

Methicillin Resistant *Staphylococcus aureus* (MRSA) Infection

Background Information

This surveillance module is primarily based on the Australian Infection Control Association (AICA) National Advisory Board (NAB) Surveillance definitions for Multi Resistant Organisms.

Aim

To provide a method for individual hospitals to measure methicillin resistant *Staphylococcus aureus* (MRSA) infections.

This surveillance module measures MRSA infections (*not* colonisation) for the surveillance period.

Methodology

A VICNISS web based data collection form (web form) is to be completed for all MRSA infections that meet the definitions below. A “user guide for web based data collection forms (web forms)” is available on the VICNISS website. This explains how to register and obtain access to web forms.

A MRSA infection is defined as:

- A. A positive culture for MRSA associated with a sterile site isolate, or
- B. A positive culture for the selected MRSA associated with a non-sterile site isolate where MRSA specific antibiotic therapy was administered by a clinician.

Patients that are given empirical therapy for an MRSA infection on the basis of clinical suspicion and no other evidence other than previous positive screening swabs should not be included.

A MRSA **colonisation** is defined as a positive culture for the selected MRSA associated with a non sterile site isolate where MRSA specific antibiotic therapy was **NOT** administered by a clinician.

All **NEW** MRSA infections, even if the patient is previously known to be MRSA colonised are to be collected.

Only one MRSA infection is to be counted for an individual patient during a single admission.

A de-identified microbiology report (if available) should be forwarded with the completed form.

Data Analysis

Three monthly surveillance periods (reports) are analysed.

The following equation is used:

$$\frac{\text{No. of patients with a MRSA infection for the surveillance period}}{\text{Total Occupied Bed Days (OBDs) for surveillance period}} \times 10,000$$

The numerator is multiplied by 10,000 in order to reduce confusion as this removes decimal points in the final answer. The rate is now expressed as the number of patients with a MRSA infection per 10,000 OBDs.

Occupied Bed Days

OBDs are used as the denominator so that different time periods within the same hospital can be compared.

OBDs is the sum of all bed-days from the first day of the month to the last day of the month inclusive. It includes bed-days for the calendar period only. If a patient was either admitted or separated from the hospital during the period, the number of bed-days that will be included in the OBDs figure will be only those that were incurred during this period

Reference

Australian Infection Control Association (AICA) National Advisory Board (NAB) (2002) Surveillance definitions for multi resistant organisms, *Australian Infection Control* Vol 7(3).

Methicillin Resistant *Staphylococcus aureus* (MRSA) Surveillance Data Collection Form *(for Hospital Use Only)*

THIS DATA MUST BE SUBMITTED ELECTRONICALLY USING A VICNISS WEBFORM

This data collection form is to be completed **ONLY** for patients **ADMITTED** to an acute care hospital

If you have any queries regarding the completion of this sheet please contact VICNISS

VICNISS REQUIRED FIELDS

Hospital Details *(Optional datafields in grey text)*

Hospital Code Number:	Treating Unit:	Treating Ward:
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Patient Identification *(Do not attach a bradma label)*

MRN (UR No.):	Sex: M <input type="checkbox"/> F <input type="checkbox"/>	DOB: / /
Date Admitted to Hospital: / /	Discharge Date: / /	

Infection Details

Specimen Collection Date: / /	<input type="checkbox"/> Unknown
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Infection Detection

Please select one of the following definitions:

1. Definition 1 (healthcare associated)
The patient's first **positive specimen*** was collected more than 48 hours after admission to hospital or within 48 hours of discharge from hospital.

Or:

2. Definition 2 (healthcare associated)
The patient's first **positive specimen*** was collected less than or equal to 48 hours after admission and one of the following key clinical criteria was met: *(please indicate below)*

- Significant organism related infection is a complication of the presence of an indwelling medical device:
Was the device inserted at this hospital? Yes No
- Significant organism related infection occurs within 30 days of a surgical procedure where the significant organism is related to the surgical site:
Was the procedure performed at this hospital? Yes No
- Significant organism related infection was diagnosed within 48 hours of invasive instrumentation or incision:
Was the instrumentation or incision performed at this hospital? Yes No

Or:

3. Definition 3 (community associated)
The patient's first **positive specimen*** was collected less than or equal to 48 hours after admission and none of the key clinical criteria in significant organism definition 2 were met.

* The first positive specimen must be related to an infection and not colonisation.

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Infection Detection <i>continued...</i>			
<i>Please select one of the following site options:</i>			
1. Sterile Site: <input type="checkbox"/>	→	Specific Site:	
		Blood*	<input type="checkbox"/>
		Tissue sample (collected by aseptic technique)	<input type="checkbox"/>
		Sterile body cavity	<input type="checkbox"/>
		Other	<input type="checkbox"/>
Or:			
2. Non-Sterile Site and MRSA Specific Antibiotic Therapy is Commenced: <input type="checkbox"/>			
		→ Specific Site:	
		Respiratory	<input type="checkbox"/>
		Urine	<input type="checkbox"/>
		Wound	<input type="checkbox"/>
		Other	<input type="checkbox"/>
List MRSA Appropriate Antibiotics Administered:			
Is there an MRSA Surgical Site Infection: Yes <input type="checkbox"/> No <input type="checkbox"/>			
Past History of Colonisation: <i>(optional datafield)</i> Yes <input type="checkbox"/> No <input type="checkbox"/>			

Organism & Sensitivity:			
	Sensitive	Resistant	Unknown
Clindamycin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Daptomycin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Erythromycin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fusidic acid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gentamicin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Linezolid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Methicillin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rifampicin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trimethoprim/sufamethoxazole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vancomycin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Root Cause Analysis Performed: <i>(Optional datafield)</i> Yes <input type="checkbox"/> No <input type="checkbox"/>
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* MRSA: Please see SAB Module Form – All MSSA & MRSA bacteraemia must be reported.

Data Field Instructions – VICNISS Required Fields

Hospital Code Number

Enter 3 digit code number assigned by the VICNISS Coordinating Centre.

MRN (UR Number)

Enter hospital medical record number or any unique identification (ID) number.

Enter the UR number in exactly the same manner each time, that is, if patient ID numbers contain spaces, dashes, leading zeroes or alphabetic characters, e.g., 000-123-456 A always be consistent in recording them.

Sex

Tick 'M' (Male) or 'F' (Female).

DOB

Enter the Date of Birth using the format dd/mm/yyyy.

Date Admitted to Hospital

Enter the date of admission using the format dd/mm/yyyy.

Date Discharged

Enter the date of discharge using the format dd/mm/yyyy.

Specimen Collection Date

Enter the date of the first isolate associated with the MRSA infection using the format dd/mm/yyyy. Tick unknown if for example a transferring hospital in the transfer history does not detail the date of the first isolate associated with the MRSA infection.

Infection Detection

Place of acquisition

Tick box to indicate if MRSA infection meets definition 1, 2 or 3. If definition 2 indicated, tick which key clinical criteria was met.

Definition 1 (Healthcare associated): The patient's first *MRSA infection* was collected more than 48 hours after admission to hospital or less than 48 hours after discharge from hospital

OR

Definition 2 (Healthcare associated): the patient's first *MRSA infection* was collected less than or equal to 48 hours after hospital admission AND one of the following key clinical criteria was met: [indicate relevant clinical criteria]

- MRSA infection is a complication of the presence of an indwelling medical device (e.g. intravascular line, haemodialysis vascular access, CSF shunt, urinary catheter)

- MRSA infection occurs within 30 days of a surgical procedure where the MRSA infection is related to the surgical site
- MRSA infection was diagnosed within 48 hours of a related invasive instrumentation or incision

OR

Definition 3 (Community associated): The patient's first *MRSA infection* was collected less than or equal to 48 hours after admission and none of the key clinical criteria in definition 2 was met

Was Definition 2 clinical criteria a result of action from this hospital?

When Definition 2 is indicated further information is required.

If the Definition 2 clinical criteria can be attributed to this hospital indicate "yes" (e.g. Device was inserted at this hospital, surgical procedure was performed at this hospital).

If the Definition 2 clinical criteria cannot be attributed to this hospital indicate "no" (e.g. Device inserted at another health facility, surgical procedure performed at another hospital)

Site

1. Sterile Site

Tick box if sterile site.

A sterile site is a significant isolate obtained from the blood stream, a normally sterile body cavity (peritoneum, pleural or pericardial space or CSF) or a tissue sample collected by aseptic means. It does not include isolates in the respiratory or urinary tracts. (Infections in these non sterile sites are counted if MRO specific antibiotic therapy is administered by a clinician.)

If a patient with a non sterile site MRO detection later develops a sterile site MRO detection during the same admission, this latter detection should be counted rather than the existing non-sterile site detection. Surveillance for non-sterile site MRO detections is inherently less accurate than detection of sterile site MRO detections.

Or:

2. Non Sterile Site AND MRO Specific Antibiotic Therapy is Administered by a Clinician

Tick box if Non Sterile Site.

MRSA appropriate antibiotics administered

Tick MRSA appropriate antibiotics administered post specimen collection date.

If the isolate was a non sterile site and none of the listed MRSA appropriate antibiotics are administered, the data collection form does not have to be submitted to VICNISS.

MRSA surgical site infection

Tick yes if a MRSA surgical site infection is detected

Organism and Sensitivity Matrix

For the primary organism according to the antibiotics listed tick either Sensitive (S), Resistant (R) or Unknown (U) according to the pick-list

Clindamycin

Daptomycin

Erythromycin

Fusidic Acid

Gentamicin

Linezolid

Methicillin (*NB: Methicillin may be reported as equivalent Oxycillin or Flucloxacillin*)

Rifampicin

Trimethoprim/Sulfamethoxazole

Vancomycin