

Variability among Pediatric Infectious Diseases Specialists in the Treatment and Prevention of Methicillin-Resistant *Staphylococcus aureus* (MRSA) Skin and Soft Tissue Infections

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Abstract

Introduction: The frequency of community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) skin and soft tissue infections (SSTIs) has increased dramatically among pediatric patients. The purpose of this study was to determine: (1) the degree to which these infections have continued to spread; (2) current strategies used to treat MRSA SSTIs; and (3) methods used to eradicate MRSA nasal colonization.

Methods: The Infectious Diseases Society of America Emerging Infections Network (EIN) distributed a survey to 197 infectious diseases consultants (IDCs) caring for pediatric patients.

Results: Of the 197 pediatric IDCs, 114 (58%) responded. Most IDCs (77.3%) reported that within the last year they had seen more cases than in the previous year. A majority (60.9%) reported seeing an increase in severe cases with a mean of 2.3 patients per IDC requiring ICU support. The primary choice for outpatient therapy was clindamycin (56%) followed by trimethoprim-sulfamethoxazole (38%). Recurrent CA-MRSA disease was estimated to occur in 28.8% of patients. Decolonization practices ranged from no routine decolonization (11%) to initiation with the first episode of MRSA SSTI (8%). Common decolonization practices included mupirocin alone (22%), mupirocin plus chlorhexidine (22%), mupirocin plus rifampin, and bathing with a topical disinfectant (10%).

Conclusions: Pediatric IDCs report a continuing increase in the frequency of MRSA SSTIs and also in the number of severe cases. Considerable variation in strategies for both MRSA SSTI treatment and eradication of MRSA nasal colonization were reported. Further studies are needed to determine the optimal methods for preventing and treating MRSA SSTIs.

Background

Infections in children and adolescents due to community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) have increased over recent years, with this pathogen accounting for 70% of all community-associated staphylococcal infections in some regions. The majority of CA-MRSA infections present as uncomplicated skin and soft-tissue infections, but multi-focal abscesses, necrotizing pneumonia, and fulminant staphylococcal sepsis have been described.

Unfortunately, limited real-time data are available about the epidemiology and geographic spread of this disease among pediatric patients. There has been an observed increase in nasal colonization due to CA-MRSA, leading to a renewed interest in methods to eradicate MRSA colonization [6, 7]. However, available data are not sufficient to either guide treatment approaches to MRSA SSTIs or recommend one decolonization regimen over another. As a result, many treatment and decolonization practice patterns likely exist, many of which may be of unproven benefit. The purpose of this study was to document the degree to which SSTIs caused by MRSA have continued to spread among pediatric patients and to determine the current strategies in use by infectious diseases specialists to treat soft-tissue infections due to MRSA and eradicate MRSA nasal colonization.

Methods

The Infectious Diseases Society of America (IDSA) Emerging Infections Network (EIN) is a provider based sentinel network of infectious disease specialists who regularly engage in clinical practice and belong to either the Infectious Diseases Society of America (IDSA) or the Pediatric Infectious Diseases Society (PIDS). In August of 2006, staff at the EIN coordinating center (Iowa City, Iowa) distributed a survey to 197 infectious diseases consultant (IDCs) members caring for pediatric patients in the U.S.

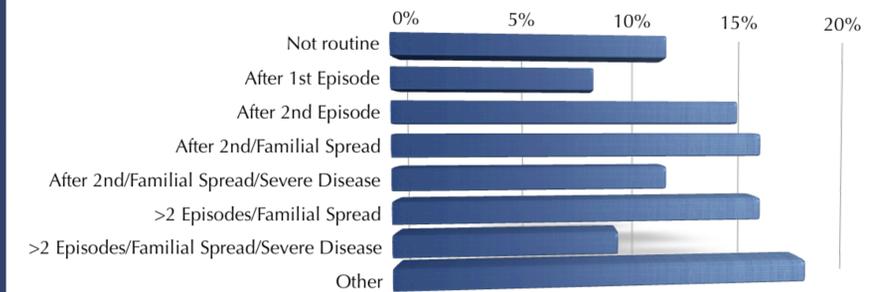
The survey inquired about the occurrence of SSTIs caused by MRSA, treatment approaches, frequency of recurrences, and decolonization approaches. For the survey, MRSA SSTIs were defined as including the following clinical presentations: appears like insect or spider bite; folliculitis, pustular lesions; furuncle, carbuncle (boils); abscess (especially with tissue necrosis); and infected wounds. The geographic distribution of respondents is shown below.

One-hundred fourteen IDC's responded (58%) from 39 different states. Respondents and non-respondents were similar with respect to geographic census region ($p = 0.40$), practice location (urban, rural) ($p = 0.24$), practice type (academic, private practice) ($p = 0.13$) and whether they were involved in teaching or non-teaching practice settings ($p = 0.09$).

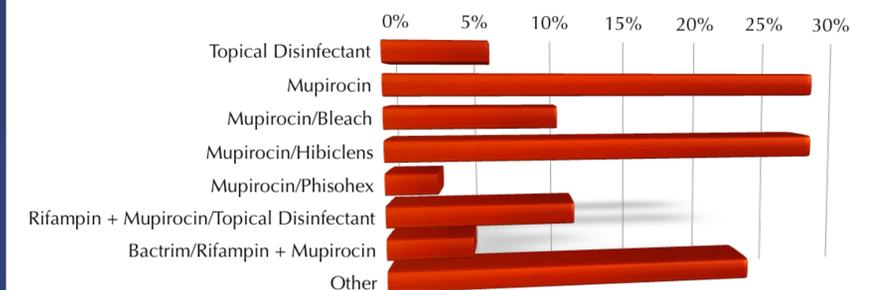


Results

Reasons for Initiation of MRSA Decolonization Protocols

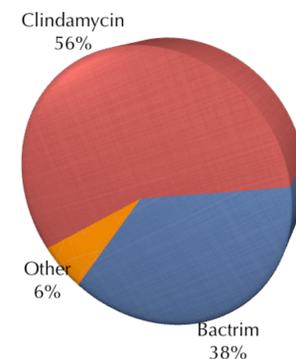


Typical Maneuvers Utilized for MRSA Decolonization

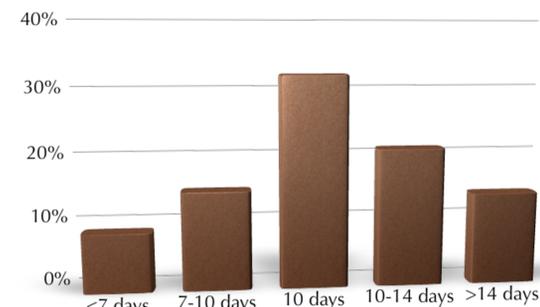


Results

Typical Initial Therapy for Suspected MRSA SSTI



Typical Length of Therapy for MRSA SSTI



Conclusions

The extreme variability in both treatment and decolonization practices highlights the need for randomized, controlled clinical trials of pediatric MRSA colonization and disease that will provide more clear guidance for the management of these difficult clinical situations. While such a trial would require a substantial number of patients and significant resources, it is a critical next step in the development of standardized approaches to treatment and decolonization.

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