

## CLINICAL DECISIONS

## Management of Skin and Soft-Tissue Infection — Polling Results

Sarah P. Hammond, M.D., and Lindsey R. Baden, M.D.

In early September, we presented a case of a college athlete with a skin and soft-tissue infection in Clinical Decisions,<sup>1</sup> an interactive feature designed to assess how readers would manage a clinical problem for which there may be more than one appropriate treatment. Our patient was a healthy 20-year-old college basketball player who presented with a tender erythematous area on the right buttock. He reported that there was no direct trauma to the area. He had traveled throughout the United States for basketball games over the previous several weeks. He noted having subjective low-grade fevers the night before presentation and had a temperature of 37.7°C at presentation. The area of erythema was 5 by 3 cm and had a firm central area 2 cm in diameter. Although he reported that he does not like taking medications, he also expressed concern about being ready to play in his next basketball game in 1 week.

Of the three management options proposed, the most popular — receiving 4585 votes (41% of the 11,205 votes cast) — was incision and drainage plus an oral antimicrobial agent active against methicillin-resistant *Staphylococcus aureus* (MRSA). The second-most popular option, incision and drainage alone, received 3508 votes (31% of the votes cast). A close third, with 3112 votes (28% of the votes cast), was incision and drainage plus an oral antimicrobial agent active against methicillin-susceptible *S. aureus* (MSSA).

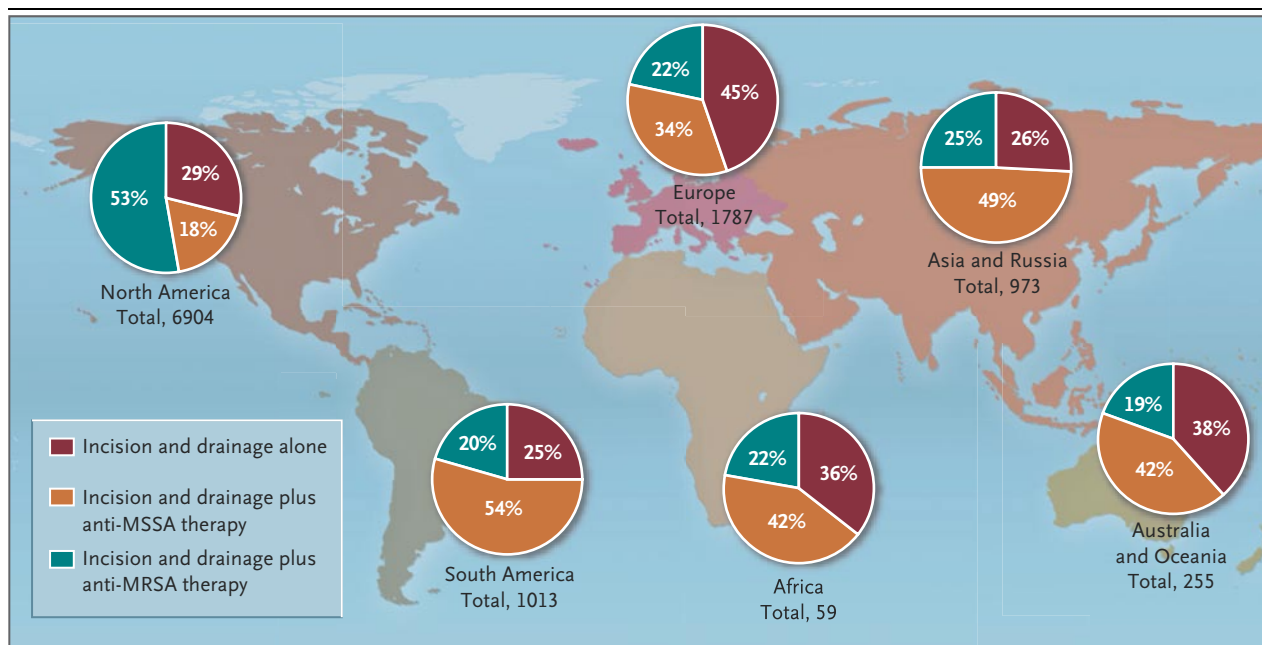
The 11,205 participants who voted were from 124 countries and regions and indicated that they were physicians (66%), medical students or physicians in training (15%), other healthcare professionals (15%), or other (4%). Detailed results are displayed according to country at [www.nejm.org](http://www.nejm.org). The percentage of participants who selected a given treatment option varied substantially when the responses were stratified according to the participants' locations (Fig. 1). Participants in North America favored incision and drainage plus anti-

MRSA therapy (53%); those in Asia and Russia and South America favored incision and drainage plus anti-MSSA therapy (49 to 54%); and those in Africa, Australia and Oceania, and Europe were largely split between incision and drainage alone (36 to 45%) and incision and drainage plus anti-MSSA therapy (34 to 42%).

In addition to votes, we received 407 comments, 92% of which were posted at [www.nejm.org](http://www.nejm.org) (after being reviewed for appropriateness). The numbers of favorable comments were split among the three options in proportions similar to those of the votes cast. The largest number of comments was in support of incision and drainage plus anti-MRSA therapy (157 comments [39%]) and the fewest in support of incision and drainage plus anti-MSSA therapy (108 comments [27%]). Reasons given in support of a particular treatment option varied but included some recurrent themes, as described below.

### INCISION AND DRAINAGE PLUS ANTI-MRSA THERAPY

The majority of respondents in favor of incision and drainage with anti-MRSA therapy were concerned that this athlete is at high risk for community-acquired MRSA infection, because of his activities and travel within the United States. Many participants noted the high overall prevalence of community-based MRSA in the United States, and several made direct or indirect reference to the recent study by Moran et al.,<sup>2</sup> who reported a 59% overall prevalence of MRSA among patients with purulent skin and soft-tissue infection seen at 11 emergency rooms across the United States. In addition, many U.S.-based practitioners cited extensive personal experience in diagnosing and treating skin and soft-tissue abscesses in the community, the majority of which were due to MRSA — as reflected by the 53% of respondents



**Figure 1. Percentage of Participants Choosing Each Treatment Option for the Management of Skin and Soft-Tissue Infection.**

The total number of participants who voted and the percentage who chose each option are shown for each continent or region. The percentage of participants who selected a given option varied substantially according to continent or region. An interactive graphic that includes the total number of votes and percentages according to country is available at [www.nejm.org](http://www.nejm.org).

from North America voting for this treatment option, with all other regions voting for this strategy 19 to 25% of the time.

Many participants noted that this patient's involvement in organized sports also increases his risk for MRSA infection. Several cited evidence, such as the 2005 description<sup>3</sup> of an outbreak of MRSA infection among members of the St. Louis Rams professional football team, to suggest that MRSA can be spread among athletic teammates through direct contact and shared equipment. Some participants suggested that the patient's basketball team should be educated about personal hygiene to avoid the spread of MRSA. Others noted that the patient should be assessed for MRSA colonization and treated with an antiseptic body wash, intranasal therapy, or both to reduce MRSA colonization, thereby preventing reinfection and spread to others.

Many of the respondents favoring this option noted that community-acquired MRSA causes a more virulent infection than more susceptible bacteria. On the basis of the perceived increased virulence of community-acquired MRSA, many suggested that infections suspected to be community-acquired MRSA, such as this one, require

aggressive therapy with combination oral antimicrobial therapy and mechanical drainage as well as close follow-up. In addition to starting empirical anti-MRSA therapy at the time of drainage, most respondents were in favor of wound culture at the same time, both for both epidemiologic purposes and to allow for later adjustment of the antibiotic therapy if the infection is not due to MRSA. Furthermore, several practitioners felt that oral anti-MRSA therapy would address two other problems commonly seen with community-acquired MRSA skin infection: multifocal skin involvement and recurrent infection. Respondents also noted that they wished to decrease the risk of more serious complications, such as bacteremia or deep metastatic foci of infection, and that treatment with oral anti-MRSA therapy may be useful in this regard. A few participants also suggested that the addition of oral antibiotics may lead to faster resolution of the infection, which is a priority for this basketball player.

#### INCISION AND DRAINAGE ALONE

The majority of respondents who favored incision and drainage alone thought that this approach

should be sufficient to eradicate a soft-tissue abscess in a healthy patient, regardless of the bacterial species causing the abscess. Several respondents either directly or indirectly cited two recent studies: that by Moran et al.,<sup>2</sup> showing similar outcomes in patients treated with effective antibiotics and those treated with ineffective antibiotics after incision and drainage for this type of infection, and that by Rajendran et al.,<sup>4</sup> showing similarly excellent outcomes after incision and drainage for this type of infection in patients who received cephalexin and in those who received placebo, despite the fact that almost 90% of staphylococcal isolates in the study were methicillin-resistant. Other common arguments in favor of incision and drainage alone focused on avoiding unnecessary exposure to antibiotics in this patient, who dislikes taking medications (and who may not be compliant). A few respondents also noted that in addition to providing adequate treatment, this option costs less than the other two.

Many participants had suggestions about further management of this type of infection after incision and drainage. Several suggested that a wound culture should be performed at the time of incision and drainage and that the infection site should be reassessed within 24 to 48 hours. Furthermore, several noted that if there was not significant clinical improvement at the infection site within 24 to 48 hours, antibiotics deemed to be appropriate on the basis of the previously obtained culture should be initiated. This approach would avert unnecessary antimicrobial therapy and allow for optimal targeting of antimicrobial therapy, if required.

#### INCISION AND DRAINAGE PLUS ANTI-MSSA THERAPY

Many respondents who favored incision and drainage plus anti-MSSA therapy stated that antibiotics should be added to incision and drainage to treat the nonpurulent soft-tissue and skin component of the infection. Like the respondents in favor of the other two options, many felt that a culture of the abscess should be performed at the time of drainage. Several mentioned that if cultures later grew MRSA, then antibiotic therapy could be altered appropriately at that time. A few stated that this treatment option also allowed for effective antibiotic treatment of nonstaphylococcal causes of skin infection, such as streptococcal species, that are not targeted by the commonly

used anti-MRSA agent trimethoprim-sulfamethoxazole.

Notably, this strategy was favored by respondents practicing in Asia and Russia and in South America, with many respondents from these regions citing low local and national rates of MRSA infection. Partly because of these low rates, these responders pointed out that empirical anti-MSSA therapy is the most appropriate option in their area.

#### SUMMARY

The management of skin and soft-tissue abscess remains controversial. A healthy debate is ongoing about whether drainage alone or drainage with systemic therapy is the appropriate treatment for affected patients. As noted by the discussants of our Clinical Decisions article and by the many respondents, the same body of literature can be used to support various treatment approaches.

A common theme emerged from the participants who chose incision and drainage plus either type of systemic antimicrobial therapy: the antimicrobial spectrum of the agent (anti-MRSA or anti-MSSA) should be chosen on the basis of the patient's exposures and the local epidemiologic data. Although community-acquired MRSA has become increasingly prevalent in many parts of North America, it remains uncommon in some parts of the continent and in many other parts of the world. As infectious organisms evolve and migrate, so must our treatment strategies.

Comments from the interactive feature will remain available at [www.nejm.org](http://www.nejm.org), along with data on the voting results. We thank you for your participation, and we look forward to hearing from you again soon about another challenging case.

No potential conflict of interest relevant to this article was reported.

Dr. Hammond is from the Division of Infectious Diseases, Brigham and Women's Hospital.

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