

## Editorial

# Control of Nosocomial Methicillin-Resistant *Staphylococcus aureus*: Where Shall We Send Our Hospital Director Next Time?

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*All I maintain is that on this earth there are pestilences and there are victims, and it is up to us, so far as possible, not to join forces with the pestilences.—Albert Camus<sup>1</sup>*

In the midst of a hospital-wide campaign to combat the rising incidence of methicillin-resistant *Staphylococcus aureus* (MRSA) at our institution, our hospital director, together with other high-ranking hospital administrators, traveled to Boston, Massachusetts, to visit a prestigious teaching hospital and learn more about the way health care is being delivered in the United States. Apparently, our director was impressed by the efficiency and quality of healthcare delivery he encountered. Moreover, after returning to Geneva, he informed senior staff members that hospital officials in Boston had told him that their hospital no longer applied isolation precautions to control the spread of MRSA, 35 years after the first description of a hospital-wide MRSA outbreak in that city.<sup>2</sup> At the same time, we knew that we had had more than 700 new MRSA cases in our hospital in 2002 and that substantial efforts would be necessary to stop the spread of MRSA. Those who are facing endemic MRSA infections may ask themselves whether the hospital in Boston is really the kind of role model we want to follow in the 21st century. Is it time to give up fighting and searching for MRSA?<sup>3</sup> Is the “war” over?<sup>4</sup> Or, alternatively, should we not be considering increased efforts to control this persistent pathogen with screening policies and isolation precautions?

Endemic MRSA cross-infection represents a global problem, although major differences in MRSA control have been achieved with different strategies.<sup>5-7</sup> A few countries such as Finland and the Netherlands have managed to control MRSA to a low level using active surveillance cultures

and contact precautions.<sup>8,9</sup> Other countries (eg, Canada and Germany) that were “MRSA naive” until recently have not installed stringent, nationwide MRSA surveillance and control measures and are now in the middle of some large MRSA epidemics.<sup>10-12</sup> Some countries with high prevalences (eg, Belgium and France) have managed to stabilize the situation in confined geographic areas. For instance, in a large set of teaching hospitals in the Paris area (Assistance Publique–Hôpitaux de Paris; 25,000 beds) where a stringent program for MRSA control was set up in 1993, the proportion of MRSA among clinical isolates of *S. aureus* decreased between 1993 and 2002 from 55% to 25% in patients in the intensive care unit and overall from 39% to 29% in patients in the acute care unit (V. Jarlier, MD, personal communication, April 16, 2003). Yet, few countries such as Japan have simply ignored this public health problem for more than three decades.

Perhaps second only to Japan, the United States has the unenviable position of being one of the world leaders in the prevalence of methicillin resistance and of reduced susceptibility to glycopeptides among *S. aureus* isolates.<sup>6,13,14</sup> For instance, more than 50% of all *S. aureus* isolates in U.S. intensive care units are now methicillin resistant and, recently, the first high-level vancomycin-resistant *S. aureus* isolates were reported from the United States.<sup>13,15</sup> This worrisome finding suggests that previous initiatives to stop the spread of multidrug-resistant *S. aureus* in the United States have failed. In this context, it is surprising to read the following statement from U.S. public health authorities (unsubstantiated by data) on a frequently visited web site: “Standard Precautions, as described in the ‘Guideline for Isolation Precautions in Hospitals,’<sup>16</sup> should control the spread of MRSA in most instances.”<sup>17</sup> To our understand-

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ing, standard precautions have been required by federal regulation for 7 years in all U.S. healthcare facilities but this does not seem to have resulted in control of the problem. One carefully performed study showed that MRSA transmission occurred 16 times more often with standard precautions than when colonized patients were identified with surveillance cultures and cared for using contact precautions.<sup>18</sup> Another recent study from the Netherlands suggested an even higher relative risk for spread when patients were cared for using standard precautions as compared with isolation precautions.<sup>19</sup> Indeed, many reports have stressed the importance of active screening policies and contact isolation for MRSA-positive patients, especially in high-risk units.<sup>20,21</sup>

In this issue of *Infection Control and Hospital Epidemiology*, Saiman et al.<sup>22</sup> report the containment of a MRSA outbreak in a neonatal intensive care unit in which screening cultures, contact isolation, and cohorting of neonates and healthcare workers were being successfully used. By contrast, an adult intensive care unit in Australia used only standard precautions and had a high rate of MRSA transmission, as shown by regular admission and discharge screening.<sup>23</sup> The difference in outcome between the two units is striking and one is tempted to implicate the differing control strategies.

The conclusions of these two articles support the recommendations of a new guideline also published in this issue of *Infection Control and Hospital Epidemiology* regarding the control of nosocomial spread of MRSA and vancomycin-resistant enterococci (VRE).<sup>24</sup> In this guideline, Muto et al. recommend that hospitals in the United States and elsewhere implement surveillance cultures and contact precautions to control cross-infection of multidrug-resistant gram-positive cocci. Indeed, previous guidelines have failed to contain MRSA, which has continued to increase dramatically despite their use.<sup>25</sup> The new guideline considers this fact, extensively reviews the relevant literature, covers many areas of uncertainty, and provides a sound framework for MRSA and VRE control in the future. It represents a robust and well-documented summary of the available evidence. Therefore, we welcome and commend this guideline.

A limitation in the management and prevention of nosocomial infections has been the lack of evidence from randomized trials. Recent work on a variety of topics makes this clear. For example, the authors of a recent guideline on the management of catheter-related infections noted that randomized trials were unavailable for most of the areas covered.<sup>26</sup> Likewise, the recently published hand hygiene guideline emphasized the need for the use of alcohol hand rubs despite the absence of any randomized trials showing that this would reduce infection rates.<sup>27</sup> Perhaps in part due to the lack of such studies, widespread misconceptions about the value of alcohol-based hand antisepsis persisted through the 20th century.<sup>28</sup> Nevertheless, the conclusions and recommendations of both of these guidelines appear reasonable. For many important questions regarding infection control and MRSA control in particular, we may never

obtain data from randomized trials because of the general lack of funding, feasibility issues, and ethical dilemmas. Thus, the opinions of experts critically appraising the available epidemiologic evidence that supports infection control practices will likely always remain a key component of guidelines in our field.

We consider the conclusions of the guideline for preventing nosocomial spread of MRSA and VRE to be well reasoned and correct based on the available data. If all public health authorities were to adopt this guideline and all healthcare facilities were to follow its proactive approach, it is likely that the almost universal failure to control MRSA in U.S. healthcare facilities would be reversed. It might be argued that some of the studies, such as that by Saiman et al. in this issue, used additional measures such as cohorting or an isolation ward. However, many of the studies reporting successful control did not use these two measures and virtually all did report using active surveillance cultures and contact precautions, which seem to be almost a sine qua non for success. Studies reporting successful control without these measures seem to be the exception rather than the rule, and the success reported in such studies has often been modest.<sup>29</sup>

We feel certain that those who have not read the many studies referenced by the new guideline will be tempted to criticize its bold proposal that all healthcare facilities start controlling MRSA and VRE infections. Whatever the criticism, health authorities and hospital epidemiologists are well advised to put teeth and money into their control efforts as recommended by the guideline. Hospital administrators in particular should not wait until nosocomial acquisition rates of MRSA become a key quality indicator for hospital benchmarking.<sup>5,30</sup> Clearly, MRSA control is cost-effective, and particularly so in high-risk units.<sup>20,31,32</sup> We, like others, are convinced that there is no level of MRSA prevalence for which active control measures are not warranted. Precautions to combat transmission of multidrug-resistant microorganisms such as MRSA and VRE on a routine basis should find their way into all hospitals with the ultimate benefit of improving patient safety.

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