

# **Results from a Survey of Acute Hospitals on the Implementation of the 2005 Updated National Guidelines on the Control and Prevention of MRSA**

## **Introduction**

The most recent national guidelines on the control and prevention of MRSA were launched by the Minister for Health and Children, Ms. Mary Harney in September 2005. During the drafting of these guidelines, which was undertaken by the Strategy for the control of Antimicrobial Resistance in Ireland (SARI) Infection Control Sub-Committee, concern was expressed during the feedback phase that the guidelines and standards were beyond those that would be possible in many Irish hospitals, when there were deficiencies in the physical resources, (e.g. insufficient isolation rooms) and where there were major gaps in expertise and personnel, (e.g. no microbiologist on site in some acute hospitals and inadequate numbers of infection control and prevention nurses). Nonetheless, the Sub-Committee decided that the guidelines should reflect best international practice, but acknowledged in the document that the guidelines should be used to advocate for improved resources and facilities.

During the second half of 2006, the SARI Infection Control Sub-Committee decided that it would be opportune to review the implementation of these guidelines and to establish what challenges remained in the prevention and control of MRSA in Irish hospitals. For some components, e.g. the presence of a written antibiotic policy, there was previous data available from the North/South study of MRSA in 1999.<sup>1</sup>

## **Methodology**

The questionnaire was drafted and corrected following feedback from members of the SARI Infection Sub-Committee and from others.(Appendix 1) It was decided to keep the questionnaire short to try to ensure that as many hospitals as possible would

provide information, i.e. not to go beyond two sides of an A4 page. The major headings covered were

- General measures
- Antibiotic stewardship
- Surveillance
- Patient isolation and cohorting
- Eradication of MRSA carriage
- Overall implementation of guidelines and factors impacting on guideline implementation.

The questionnaire was finalised in early 2007 and forwarded to 60 acute hospitals with a brief explanatory document. Reminders were sent to hospitals who did not reply within the deadline.

## **Results**

Replies were received from 49 (83%) of the acute hospitals circulated. However, these hospitals are broadly representative of acute hospitals throughout the country. In particular, only one regional hospital outside Dublin and one large/tertiary referral hospital in Dublin were absent from the list of responders.

### ***General measures***

In 45 (92%) hospitals, hand hygiene education takes place and audit results are available in 30 (61%) of these. For those hospitals who undertake hand hygiene audits, compliance with hand hygiene recommendations is 70% or over, in 15 (50%) hospitals.

### ***Antibiotic Stewardship***

Only 33 (67%) hospitals have an antibiotic policy but of these 28 (82%) have updated the policy in the last three years. An antibiotic stewardship programme is present in a minority of hospitals, i.e. 17 (35%).

### ***Surveillance***

Surveillance of MRSA takes place in 47 (96%) hospitals and (41) 84% participate in the European Antimicrobial Resistance Surveillance System (EARSS).

### *Patient isolation and cohorts*

Ten per cent of hospitals did not provide information on this topic and in all, 19 (39%) hospitals had bed occupancy rates of 90% or higher. Only thirteen (27%) hospitals had 2.9 metres or more between beds, the agreed standard for distances between patients. Only five (10%) hospitals had a ratio of single-bedded rooms to total beds of 1:3, while 10 (21%) had ratios between 1:11 and 1:15, and 9 (18%) had ratios of greater than 1:15. Only 3 (6%) hospitals had an MRSA cohort area.

### *Eradication of MRSA carriage*

Thirty-three (67%) and 39 (80%) hospitals, eradicated MRSA in surgical patients with a prosthesis and in ICU patients, respectively.

### *Overall implementation of guidelines*

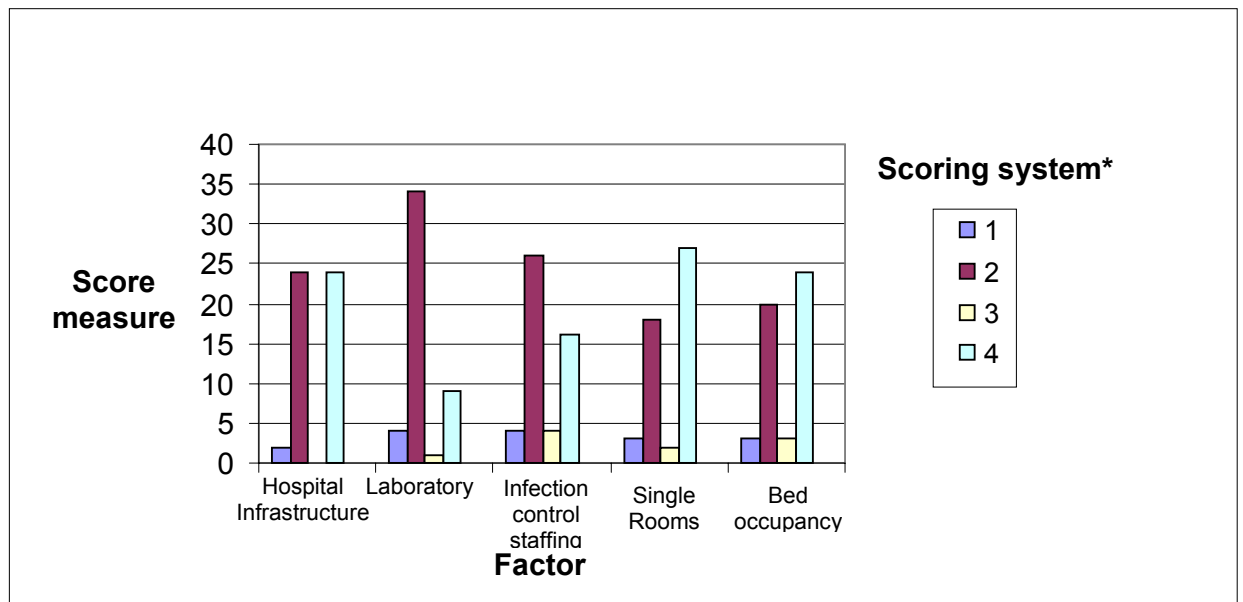
Thirty-six (73%) hospitals have a strategic plan that includes infection prevention and control, and of these hospitals, 26 (72%) use the national MRSA guidelines. Thirty-three (67%) hospitals have an annual infection control plan and the vast majority, 94%, incorporate the national MRSA guidelines. However, 43 (88%) hospitals believe there are barriers to the implementation of the national MRSA guidelines.

### *Factors impacting on guideline implementation (figure 1)*

- Only one (2%) hospital believe that hospital infrastructure is adequate to allow full implementation but twenty-four (49%) believe that it is adequate to allow partial implementation. Twenty-four (49%) hospitals believe that the hospital infrastructure is inadequate to allow full implementation.
- Only three (6%) hospitals believe that the laboratory resources are adequate to allow full implementation. However, 34 (69%) hospitals believe that laboratory resources are adequate to only allow partial implementation.
- Twenty-six (53%) and 15 (31%) hospitals respectively believe that infection control staffing is either only adequate to allow partial implementation or inadequate to allow implementation.

- Only three (6%) hospitals believe that the availability of single rooms is adequate to allow full implementation of the national MRSA guidelines. Twenty-six (53%) hospitals believe that the availability of single rooms is inadequate to allow implementation. Finally, only three (6%) hospitals believe that bed occupancy does not impact on the implementation of national MRSA guidelines.

**Figure 1 Factors impacting on MRSA guideline implementation**



\*The scoring system used is as follows:

- 1 Adequate to allow full implementation
- 2 Adequate to allow partial implementation
- 3 No impact on implementation
- 4 Inadequate to allow implementation

## Discussion and Conclusions

Over two years after the launch of the most recent national guidelines on the control and prevention of MRSA, major challenges remain in ensuring the full implementation of these guidelines, which are based on best international practice. It is of concern that 8% of hospitals do not have hand hygiene education even though

national guidelines on hand hygiene were launched at the same time, i.e. September 2005.

Despite considerable publicity and efforts nationally to promote the importance of prudent antibiotic use, there are still 16 (33%) out of 49 hospitals that do not have a written antibiotic policy and a minority of Irish acute hospitals have an antibiotic stewardship programme. In the North/South Study of MRSA in Ireland in 1999, less than half (41%) of hospitals had a written antibiotics policy.<sup>1</sup> Therefore there has been some improvement but all hospitals should have a written antibiotic policy in place. Compared with the Netherlands, where bed occupancy rates are usually 70-80%, bed occupancy rates in Irish acute hospitals are well in excess of what is optimal for MRSA control, and too little space between beds and the inadequate numbers of isolation beds, also hampers MRSA control.

Although eradication of MRSA in colonised patients is generally considered a major component of MRSA prevention and control strategies, the scientific basis to justify this in all patients is not robust. Nonetheless, there is good evidence that it is justified particularly in patients undergoing prosthetic surgery and patients undergoing cardiac surgery. Most would probably also agree that MRSA eradication should be undertaken in ICU patients because of the presence of high risk patients in the immediate vicinity.

It is a concern that almost a quarter of hospitals do not include infection prevention and control in the hospital strategic service plan and almost a third of hospitals still do not produce an annual infection control plan. The majority of hospitals that responded indicated that hospital infrastructure, laboratory resources, infection control staffing, the availability of single rooms and bed occupancy levels, were either adequate to allow only partial implementation or were inadequate to allow implementation of national guidelines on the control and prevention of MRSA.

While this survey clearly identifies the physical resources that are an impediment to adequate prevention and control, e.g. inadequate numbers of isolation rooms, inadequate space between beds, there are other areas which can be addressed, either with current staffing levels or in the short term with the appointment of additional experts in the area such as consultant microbiologists, infection control and prevention nurses and antibiotic liaison pharmacists. National strategies should ensure that:

- All hospitals have a hand hygiene educational programme and that audits are carried out regularly.
- Written antibiotic policies should be available in each hospital and should be updated at least every three years. There should be an on-going antibiotic stewardship programme in place.
- All hospitals should be encouraged to attempt MRSA eradication in high risk patients such as those undergoing prosthetic surgery, and in intensive care unit patients.
- All hospitals should be compelled to include infection prevention and control as part of their strategic service and to produce an annual infection control plan.
- Factors impacting locally on guideline implementation as revealed in this survey, i.e. hospital infrastructure, laboratory resources, infection control staffing, the availability of single rooms and bed occupancy levels, should be communicated to the Health Services Executive and the Department of Health and Children as a priority.

The findings from this survey should guide further developments and activities in improving the care of patients through the reduction of all healthcare-associated infection, including those infections caused by MRSA.

## References

1. Department of Health and Children. North/South Study of MRSA in Ireland 1999.

## Appendix 1: The questionnaire

<b>General Measures</b>			
1.	Is there an ongoing hand hygiene education programme within your hospital?	Yes	<input type="checkbox"/> No <input type="checkbox"/>
2.	Do you have recent audit results, (i.e. within the last six months) of compliance with hand hygiene recommendations in your hospital?	Yes	<input type="checkbox"/> No <input type="checkbox"/>
2a.	If Yes, please indicate the percentage compliance with hand hygiene recommendations?	%	<input type="text"/>
<b>Antibiotic Stewardship</b>			
3.	Do you have a written antibiotic policy for your hospital?	Yes	<input type="checkbox"/> No <input type="checkbox"/>
3a.	If Yes, when was the last time it was updated i.e. year and month?		<input type="text"/>
4.	Do you have an antibiotic stewardship programme in your hospital run through the Drugs and Therapeutics Committee or equivalent?	Yes	<input type="checkbox"/> No <input type="checkbox"/>
<b>Surveillance</b>			
5.	Do you have a regular programme of surveillance of MRSA throughout your hospital?	Yes	<input type="checkbox"/> No <input type="checkbox"/>
6.	Do you participate in the EARSS programme of bloodstream infection surveillance, which covers MRSA?	Yes	<input type="checkbox"/> No <input type="checkbox"/>
<b>Patient Isolation and Cohorting</b>			
7.	What is the average bed occupancy rate in your hospital?		<input type="text"/>
8.	Are there usually at least 2.9 metres between the centres of adjacent beds in your general wards?	Yes	<input type="checkbox"/> No <input type="checkbox"/>
9.	What is the ratio in your hospital between the number of single rooms that can be used for isolation purposes, and the total bed complement?		
	One single room for every:	1-3 beds	<input type="checkbox"/> 4-6 <input type="checkbox"/>

		7-10	<input type="checkbox"/>	11-15	<input type="checkbox"/>
		>15	<input type="checkbox"/>		
10.	Do you have a dedicated isolation unit or MRSA cohort area in your hospital?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
<b>Eradication of MRSA carriage</b>					
11.	Do you routinely attempt to eradicate MRSA from patients who are due to undergo surgery involving a prosthesis?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
12.	Do you routinely attempt to eradicate MRSA from patients in the ICU?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
<b>Overall implementation of guidelines</b>					
13	Is infection prevention and control included as a key component of your hospital's strategic service plan?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	13a: If "Yes", have the SARI MRSA guidelines been incorporated into the service plan?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
14	Does your hospital have an annual infection control plan?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	14a: If "Yes", have the SARI MRSA guidelines been incorporated into the infection control plan?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
15	Have you encountered barriers that prevent or hamper local implementation of the SARI MRSA guidelines?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
<b>Factors impacting on guideline implementation</b>					
16	Please indicate what impact, if any, the following factors (A to E below) have had on the implementation of the SARI MRSA guidelines in your hospital since their launch in September 2005, using the following scoring system (1-4) :				
A	Hospital infrastructure		<input type="checkbox"/>		
B	Laboratory resources		<input type="checkbox"/>		
C	Infection control and prevention team staffing		<input type="checkbox"/>		
D	Availability of single rooms		<input type="checkbox"/>		
E	Bed occupancy		<input type="checkbox"/>		

**SARI Infection Control Subcommittee, December 2007**