

# Methicillin resistant *Staphylococcus aureus* (MRSA)

## Guidance for acquisition surveillance

### Background

*Staphylococcus aureus* (*S. aureus*) is a Gram positive bacterium that can colonise human skin and mucosa as well as causing a wide variety of infections ranging from superficial skin infections to severe life threatening infections such as pneumonia or septicaemia.

*S. aureus* isolates resistant to the antibiotic methicillin are termed methicillin-resistant *S. aureus* (MRSA) and were first identified in the early 1960s. Since that time, MRSA has become endemic within healthcare facilities in many parts of the world.

This guideline outlines a laboratory-identified event surveillance framework that can be used to provide an acquisition rate of MRSA in a facility. MRSA acquisition surveillance is useful in monitoring trends of transmission rates and assessing the impact of prevention programs.

It does not demonstrate the burden of disease as no distinction is made within this framework between colonisation and infection.

### Definitions

- **MRSA** – *S. aureus* resistant to methicillin and flucloxacillin. The laboratory will report *S. aureus* resistant to flucloxacillin as a MRSA isolate.
- **Hospital onset MRSA acquisition** – a patient's first MRSA isolate from a specimen collected  $\geq 48$  hours after hospital admission or  $\leq 48$  hours after discharge where the length of stay of the patient is  $\geq 48$  hours. This includes the first positive isolate after MRSA clearance criteria met.
- **Patient days** - the total number of days for all patients who were admitted for an episode of care and who separated (e.g. discharged to home or death) during a specified time period. This includes patients admitted before the specified period but excludes those who did not separate until the following specified time period.
- **Hospital MRSA acquisition rate** – new hospital onset MRSA acquisitions (including reacquisitions for patients who have previously met the MRSA clearance criteria) a month per patient days.

### **Inclusion criteria**

- All inpatients that have a new MRSA isolate identified  $\geq 48$  hours after admission or  $\leq 48$  hours after discharge where the patient's length of stay was  $\geq 48$  hours.

### **Exclusion criteria**

- Patients admitted to hospital with a length of stay of  $< 48$  hours.
- Non inpatients – patients attending a hospital but not admitted.
- Patients identified as currently colonised or infected with MRSA.

### **Calculation of hospital MRSA acquisition rate**

- Numerator – new hospital onset MRSA acquisitions.
- Denominator – patient days.

Hospital MRSA acquisition rate can be calculated for a specific time period as follows:

$$\frac{\text{Total new hospital onset MRSA acquisitions}}{\text{Number of patient days}} \times 10\,000$$

### **Reporting**

Report MRSA-acquisition data to relevant stakeholders.

### **Frequency of surveillance**

The MRSA acquisition surveillance framework is recommended to be implemented healthcare facility wide, be ongoing and continuous, but could be periodic depending on the facility's surveillance program priorities.