

## Neonatal Methicillin-Resistant *Staphylococcus aureus* Surveillance and Management Practice: Results of a National Irish Survey

To the Editor—Methicillin-resistant *Staphylococcus aureus* (MRSA) is a significant cause of morbidity and mortality in neonates cared for in special and intensive care units.<sup>1</sup> In the United Kingdom and Ireland, 46% of pediatric MRSA-related sepsis was reported to occur within neonatal units.<sup>2</sup> Nosocomial infections complicate and prolong neonatal intensive care unit (NICU) stay, worsening prognosis and outcome for this already very vulnerable patient group.

MRSA-colonized infants are known to be at an increased risk of developing invasive infection.<sup>1</sup> In light of this, there has been a move toward primary prevention of MRSA infection; this has led to the practice of active surveillance by screening to allow for earlier identification and isolation of colonized infants.

Recently updated Irish national guidelines (2013) include recommendations for in-hospital screening for MRSA, with a specific subsection dedicated to the neonatal setting.<sup>3</sup> Key aspects of the guidance include (i) screening all infants at admission to the NICU and weekly thereafter; (ii) swabbing the umbilicus, in addition to the routine recommended sites for all inpatients (namely, swabbing the anterior nares, throat, and perineum or swabbing the groin); and (iii) infants found to be colonized are isolated and decolonized.

In 2013, we completed a survey of Ireland's neonatal units to identify MRSA surveillance and management practice, assess for variation between centers, and compare practice with national guidelines. The survey was completed via a structured telephone interview, and data were gathered from senior nursing staff or the infection control nurse specialist within each unit.

The birth rate in the Republic of Ireland was approaching 72,000 births per year in 2012. Annually, approximately 11,000 infants require admission to either a special care baby unit or NICU. At the time the survey was conducted, there were 20 units nationwide, 12 primary units (less than 3,000 births per year, gestation greater than 32 weeks), 4 secondary units (1,700–5,300 births per year, gestation greater than 27 weeks), and 4 tertiary units (greater than 8,000 births per year, all gestations). We achieved a 100% response rate; a summary of results is provided in Figure 1.

All units had an MRSA screening policy. The majority of units (16 [80%] of 20) screen all infants at the time of admission, 3 reported screening only external transfers into their unit, and 1 reported weekly screening on a specified day.

Routine weekly surveillance screening occurred in 15 of the 20 units (75%). Sites swabbed were reported as follows: external nares, 19 (95%) of 20 units; umbilicus, 17 (85%) of 20; groin, 16 (80%) of 20; and axilla, 7 (35%) of 20. None of the units routinely performed throat swabbing; 70% swabbed the combination of nares, umbilicus, and groin or swabbed the perineum.

All units reported an attempt to isolate MRSA-colonized infants, with 16 units (80%) having the facility to isolate in

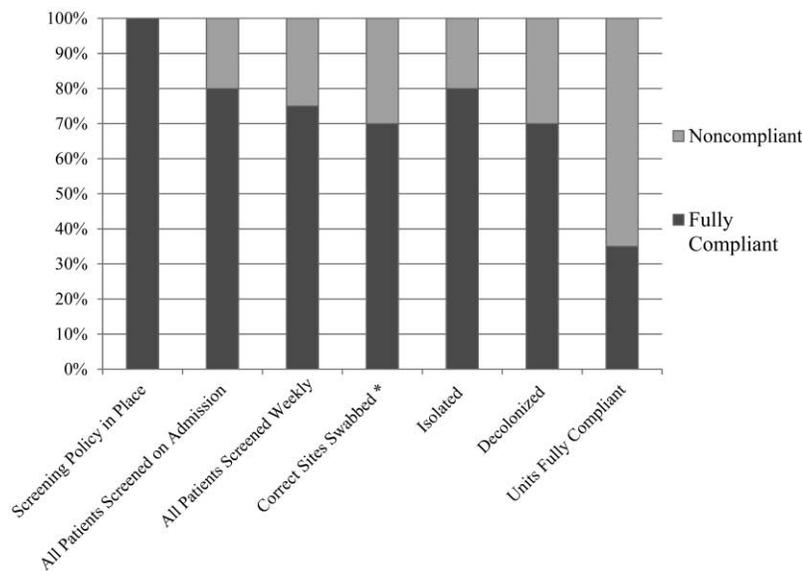


FIGURE 1. Bar chart representing unit compliance with each of the national guideline recommendations. Asterisk indicates nares, umbilicus, and groin or perineum.

a single room. Decolonization of MRSA was attempted by the majority of units (14 [70%] of 20). Details of decolonization procedures were not collected. Overall, only 35% of units were fully compliant with national guidelines, other than including throat as a site for screening.

Our survey revealed that routine active surveillance for MRSA is now standard practice in all Irish units delivering neonatal care; however, despite there being a national guideline on the topic, there is significant interunit practice variation. It is of concern that 20% of units do not routinely screen all new admissions. Asymptomatic colonized neonates may act as a significant reservoir for transmission of MRSA.<sup>4</sup> Identification of colonized infants is crucial in minimizing the spread of this neonatal pathogen.

Concerning sites swabbed for screening, we found significant variation in practice. Most units swab some combination of nares, umbilicus, groin, and axilla. National guidelines recommend including umbilicus in addition to the screening sites recommended for all other patients (namely, the nares, throat, and groin or the perineum). We found that no neonatal unit routinely performed throat swabbing. Although the Irish national guidelines conclude overall in favor of including throat swabs in MRSA screening, they also acknowledge that other authorities state that this may not increase sensitivity significantly. In the neonatal setting, given the practical difficulties involved in obtaining a throat swab sample, screening of nares, umbilicus, and groin or of perineum without a throat swab sample is a pragmatic and reasonable approach.

Isolation of colonized infants, in addition to standard contact precautions, has also been shown to be effective in controlling the spread of MRSA within neonatal units. Eighty percent of units surveyed had the facility to isolate colonized infants; the remaining 20% (4 units) did not. The latter units were all level 1 functioning.

Decolonization of MRSA-colonized infants remains a controversial topic with no clear consensus as to its benefit. Some guidelines do not recommend routine decolonization.<sup>4</sup> Six (30%) of 20 units surveyed do not routinely decolonize patients. There are conflicting recommendations in the literature, with the consensus being that more large-scale research is necessary that is specific to the neonatal population.<sup>5</sup>

A similar national survey was completed in the United States in 2010.<sup>6</sup> The findings of that study were comparable to ours, reporting significant variation in practice between units. The majority of the units surveyed (86%) had a screening policy in place, with variable frequency of screening and differences in sites swabbed. That study reported that only 37% of units routinely decolonized patients. These findings, which are in keeping with our own, demonstrate the inconsistencies of screening practices and management of MRSA-colonized neonates internationally. Current data reflect the absence of a universally accepted guideline and the need for more neonatal-specific research and ensuing evidence-based guidance on this topic.

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