. These guidelines covered general prevention and intervention strategies, such as training and counseling on prevention, proper waste disposal, use of universal precautions, health education, and environmental controls to prevent transmission of infection. They also stated that all prisons

would follow the CDC guidelines for infection. These guidelines were mostly for the prevention and control of common infections in incarcerated populations (e.g., HIV/AIDS, hepatitis B, tuberculosis, and sexually transmitted diseases) and did not mention multidrug-resistant organisms like MRSA (Aiello et al., 2006; FBOP, 2005).

Concern over MRSA in correctional populations grew after several outbreaks occurred in these facilities. These outbreaks led the FBOP as well as states' departments of justice and public health, as in Texas and California, to develop clinical guidelines that specifically discussed the management of MRSA in correctional settings. These guidelines gave clear instructions on what precautions should be taken by correctional personnel when confronted with MRSA in their facilities and outlined protocols for diagnosis, treatment, and infection control. In general, correctional health care personnel should focus on education of staff and inmates, standard precautions, hand hygiene, environmental sanitation, and screening measures. Table 2 presents recommendations to decrease MRSA transmission in correctional settings. These recommendations were adapted from MRSA prevention and control guidelines published by the FBOP (2005), CDC (2003), the Los Angeles County Department of Public Health (2007), and the Texas Department of Criminal Justice.

Implementation of guidelines for MRSA in correctional facilities has produced mixed results. Following the MRSA outbreak in the Texas prison population, the Texas Department of Criminal Justice's guidelines were implemented. Unfortunately, this did not lead to significant decreases in the reported MRSA incidence in this prison system. After a minimum-security state detention center in Georgia put into practice facilitywide screening for skin disease, standardized antimicrobial treatment recommendations, inmate education, and provision of alcohol-based hand rubs, its number of MRSA cases decreased from 11 in September 2001 to 0 in May 2002. However, five cases were reported in November 2002. After the prison reinforced hygiene education, proper wound care, and antimicrobial use, only five MRSA infections occurred between December 2002 and April 2003. Similar interventions in other Georgia correctional facilities led to the same rise and fall in MRSA cases over a similar time period, with reports given quarterly. Indeed, even when one facility isolated a cohort of MRSA-infected prisoners and provided them with the proper resources for hand hygiene, an additional 29 cases of MRSA were identified (CDC, 2003). Also following the MRSA outbreaks in Georgia facilities, Wootton and colleagues (2004) performed a case–control study at a Georgia State Prison to test the impact of an intervention to prevent and control MRSA. Implementation of their intervention, which included improved screening for skin lesions, personal hygiene, standardized wound care, and antimicrobial therapy, decreased the rate of MRSA from 11.6 infections per 10,000 detainee-days during the preintervention period to 0 infections per 10,000 detainee-days during the postintervention period (relative risk = 0; 95% CI = 0, 0.24; p = .000038; CDC, 2003).

These data suggest that targeted interventions can decrease the risk of acquiring skin infections in a correctional setting. The interventions implemented in the Texas and some of the Georgia facilities may have failed because the interventions were not sustained. In two of the three Georgia facilities where MRSA interventions were implemented, facility personnel stated that procedures of proper wound care and antimicrobial use had to be reinforced. Indeed, one facility found that 26% of patients who received antimicrobials received them inappropriately. Instances of inappropriate use of beta-lactam antimicrobials included treatment before culture results (18%; CDC, 2003).

Discussion

Correctional inmates may be a reservoir of resistant organisms, like MRSA, that can then be transmitted to the community. Incarceration is a leading risk factor for both CA-MRSA and HA-MRSA and previous studies have shown that carriage of MRSA and incarceration share certain risk factors, such as young age, non-Hispanic Black ethnicity, homelessness, intravenous drug use, and other drug use (Aiello et al., 2006; Haley et al., 2007; Hota et al., 2007; Jacobus et al., 2007). Moreover, correctional facilities are also associated with factors that may increase MRSA transmission, such as living or working in crowded conditions, skin diseases, and immunosuppression. Inmates' many exposures to environmental and behavioral factors make them more susceptible to MRSA infection than the general population (Baillargeon, Kelley, et al., 2004).

The results of Pan et al.'s (2003) testing of MRSA clones suggest that not only are isolates from correctional facilities similar to those circulating in the community but also that there may be person-to-person transmission within the correctional facilities (clones identified by PFGE from outbreak isolates were predominantly indistinguishable). But Kajita et al. (2007) suggest that the high prevalence of MRSA in a correctional setting may be due to the high prevalence of MRSA in the community. Indeed, the outbreak of MRSA in the LACJ system was shown to be primarily due to the inflow of infected and colonized inmates, not within-jail transmission.

These disparate results suggest that future research should focus on linking demographic, social, and risk factor information with results from molecular typing. This information should be combined with models of the transmission dynamics of MRSA within and between correctional and community populations to determine the true source of MRSA infection and colonization in correctional settings as well as appropriate control measures. Epidemiological, molecular, and sociological information obtained from MRSA studies among jail and prison inmates will be useful in preventing transmission not only among these two specialized populations but also among people in other closed and crowded living conditions (Aiello et al., 2006).

Strategies that focused on increased awareness, early detection and appropriate management, enhanced hygiene, and maintenance of a clean environment have proven successful in containing clusters and outbreaks of MRSA infection. However, implementing infection control measures can be challenging. For instance, necessary materials for proper hand hygiene such as soap dispensers and alcohol-based hand sanitizer are often not available because the former may be stolen by inmates and the latter may be used as a weapon due to its flammability. Access to medical care for MRSA infections may also be limited for inmates because they want to avoid copayments, which may increase MRSA transmission (Bick, 2007). Correctional facilities will need to address these challenges, as well as others, in order to successfully limit MRSA transmission within their facilities. Correctional facilities may be unable to detect all MRSA infections, but they can concentrate on awareness, management, hygiene, and facility maintenance to control MRSA transmission.

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Table 1

Recent MRSA Outbreaks and Prevalence in Correctional Settings

Study	Correctional Population	*N*	Outbreak?	Specimen Collected	*S. aureus* Prevalence (%)	Proportion of MRSA From *S. aureus* (%)	MRSA Prevalence in Population (%)	Increase in Proportion of MRSA of *S. aureus*
Lowy, 2007	2 New York state prisons (Bedford Hills & Sing Sing), 2005–2006	487	Yes	Nasal swab	25.5	10.5	2.7	–
	26 New York state prisons, 2006	60	No	SSTI culture (68%), blood (8%), urine (3%), unknown (20%)	100 (study included only positive *S. aureus* cultures)	48.3	–	–
Pan, 2003	San Francisco jail, 1997–2002	295	Yes	SSTI culture (85%), urine (4%), blood (3%), other test sites (8%)	–	54	–	From 29% in 1997 to 74% in 2002 ($p < 0.0001$)
CDC, 2001	Mississippi state prison, 2000	1,757	Yes	Nasal swab	–	4.9	–	–
Baillargeon, 2004	Texas prison system, 1999–2001	299,179	No	SSTI culture	–	–	Incidence: 12 infections/1,000-person years; Prevalence: 327.9 infections/100,000 inmates	From 25% in 1998 to 66% in 2002 (14)
		336,668	No	Unknown				
Felkner, 2007	Texas county jail, 2004 & 2005	403	No	Nasal swab	28.5	16	4.5	–
David et al. 2008	Cook County (Chicago) jail, 2004–2005	378	No	SSTI culture	94	84.8	79.7	–
Farley, 2008	Central booking intake facility (Baltimore), 2006	602	No	Nasal swab	40.4	39.1	15.8	–
		23	No	SSTI culture	47.8	34.8	–	–

Notes: – =not reported; SSTI=soft skin or tissue infection

Table 2

Recommendations to Prevent and Control MRSA Transmission in Correctional Facilities

General Guidelines for Correctional Personnel	Specific Guidelines for Correctional Personnel
Prevention	
Educate inmates and correctional staff on MRSA	• Provide information on the transmission, prevention, treatment, and containment of MRSA infections.
Enable the practice of good personal hygiene	• Post educational materials on the importance of hand hygiene around the facility, especially in restrooms and washing facilities.
Decrease contact between inmates through sharing of personal items	• Develop and promote a hand hygiene program that emphasizes washing hands before and after meals, after physical activity, and when hands are visibly dirty.
Practice good environmental hygiene	• Instruct inmates in proper hand hygiene and monitor hand hygiene. • Provide inmates with adequate amounts of soap and water to wash hands and body thoroughly. • Instruct inmates to shower and wear clean clothes before and after every physical activity. • Provide each inmate with at least one clean towel and one clean bedspread a week. If an inmate is infected with MRSA, change linens every other day and towels/washcloths every day. • Give each inmate a package of hygiene products for personal use (soap, razors, etc.). • Instruct inmates to use a barrier between skin and shared nonpersonal items and wipe shared equipment before and after use. • Routinely clean all washable nonporous surfaces with an Environmental Protection Agencyregistered disinfectant. • Daily, thoroughly clean and disinfect all facilities where inmates' bare skin may come into contact with shared nonpersonal items (e.g., gym equipment). • Routinely inspect living and bathroom areas and identify visibly dirty areas; clean accordingly. • Launder inmate clothing and linens at least once a week. Treat all soiled clothing as infectious and handle as little as possible. If an inmate is infected, launder clothing and linens daily.
Treatment	
Routinely clean wounds and cover all SSTIs at all times	• For minor SSTIs, use warm soaks and compression 2–3 times daily. • Carefully puncture and drain minor SSTIs of excess fluid. Monitor fluid in SSTIs and repeat drainage when necessary.
Determine appropriate antibiotic therapy for *S. aureus* infection	• Bandage and clean all wounds and scrapes at least once a day. • Culture all SSTIs and assess susceptibility of infection. • Treat *S. aureus* infections with appropriate antibiotic for at least 7 days. • After completion of treatment, frequently reevaluate inmates to ensure new infections have not developed.
Containment	
Practice correctional contact precautions when health care workers come in contact with a suspected MRSA-infected inmate	• Wear gloves when touching an infected inmate or contaminated materials and change after contact has ended. Use other personal protective equipment if splashing or spraying is expected. • Wash hands thoroughly before and after touching infected skin or changing dressings. • Always use single-use disposable items.
Implement proper isolation procedures	• Dispose of contaminated sharp materials properly in a leak-proof, puncture-resistant container. • Dispose of and remove trash containing contaminated materials daily.
Screen incoming inmates for *S. aureus* and MRSA infection/colonization	• Use an EPA-approved disinfectant and daily thoroughly wash all nonporous surfaces. • Determine if an inmate's condition requires isolation from the general population. If a wound is properly dressed and can contain drainage, the inmate need not be isolated. If drainage cannot be properly contained by a dressing or the inmate is unable to properly keep the wound covered, house the inmate in a single cell. • Medical personnel should decide if inmate's visitors/activities should be restricted.

General Guidelines for Correctional Personnel	Specific Guidelines for Correctional Personnel
	• Identify all SSTIs present on incoming inmates.
	• Culture each SSTI and test for *S. aureus*.
	• Run a susceptibility pattern to determine proper treatment and, if necessary, treat inmate with appropriate antibiotic.
	• Bandage and properly clean all SSTIs.

Note: SSTI = soft skin or tissue infection.