STUDY RECOMMENDS SCREENING HEALTHCARE WORKERS FOR MRSA

New research examines the role of healthcare professionals in the spread of MRSA. Nerys Hairon reports on recommendations to screen staff to reduce infection rates.

Healthcare workers should be aggressively screened to help reduce MRSA rates, a review in *The Lancet Infectious Diseases* recommends (Albrich and Harbarth, 2008). These screening measures should be combined with eradication treatments and other infection control measures.

Fighting MRSA remains a high political priority. The Department of Health launched a national campaign this year to remind healthcare staff about the problem of antibiotic resistance (DH, 2008; Hairon, 2008) and to reinforce patient education on appropriate use of antibiotics.

Albrich and Harbarth re-analysed data from 169 studies to assess the role of healthcare staff in the spread of MRSA. They concluded that aggressive screening and eradication policies appear to be justified in outbreak investigations or when MRSA has not reached highly endemic levels.

### KEY FINDINGS

The researchers identified 169 original articles that reported prevalence, risk factors or management of MRSA colonisation or infection in healthcare staff from 37 mostly high-income countries. In 127 investigations, the average MRSA carriage rate among 33,318 screened healthcare workers was 4.6%, while 5.1% of these had clinical infections.

Forty-one studies provided data on the carriage of meticillin-susceptible *Staphylococcus aureus* (MSSA) in healthcare staff. Out of 10,589 workers, 23.7% were found to carry MSSA.

The researchers identified individual risk factors for MRSA colonisation or infection in healthcare practitioners. There are different risk factors for MRSA carriage; MRSA persistence despite eradication treatment; and relapse after eradication.

Risk factors for MRSA carriage include:
- Cutaneous lesions or conditions;
- Sinusitis and rhinitis;
- Chronic otitis externa and ear lobe dermatitis;
- Recent urinary tract infection;
- Cystic fibrosis.

Recent antibiotic use also raises the risk of MRSA carriage.

Work-related factors that increase this risk include:
- Previous work abroad;
- Area of service;
- Employment in areas of high patient MRSA prevalence;
- Close contact with patients (such as wound contact);
- Poor attention to infection control.

Risk factors for MRSA persistence despite eradication treatment include cutaneous lesions or conditions, and mupirocin resistance. Factors that raise the risk of relapse after eradication include upper respiratory tract infection, chronic otitis externa and mupirocin resistance.

Poor infection control practices are implicated in acquisition and transmission of MRSA by staff. However, the authors say that even good adherence to infection control (including masks) and hand hygiene did not entirely prevent MRSA spread from heavily colonised staff to patients. Furthermore, several studies identified no risk factors for MRSA colonisation.

### MRSA transmission

The researchers analysed the spread of MRSA from healthcare staff to patients in 106 studies, of which 27 reported clear molecular and epidemiological evidence of MRSA transmission from staff to patients.
and a further 52 studies considered it likely. Likely or proven transmission of MRSA to patients from healthcare workers without clinical or subclinical symptoms was reported in 44 studies. A quarter (25%) of the 106 investigations could not prove spread between practitioners and patients. Transmission to healthcare workers’ family members was reported in eight studies. Only one report did not identify carriage among close contacts of colonised staff.

There are three types of MRSA carrier status for healthcare staff: non-carriers; persistent carriers chronically colonised with the same strain; and intermittent or transient carriers, who are colonised with varying strains for short time periods.

The review found that both community-associated MRSA and hospital-acquired MRSA have spread to close contacts of healthcare workers. The authors state that this not only poses risks for family members but also can lead to its further spread.

While a recent review of MRSA outbreaks recommended that screening should focus on staff with symptomatic infection, Albrich and Harbarth argue that screening only infected staff is likely to miss many asymptomatic workers who could spread MRSA to patients. Their research found 18 studies with proven and 26 with likely transmission to patients from healthcare workers not clinically infected with MRSA.

In addition, they say the results suggest that screening should not be limited to places with MRSA outbreaks, since there is a pattern of higher colonisation rates in settings with endemic MRSA. In contrast to the common opinion that healthcare staff are usually victims of MRSA spread, the review found 79 studies that suggested they had a causal role in transmitting it to patients.

RECOMMENDATIONS

The authors propose that healthcare worker screening should take place regardless of the presence of risk factors or purulent infections, as part of a pre-employment examination. They also suggest that it could take place periodically and unannounced before a work shift to avoid detecting just transient carriers.

Furthermore, to increase detection of MRSA, both nose and throat swabs should be taken with separate swabs since eradication therapy differs depending on the location of the MRSA. While the authors acknowledge that implementing routine screening is not feasible in many healthcare settings because of cost, they point out that in regions of low MRSA prevalence, such as Scandinavia, close healthcare worker surveillance is routine practice.

Consequently, they recommend screening staff during outbreak investigations and during early stages of an ‘institutional epidemic’ when MRSA prevalence is still low or when a new strain is spreading rapidly.

In settings with endemic MRSA or limited resources, the researchers advise that priority should be given to staff in high-risk units such as ICUs, burn units or surgical wards (especially cardiovascular and orthopaedic surgery). Healthcare staff having surgery should be evaluated for MRSA carriage and potential eradication treatment.

Screening policy

The review stresses that screening and eradication measures should always be part of a comprehensive infection control policy, including staff education and compliance with hand hygiene and contact precautions. It emphasises the importance of avoiding feelings of guilt or stigma among colonised healthcare staff, and of not disrupting relationships between practitioners and the infection control team.

The authors say that MRSA carriage or infection in a staff member should be considered an occupational hazard and injury to avoid damaging their careers.

CONCLUSION

The review concludes that around 5% of healthcare practitioners become colonised with MRSA, of whom approximately 5% develop clinical disease. Staff are likely to be important in the spread of MRSA, most often acting as vectors rather than a main source of transmission. Good hand hygiene is essential to control its spread.

Albrich and Harbarth state that although no single approach will work universally, aggressive screening and eradication policies seem justified in outbreak investigations or when MRSA has not reached highly endemic levels. ■