Prevention and Control of Methicillin- Resistant *Staphylococcus aureus* (MRSA)

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Note: References to external websites, publications, and online resources were verified at the time of publication of this guideline. The HSE AMRIC team cannot guarantee the ongoing availability or accuracy of external content. Users are advised to consult the relevant organisations website should a referenced link become unavailable.

Version	Date	Changes from previous version	Drafted by
1.0	16 .11.2026	Prevention and Control of Methicillin- Resistant *Staphylococcus aureus* (MRSA) Note: This guidance supersedes the now archived Prevention and Control of methicillin-resistant *Staphylococcus aureus* (MRSA) National Clinical Guideline No. 2 (2013)	HSE AMRIC

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Glossary of terms

Term	Definition
Antimicrobial	An antimicrobial is a medicine used to prevent and treat infections in humans, animals, and plants. Antimicrobials include antibacterials, antivirals, antifungals, and antiparasitics. In this document, antimicrobial primarily refers to antibacterial agents, although the principles of stewardship also apply to antivirals, antifungals and antiparasitics.
Cohorting	Cohorting refers to accommodation of two or more patients in a space that they share with each other, but which is separate from space used by other patients
Colonisation	Colonisation, in the context of MRSA, refers to a situation in which a microorganism is established on a person's body (for example in the skin or nares) but is not causing infection at that time. Although the person who is colonised is not infected, the organism may spread from a colonised person to others and/ or subsequently cause infection in the colonised person.
Isolation	Isolation refers to accommodation of one patient in a single room ideally with dedicated toilet facilities (toilet / ensuite) and the application of a series of specific infection prevention and control measures to reduce the risk of transmission of specific microorganism from the person in the room.
Patients/ service users'	Any recipient of health and social care services. For the purposes of this guidance, the terms patient / service user includes patients, service users, residents, clients etc.
Health and care worker	A health and care worker is an individual who works in a community or health care facility setting and is mainly engaged in actions with the primary intent of enhancing health. This includes health service providers, such as doctors, nursing and midwifery professionals, public health professionals, technicians (laboratory, health, medical and non-medical), personal care workers, healers and practitioners of traditional medicine. It also includes healthcare management and support workers, such as cleaners, drivers, hospital administrators, community health managers, social workers, and other occupational groups in health-related activities. This group includes those who work in acute care facilities and residential care, public health, community-based care and other occupations in the health and social care sectors. Health and care workers may provide direct personal care services in the home, in health care and residential settings, while assisting with the routine tasks of daily life and performing a variety of other tasks of a simple and routine nature (WHO 2024)

Residential care facilities (RCF)	Residential care facilities (RCF) describe any facility where a person resides. This includes public and private nursing homes, long and short stay beds, Mental Health Commission approved centres, residential settings provided to people with a disability etc.

List of abbreviations

AMR	Antimicrobial resistance
AMRIC	Antimicrobial resistance and infection control
AMS	Antimicrobial stewardship
BSI	Bloodstream infection
CA-MRSA	Community-associated MRSA
CHG	Chlorhexidine gluconate
CVAD	Central venous access devices
DPH	Department of Public Health
EARS-Net	European Antimicrobial Resistance Surveillance Network
GP	General practitioner
HA-MRSA	Healthcare-associated MRSA
HCAI	Healthcare associated infection
H&CW	Health and care worker
HPSC	Health Protection Surveillance Centre
HSE	Health service executive
ICU	Intensive care unit
iNAP	Irish one health national action plan for antimicrobial resistance
IPC	infection prevention and control
IPCT	Infection prevention and control team
OCT	Outbreak control team
RCF	Residential care facility
MOH	The Medical Officer of Health (MOH) has the responsibility and authority to investigate and control notifiable infectious diseases and outbreaks, under the Health Acts 1947 and 1953; Infectious Disease Regulations 1981 and subsequent amendments to these regulations.
MDRO	Multi drug-resistant organisms
MRSA	Methicillin-resistant *Staphylococcus aureus*
MSSA	Methicillin sensitive *Staphylococcus aureus*
NaCL	Sodium chloride
NCEC	National Clinical Effectiveness Committee
NCG	National Clinical Guideline
NICU	Neonatal intensive care unit
Notifiable disease	A disease that, when diagnosed, requires health providers to report its occurrence to MOH/ DPH in line with Infectious Diseases Regulations 1981 and subsequent amendments to these regulations
Patient/ Person/ People	The terms patient/person/ people are generally used in this document and are in general interchangeable with the term's client, service user or patient
PCRA	Point of care risk assessment
PCR	Polymerase chain reaction
PPE	Personal protective equipment

Primary care	Primary care includes all the health or social care services that you can find in your community, outside of hospital. It includes GPs, Public Health Nurses and a range of other services.
PPE	Personal protective equipment
RCF	Residential care facility
SAP	Surgical antibiotic prophylaxis
SBCU	Special baby care unit
SCCmec	*Staphylococcal* cassette chromosome *mec*
SSTI	Skin and soft tissue infection
TBP	Transmission based precautions
UTI	Urinary tract infection
WHO	World Health Organization

Introduction

Context and background

In May 2023 the National Clinical Guideline no.30 Infection Prevention and Control (NCG no.30 IPC), representing a national approach to IPC was published. NCG no.30 IPC provides overall guidance on infection prevention and encompasses recommendations on the control of methicillin- resistant *Staphylococcus aureus* (MRSA).

In March 2024 the Antimicrobial Resistance and Infection Control team in the HSE (AMRIC) conducted a mapping exercise in relation to the Prevention and Control of Methicillin-resistant *Staphylococcus aureus* (MRSA) National Clinical Guideline No. 2(2013), identifying relevant content which was not incorporated into the NCG no. 30 IPC. This guidance document addresses those gaps including

- MRSA specific surveillance, evaluation and audit recommendations
- Surveillance testing recommendations
- Standard and transmission-based precautions
- Specific patient cohorts such as obstetrics and neonates
- Community-acquired MRSA
- MRSA decolonisation/suppression protocols
- Antimicrobial stewardship
- MRSA management and surgical antibiotic prophylaxis

Purpose

The purpose of this document is to address gaps in NCG No.30 IPC as they relate to the above areas and provide practical updated guidance on prevention and control measures for MRSA.

Scope

This guideline details recommendations specific to MRSA prevention and control with regards to screening, patient-specific considerations, decolonisation/suppression, antimicrobial stewardship and recommendations for management of MRSA including surgical antibiotic prophylaxis.

This guidance is intended for health and care workers (H&CWs) where healthcare is provided. It replaces the previous guidance on Prevention and Control of methicillin-resistant *Staphylococcus aureus* (MRSA) National Clinical Guideline No. 2 published in December 2013.

These guidelines set out recommendations for detection, management and control of MRSA. HSE AMRIC recognises that each healthcare facility should carry out its own local risk assessment, taking into account its specific circumstances, experience, and local disease patterns. This guidance should be used alongside National Clinical Guideline (NCG) No. 30 Infection Prevention and Control (IPC) available at www.gov.ie/IPCclinical guideline.

Many of the recommendations have been brought forward from the NCEC National Clinical Guideline no. 2 MRSA guideline and remain largely unchanged.

Specific information on IPC strategies to prevent and control MRSA are addressed within the NCG no.30 IPC and where appropriate readers are directed to where additional resources and information can be found.

The fundamental principles of IPC remain key parts of the defenses we have for protecting patients, our colleagues and ourselves as H&CWs. The consistent application of IPC measures and antimicrobial stewardship can reduce the spread of MRSA. This guidance therefore supports H&CWs with useful and pragmatic resources to support the implementation and monitoring of interventions to prevent and control the spread of MRSA.

Epidemiology of MRSA in Ireland

The types of MRSA circulating in Ireland have changed over time, with new strains regularly replacing older ones. Since the early 2000s, ST22-MRSA-IV (EMRSA-15) has been the most common strain in Irish hospitals. However, since 2019 the MRSA population has become more diverse. Surveillance by the National MRSA Reference Laboratory shows that while ST22-MRSA-IV remains the most common strain, it has fallen from around 70% of bloodstream infection isolates in 2020 to 34% in 2024. Over the same period, ST5-MRSA increased from less than 10% of isolates in 2019 to approximately 30% in 2024.

There has also been an increase in MRSA strains that were previously more commonly associated with community settings. Some of these strains can spread easily and have been linked to outbreaks in healthcare facilities. As a result, Ireland appears to be experiencing a shift in the types of MRSA strains circulating, similar to changes seen in previous decades.

Continued surveillance is important to detect emerging strains, monitor changes in MRSA in the population, investigate outbreaks, and support infection prevention and public health measures. Most hospitals in Ireland participate in the European Antimicrobial Resistance Surveillance Network (EARS-Net), which includes surveillance of MRSA. Healthcare laboratories are encouraged to refer isolates of public health significance to the National MRSA Reference Laboratory in accordance with national referral guidelines and/ or EARS-Net surveillance guidelines to support surveillance and outbreak investigation.

Prevention and Control

Staphylococcus aureus (*S. aureus*) is the name of bacteria that commonly colonise the skin and nose. Methicillin-resistant *S. aureus* (MRSA) is a strain of these bacteria that has become resistant to the antibiotics commonly used to treat methicillin sensitive *S. aureus* (MSSA) infections. MSSA or MRSA can cause severe and at times fatal infections such as bloodstream infection (BSI), infective endocarditis, pneumonia, and skin and soft tissue infections (SSTI).

Preventing and controlling MRSA requires a multidisciplinary team effort. Key measures include screening patients for MRSA, following infection prevention and control precautions, using decolonisation protocols when needed, and promoting appropriate antibiotic use. Everyone working in healthcare has a role in preventing and controlling MRSA, not just infection prevention and control specialists.

Management and Clinical Governance in IPC

For effective IPC implementation, organisational support is required (NCG no.30 IPC). Effective IPC governance is essential to meet a healthcare organisation's responsibility to protect patients, provide a safe work environment, safe systems of work for health and care workers and a safe environment for those who use healthcare services and visitors.

Clinical governance refers to the system by which managers and clinicians in each healthcare facility share responsibility and are held accountable for patient care. This involves minimising risks for those who use healthcare services and staff, and continuously monitoring and improving the quality of clinical care. Management and clinical governance can have a positive impact on the effectiveness of IPC by driving continuous quality improvement.

Organisational support includes the following:

- embedding IPC in governance and management structures
- developing facility wide IPC and AMS strategic plans with multidisciplinary IPC/ AMS committees to oversee, review and guide the healthcare facilities IPC and AMS programmes. This should include outbreak monitoring and quality improvement plans
- ensuring adequate IPC/ AMS resources proportionate to the scale and complexity of the service. A resource model for IPC and AMS staff is contained within the HSE AMRIC Action Plan 2026-2030 setting out recommended minimum levels of AMS and IPC team members.
- instituting processes for surveillance that feed into the overall IPC and AMS and quality and patient safety programmes
- initiating procedures (for example vaccination programmes) and structures (adequate occupational health services) to ensure that health and care workers are protected
- implementing systems for ongoing staff education and training on AMS and IPC principles and practices
- incorporating IPC into planning for facility design and maintenance aligned to the NCG no. 30 IPC (section 3.11 Influence of facility design on healthcare associated infection) and AMRIC Guidance on Infection Control Guiding Principles for Buildings Acute Hospitals and Community Health and Social Care Settings here.

Further advice and detail on clinical governance in IPC and organisational support can be found in the NCG no. 30 IPC, section 3.6 Management and clinical governance.

Surveillance

Surveillance of MRSA

Surveillance of MRSA is needed to track and trend rates of MRSA in a standardised way. These processes should be aligned to national and European multi drug resistant organism (MDRO) surveillance priorities. Surveillance of MDROs such as MRSA is vital to understand the impact, magnitude and distribution of antimicrobial resistance (AMR) thus supporting Ireland's One Health National Action Plans on Antimicrobial Resistance.

With regards to surveillance of MRSA the following is recommended:

- *S. aureus* bloodstream infection (BSI) must be reported to the Health Protection Surveillance Centre (HPSC) on a quarterly basis, based on European Antimicrobial

Resistance Surveillance Network (EARS-Net) case definitions (statutory requirement Infectious Diseases (Amendment) Regulations 2026 (Ireland, 2026))

- All healthcare facilities should maintain a record of new cases of MRSA. Where possible, this should be maintained in an electronic format in accordance with GDPR. The list should include the following details or core data: - Patient identification - Specimen site - MRSA isolation site - Date of first positive result - Hospital/facility location at time of specimen collection (e.g. ward name) - Date of admission
- All acute hospitals should participate in the *S. aureus* component of the EARS-Net enhanced BSI surveillance system.

For further information on surveillance of MDROs including MRSA refer to NCG no. 30 IPC section 3.4 Management of multi drug resistant organisms (MDRO) and outbreak situations.

Within healthcare facilities, surveillance is important for wider systems of quality management. The main purpose of collecting reliable data is to improve quality within a service or facility. MRSA surveillance data should be reported to relevant clinical teams and to hospital management through appropriate governance structures, for example local and regional IPC and AMS committees.

Audit is recommended to support a continuous quality improvement process in relation to the implementation of recommendations in the prevention and control of MRSA.

For further information on healthcare associated infection surveillance refer to NCG no. 30 IPC section 3.9 Healthcare associated infection surveillance.

Screening for MRSA Colonisation in an acute hospital setting

Effective strategies for the prevention and control of MRSA rely on early detection so that appropriate decolonisation/ suppression and treatment protocols, and measures including the application of transmission-based precautions, may be implemented.

To reduce the risk of transmission of MRSA, it is recommended that the following approaches to screening for MRSA colonisation in an acute hospital setting are implemented. A targeted screening strategy is recommended based on patient MRSA risk factors; see table 1. Other approaches, such as universal screening strategies, may be defined by local experience taking account of screening initiatives and epidemiology and should be agreed through local governance structures.

Table 1: Suggested targeted approach to screening for MRSA colonisation in the acute hospital setting

Considerations for screening for MRSA colonisation	
Patient risk factors	Timing of screening
Patients known to be previously MRSA positive and who are being re-admitted to an acute hospital	Admission

Patients admitted directly from another hospital or healthcare facility, for example from a residential care facility (RCF)	Admission
Patients who have been an in-patient in another healthcare facility, for example in an acute hospital or RCF in the last six months	Admission
Patients transferred from a hospital abroad or patients who have been an in-patient in a hospital abroad during the previous 12 months	Admission
Patients with non-intact skin, for example wounds, exfoliative skin conditions, and invasive medical devices such as percutaneous endoscopic gastrostomy tubes, urinary catheters and central venous access devices (CVADs)	Admission
Patients due to undergo elective high and medium risk surgery (for example cardiothoracic and vascular surgery, orthopaedic implant surgery). In addition, hospitals should assess which patient groups undergoing surgery have a relatively high risk of MRSA infection and consider pre-operative screening for those particular patient sub-sets (for example, it may be appropriate for hospitals to screen emergency orthopaedic admissions as many of these patients are elderly and have frequent contact with the healthcare system)	Preoperative screening or on admission
Patients admitted to critical care areas for example intensive care unit (ICU), neonatal intensive care unit (NICU) special care baby unit (SCBU).	Admission screen and at a minimum weekly thereafter
Patients requiring renal dialysis	Admission screen and quarterly thereafter
Any healthcare worker involved in direct patient contact, being admitted as a patient to an acute healthcare facility.	Admission For pregnant H&CWs with direct patient contact. screen for MRSA at antenatal booking visit between 12- 16 weeks gestation
During an outbreak or cluster * *Screening of H&CW for MRSA is generally not appropriate but may be required as a recommendation from an outbreak control team (OCT) in the context of microbiological or epidemiological evidence that gives reasonable grounds for concern that a colonised or infected healthcare worker is a likely source of transmission. The OCT may include representation from Occupational Health where relevant (as per Table 20 Outbreak investigation and management NCG no. 30 IPC)	As recommended by outbreak control team

Patients who have completed decolonisation treatment (Successful decolonisation treatment - three consecutive negative sets of screening samples, at least 48 hours apart with first sample taken at least 48 hrs after completion of decolonisation treatment)	Three follow-up samples at least 48 hours apart. (First sample to be taken at least 48 hours after completion of decolonisation treatment) Screen at weekly intervals while an inpatient in an acute hospital setting.
Other patients, as determined by local risk assessment.	As per local risk assessment

Screening after decolonisation treatment will not normally be required after discharge to the community. However, screening after decolonisation treatment may be requested in certain cases for example:

- pre-operatively on the advice of the hospital admitting physician/surgeon
- patients known to be previously MRSA positive and who are being re-admitted to an acute hospital for further treatment.

Screening and sample collection

Swabs should be taken from 2 sites from the following: Anterior nares, perineum, device entry sites or wounds.

Additional samples to diagnose infection for example blood, urine, sputum, vascular catheter tip should only be taken as clinically indicated.

Where an OCT has recommended screening of H&CWs, appropriate sampling sites include anterior nares and any areas of abnormal or broken skin.

Clinical Microbiology laboratories

Clinical microbiology laboratories should perform validated methods such as culture, polymerase chain reaction (PCR), or combination testing algorithms for MRSA detection.

Routine direct culture method:

Routine screening by direct plating onto selective MRSA chromogenic agar gives preliminary results with overnight incubation (18-24hrs).

Screening by enrichment method

In particular circumstances, for example clearance of MRSA, screening by enrichment of swabs in 2.5 % sodium chloride (NaCl) may be used, under direction of the local IPC team. This is more time-consuming than molecular methods or direct culture.

Screening by molecular methods

Commercially available PCR assays may be considered to test screening swabs if particularly rapid results are required, depending on local laboratory resources and availability.

Prevention and control in healthcare settings

Standard Precautions

Successful IPC/ AMS involves implementing work practices that reduce the risk of transmission of microorganisms using a two-tiered approach, including standard and transmission-based precautions. Standard precautions refer to those work practices that are applied to everyone, regardless of their perceived or confirmed infectious status. Standard precautions ensure a fundamental level of IPC. Implementing standard precautions as a first-line approach to IPC where healthcare is provided minimises the risk of transmission from person to person, even in high-risk situations.

For detail on the individual elements of standard precautions refer to the NCG no.30 IPC Vol. 1, sections 2.1.5 and 3.1

Transmission-based precautions

Transmission-based precautions are recommended as additional work practices in situations where standard precautions alone may be insufficient to prevent transmission. Transmission-based precautions are applied to patients suspected or confirmed to be infected or colonised with microorganisms transmitted by the contact, droplet or airborne routes. In the event of an outbreak, application of transmission-based precautions may assist in outbreak containment and prevention of further spread.

Transmission-based precautions should be tailored to the infectious microorganisms involved and its mode of transmission. This may involve a combination of practices such as:

- Continued implementation of standard precautions
- Use of personal protective equipment (PPE) as per point of care risk assessment (PCRA)
- Patient placement
- Patient dedicated equipment
- Enhanced environmental cleaning and disinfection

Contact precautions

In the acute hospital in-patient setting, contact precautions should generally be applied in caring for people colonised or infected with specific multidrug resistant organisms (MDROs) such as MRSA. Contact precautions in this context are generally not appropriate in healthcare settings other than acute hospital in-patient settings.

When a person is known to have infection or colonisation with MRSA, staff should be particularly careful with respect to their IPC practices which include, hand hygiene (the WHO Five Moments), and appropriate use of personal protective equipment (PPE) as determined by a point of care risk assessment (PCRA). In settings where there is very limited direct physical contact with the person or their environment there is no requirement for the healthcare worker to wear personal protective equipment. Examples include brief social contact such as shaking hands. Refer to the Community IPC manual for practical guidance on implementing transmission-based precautions in health and social care settings outside of the acute setting.

Use of personal protective equipment (PPE)

It is the responsibility of every H&CW to undertake a point of care risk assessment (PCRA), as part of standard precautions, prior to performing a clinical care task; this will inform the level of IPC precautions needed, including hand hygiene, appropriate choice and use of personal protective equipment (PPE), and appropriate patient placement.

For advice on the selection of PPE refer to NCG no. 30 on IPC see Vol. 1 section 3.3 Personal Protective Equipment (PPE) and Volume 2 Table 42: Use of personal protective equipment for standard and transmission-based precautions.

A guide on the appropriate choice of PPE using PCRA is available in the poster section on the HPSC website: https://www.hpsc.ie/a-z/microbiologyantimicrobialresistance/infectioncontrolandhai/posters/

Patient placement

Placing people that are colonised or infected with MRSA in single rooms, cohort rooms or cohort areas as a component of a multifaceted IPC policy can reduce acquisition of MRSA in acute care settings.

Patients in the following categories should ideally be placed in a single room with contact precautions while the results of MRSA screening are awaited:

- Patients who are previously colonised or infected with MRSA
- Those with recent and/or frequent hospital admissions, for example within 6 months.
- Patients transferred from another healthcare institution e.g. another hospital or residential care facility
- Inpatients in another healthcare institution within the previous 6 months
- Patients with skin ulcers, chronic wounds or exfoliative skin conditions
- Patients transferred from hospitals abroad

Patients known or newly identified to be colonised or infected with MRSA on admission to high-risk areas such as critical care units, orthopaedics, surgical wards and transplant units should ideally be isolated or cohorted with contact precautions. An MRSA alert flag should be added to the patients' medical record to support IPC.

When people are cared for using contact precautions due to infection or colonisation with MRSA, they must continue to receive an equal standard of care to those without an MDRO. Vigilance is needed to prevent potential psychological adverse effects of isolation such as anxiety and depression and the feeling of being stigmatised. For further advice refer to NCG no. 30 IPC , Vol. 1 section 2.2.2 Contact precautions and section 3.4.1 MDROs Patient placement (isolation).

Additional guidance documents to support decision making include:

- Guide to prioritisation of patients for single room isolation when there are not sufficient single rooms for all patients that require isolation available at: www.hpsc.ie
- Guidance on Balancing Competing Demands in Relation to Restrictions on Bed Use Related to Infection Prevention and Control in Acute Hospital settings available at www.hpsc.ie

Patient-care equipment

Where possible, patient-dedicated equipment or single-use patient-care equipment, should be used for people on contact precautions.

If common use of equipment for multiple people on contact precautions is unavoidable, clean and disinfect the equipment and allow it to dry before use on another person**.**

Enhanced environmental cleaning and disinfection

In an acute hospital and similar settings, where the presence of infectious microorganisms requiring

transmission-based precautions is suspected or known, surfaces in the immediate patient zone and high touch surfaces should be physically cleaned and disinfected with a detergent solution and an appropriate disinfectant.

In settings other than acute hospitals the risk of contamination, mode of transmission and risk to others should be used to determine whether disinfectants are required. Refer to the Community IPC Manual for further advice.

For detail on the individual elements of transmission-based precautions, as relevant, refer to the following sections in the NCG no. 30 IPC Vol 1

- Section 3.2 Transmission-based precautions
- Section 3.4 Management of multi drug resistant organisms (MDRO) and outbreak situations
- Section 6.2.5 Contact precautions
- Section 6.2.7 Multidrug resistant microorganisms
- Section 7.4 Type and duration of precautions for specific infections and conditions (table 44)

A suite of AMRIC IPC training and education resources for staff aligned to the NCG no.30 IPC are available on HSeLanD which can be accessed via the AMRIC Hub at www.Hseland.ie

Removing the requirement for transmission-based precautions

The following criteria included in the NCG no 30 IPC should be satisfied prior to removing the requirement for transmission-based precautions related to MRSA:

- No wounds/all wounds healed and no indwelling medical devices that pass through the skin or a body orifice present
- No exposure to any antimicrobial or antiseptic body wash for at least 2 weeks prior to testing
- No exposure to antimicrobial therapy targeting MRSA in the past 3 months
- Consecutive samples from above sample sites reported not detected on three separate occasions taken at least 48 hours apart
- More than 3 months has elapsed from the last positive specimen.

This will likely coincide with removal of MRSA alert flags from patients' medical records. It is important to note that colonisation with MRSA may continue for a prolonged period of time and that MRSA can re-emerge if a person is hospitalised or prescribed antimicrobials. People who

were colonised for MRSA but are subsequently considered “cleared” require screening for MRSA colonisation as per table 1.

Refer to the Community IPC Manual with regard to implementing standard and transmission-based precautions in community health and social care settings.

Outbreak Management

If an outbreak is suspected or identified, refer to the NCG no 30 IPC section 3.4 Management of multi drug resistant organisms (MDRO) and 3.4.2 outbreak investigation and management. This provides core IPC strategies, and key principles and overall guidance for outbreak management, including the use of transmission-based precautions in the event of an outbreak, to assist in containing the outbreak and preventing further infection, and notification requirements. It is the responsibility however, of healthcare facilities to develop and adapt these principles to their setting and to develop local policies as required.

The NCG no. 30 IPC recommends the provision of written and oral communication of findings as part of outbreak management. The HSE Open Disclosure process is helpful to support the provision of clear information when informing patients of harm related to an outbreak and the importance of open, honest, timely and transparent communication.

Communication

Communication with the people we care for must be compassionate, truthful, timely, and clear. Information on clinical communication in IPC is available in the NCG no.30 IPC. Supporting documents are available to assist with communication with patients colonised/infected with MRSA. Relevant patient information leaflets can be ordered through www.healthpromotion.ie

The HSE Open Disclosure policy provides guidance for all healthcare staff, communicating with the patient and/ or family member/ s in a timely, open, compassionate, and honest manner. This applies to all patient safety incidents or adverse events.

Communication and risk assessment

Communication and consultation are key elements of clinical risk management. For information on communication and risk assessment refer to the NCG no.30 IPC , vol. 1 and section 2.1.11.

Communication regarding transfers

It is unethical to deny patients access to any healthcare facility or to make them accept unreasonable delays in access to a health care facility unless there is a compelling public health justification for doing so. Good communication will prevent unnecessary anxiety, misunderstanding or confusion for the patient and/ or family or healthcare facility receiving the patient.

Measures to manage the risk must be balanced with the imperative of delivering appropriate, timely patient care t in a location that takes reasonable account of their need to belong to a community and to have access to family and friends.

Any transfer of patients between hospital departments such as radiology, theatre or other facilities, for example, between acute hospitals, from acute hospital to primary care or from acute

hospital to residential care should be preceded by advance and clear patient safety communication or alerts.

In addition to pre-transfer communication, all relevant details from both medical and nursing teams should also be included in the written communication to other facilities, that accompanies the patient. Communication should use appropriate channels that protect patient privacy. The communication should be initiated by the sending ward department/ facility and should include all relevant IPC information including any known colonisation/ infection with MRSA or any other IPC alerts and any aspects of the patient's condition (physical or behavioural) that are likely to be relevant to managing IPC related risks. MRSA test results should be included in the discharge summary.

If the medical or nursing staff of the sending facility become aware of any new important information related to the IPC status of a patient after the patient has been transferred, the doctor or nurse receiving the information is responsible for ensuring that the information is communicated to the relevant medical or nursing staff in the receiving facility at latest on the next working day and immediately if the situation requires. The receiving service must take all practical measures to minimise the risk of transmission.

Special populations

MRSA in obstetrics and neonates

Neonates in high-risk units such as NICU and SBCU should have screening for MRSA, similar to all high-risk patients, on admission, and weekly thereafter. Sample collection in neonates less than 28 days old may include the umbilical site, in addition to other recommended sites. For information on decolonisation protocol for infants less than 2 months old see decolonisation in special populations- neonates.

If MRSA carriage is detected in a pregnant woman during the antenatal period, decolonisation is recommended before delivery. Standard decolonisation regimen including topical nasal mupirocin should be considered between 35-37 weeks gestation, and earlier if risk of preterm birth (see decolonisation protocols). If a woman is having an elective caesarean section, decolonisation should be timed prior to the surgery. If known MRSA carriage antenatally, surgical prophylaxis for caesarean section (elective and emergency) should include an antibiotic with activity against MRSA as part of the prophylaxis regimen in line with surgical antibiotic prophylaxis guidelines. (see surgical antibiotic prophylaxis).

If a lactating mother has known MRSA mastitis, the mother can usually continue to breastfeed if she wishes. Prescribers should consider the safety of the antimicrobial for lactating women and their babies before prescribing and discuss the options with the mother.

If a lactating mother is colonised with MRSA, she should make the NICU/SBCU aware of it. If the mother has active MRSA mastitis, she should also inform the NICU/SBCU so that a joint discussion (risk assessment) can be had around infant feeding options between the mother and the NICU staff.

Community and RCF settings

Routine surveillance testing for MRSA in home care and community-based settings such as residential care facilities is generally not required.

In non-acute healthcare settings, for people colonised with MRSA, standard precautions (particularly hand hygiene by both people cared for and H&CWs) in addition to antimicrobial stewardship are generally sufficient to manage transmission risk. However, additional measures including placement in a single room and use of PPE, may be considered for certain elements of care of the person if they are heavily colonised or if there is known continuing transmission. A local IPC risk assessment should determine practice in settings where the population cared for is particularly medically vulnerable.

Any additional precautions implemented should have due regard to the overall care needs of the patient. A point of care risk assessment (PCRA) should inform the choice and selection of PPE, as appropriate for the application of contact precautions. Refer to key principles of standard precautions, which should be applied as normal and as outlined in earlier sections. For further detailed advice, refer to the NCG no. 30 on IPC.

Tailored advice can be found in the latest version of the Community IPC Manual. This document offers a practical guide to implementing standard and transmission-based precautions in community health and social care settings.

Community-Associated MRSA (CA-MRSA)

Community-associated MRSA (CA-MRSA) refers to MRSA infections occurring in individuals without recent healthcare exposure or traditional risk factors. However, the distinction between CA-MRSA and healthcare-associated MRSA (HA-MRSA) has become increasingly blurred due to:

- The emergence of CA-MRSA strains in healthcare settings and vice versa.
- Overlapping clinical presentations and resistance profiles.
- Rapidly evolving molecular characteristics, particularly in *Staphylococcal* cassette chromosome *mec* (SCC*mec*) types.

From a public health perspective, while a practical definition is necessary for surveillance and response, it is important to acknowledge that CA-MRSA cannot be reliably distinguished based solely on demographic or clinical criteria. For operational purposes, CA-MRSA may be considered when:

- The individual has no recent healthcare exposure or known risk factors.
- The infection typically presents as a skin or soft tissue infection, though other infections (e.g. pneumonia) may occur.
- The isolate is often susceptible to non-β-lactam antibiotics and carries SCC*mec* type IV or V.

CA-MRSA is of particular concern in non-acute and community-based settings where close contact, shared facilities, and limited infection prevention infrastructure may facilitate transmission. These include:

- Prisons and places of detention
- Childcare facilities
- Residential care facilities and long-term care homes
- Shelters and other communal living environments
- Sports teams and other high-contact community groups

Public health teams should consider these settings in risk assessments, outbreak investigations, and when developing targeted infection prevention strategies. Surveillance and communication strategies should be adapted to ensure early detection and control of CA-MRSA in these environments.

Whilst this guidance is intended for H&CWs where healthcare is provided, considerations should be given in the context of the Public Health surveillance challenge. The dynamic nature of CA-MRSA epidemiology, including its increasing overlap with healthcare-associated strains, presents a challenge for surveillance systems. Public Health surveillance gathering should, where resources allow, consider prioritising integrated surveillance approaches that capture MRSA trends across both healthcare and community settings, including congregate and residential care environments.

Further resources are available at the following links:

- Centre for Disease Control (CDC) links for consideration can be found **here** and **here**
- Health Protection Surveillance Centre (HPSC) Infection Prevention and Control (IPC) Guidance for Non-Healthcare Congregate Settings (Including Homelessness and Addiction Service Settings) can be found here

- Joint Healthcare Infection Society (HIS) and Infection Prevention Society (IPS) guidelines for the prevention and control of methicillin-resistant *Staphylococcus aureus* (MRSA) in healthcare facilities found here
- Public Health Agency of Canada (PHAC) link for consideration can be found **here**
- New South Wales Health (NSW) link for consideration can be found **here**

MRSA Decolonisation

MRSA is known to colonise the skin and mucus membranes of individuals. Those colonised with MRSA are usually asymptomatic and unaffected. However, some individuals colonised with MRSA are at higher risk of contracting infection with MRSA in particular those with a weakened immune system and those undergoing surgery (as a break in the normal skin barrier makes patients more vulnerable to infection with MRSA).

MRSA decolonisation refers to the prescription of topical and/or intranasal antimicrobial agents for patients known to be colonised with MRSA with the aim to suppress or eliminate carriage of MRSA and to reduce the risk of infection. Decolonisation is not recommended for all patients colonised with MRSA as the treatment is not sufficiently effective to warrant routine use and for most healthy people the risk of contracting infection from MRSA is low. However, for select patient groups such as those with risk factors (table 1), that make them more susceptible to infection or where the consequences of infection could be severe, decolonisation may be considered. Examples of these groups include patients undergoing elective implant surgery or neonates admitted to NICU.

Recommendations for decolonisation of MRSA for patients in Ireland based on international guidance and available evidence. Discussions about decolonisation should be undertaken in conjunction with the hospital IPC Team / a clinical microbiologist or infectious diseases physician.

Justification for decolonisation

MRSA decolonisation is not sufficiently effective to warrant routine use in all colonised patients.

- An attempt at decolonisation may be considered in the following groups or situations, see table 2:
  - Patients colonised with MRSA who are due to undergo an elective operative procedure where the risk of an infection with MRSA needs to be minimised for example cardiothoracic surgery or implant surgery such as an orthopaedic implant.
  - Patients in a clinical area where there is a high risk of colonisation leading to invasive infection for example ICU/ NICU.
  - If the risk of infection is high and the consequences severe for example immunosuppressed patients.
  - As part of a strategy to address uncontrolled transmission despite the use of other measures.
  - In patients with recurrent skin and soft tissue infections which have recurred despite appropriate treatment.
- In patients with colonisation at non-nasal sites there is a high possibility that decolonisation therapy will fail. Therefore, use in such populations, should be carefully considered and the aim and likely outcome considered before such therapy is initiated.
- Attempts at decolonisation are unlikely to be successful in patients with chronic skin conditions, ulcers, in-dwelling urinary catheters and therefore use in such populations should be carefully considered before such therapy is initiated.

Selection of Decolonisation Protocol

- Use 2% mupirocin nasal ointment and 4% chlorhexidine gluconate (CHG) antiseptic body wash as first line options for MRSA decolonisation.
- Use an alternate agent where 2% mupirocin nasal ointment or 4% chlorhexidine gluconate (CHG) antiseptic body wash are contraindicated or unavailable.

- Ensure correct use of 4% chlorhexidine gluconate (CHG) antiseptic body wash to avoid skin reactions in line with manufacturer's instructions. Avoid pooling or prolonged contact time with product. 4% chlorhexidine gluconate (CHG) antiseptic body wash should not be used on the skin of premature infants, due to the risk of burns and dermatitis.
- All antiseptic wash agents should be used in line with manufacturer's instruction with appropriate contact times. The skin should be moistened and the antiseptic wash applied thoroughly to all skin areas before rinsing in the bath or shower. Special attention should be paid to known possible carriage sites including axilla, groin, perineum and buttock area.
- Hair should be washed twice weekly with the selected antiseptic wash used on the skin.
- The value of local treatment for throat carriage such as antiseptic gargles or sprays is uncertain but may reduce the organism load.
- During a course of treatment wash and change clothing, bedding, towels etc. daily. Launder on a hot cycle, which is compatible with fabric.

Consider combined topical and oral antimicrobial therapy only under the supervision of a clinical microbiologist or an infectious disease physician, for the eradication of MRSA in specific patient circumstances.

Monitoring for resistance

- Where decolonisation is indicated, mupirocin susceptibility testing of MRSA isolates should be carried out.
- Repeat sensitivity testing for persistent carriers to identify emerging resistant isolates.

Decolonisation Protocols

Table 2: Adult and Paediatric Patients (>8 weeks)

***Includes patients in the community and non-acute healthcare settings**

Product	Application frequency	Duration	Notes
1st choice options			
Mupirocin 2% nasal ointment	Every 8 hours	5 days	Put ointment on the tip of a cotton swab, apply inside each nostril and gently pinch nostrils several times to spread.
4% chlorhexidine gluconate (CHG) antiseptic body wash	Every 24 hours	5 days	Wet skin and apply the wash to all areas from the chin down, Allow skin contact time as per manufacturer's instructions. Rinse off skin thoroughly and dry off with a clean, dry towel. (Note: For patients in ICU with a central venous access devices, the use of daily chlorhexidine gluconate (CHG) bathing treatment is

			recommended, independent of MRSA status, to reduce catheter related bloodstream infection. See Prevention of intravascular catheter related infections)
Alternative Agents (where first line agents are not appropriate)			
Octenidine body wash	Every 24 hours	5 days	Apply undiluted using a damp washcloth all over (hair and body). Allow skin contact time as per manufacturer's instructions before washing off and dry with a clean towel.
Povidone-iodine 7.5% surgical scrub	Every 24 hours	5 days	Apply to damp skin. Rub well to lather and scrub. Allow skin contact time as per manufacturer's instructions Rinse off with water and dry with a clean towel. *Not for use in children under the age of 2 years, in pregnant or breastfeeding women or in patients with significant thyroid disease or those on lithium treatment.
Neomycin nasal cream	Every 12 hours (suppression) Every 6 hours (eradication)	10 days	Place a small amount on a cotton swab and apply to the inside of each nostril. *Should not be used by patients with peanut or soy allergies
Octenidine Nasal Ointment	Every 12 hours	5 days	Put ointment on the tip of a cotton swab, apply inside each nostril and gently pinch nostrils several times to spread.
Povidone-iodine nasal cream**	Every 12 hours	5 days	Put ointment on the tip of a cotton swab. Insert damp swab inside each nostril and rotate covering all surfaces. Use a new swab for each nostril.

** Nasal povidone-iodine has been shown to have a short duration of efficacy and so should be avoided for general decolonisation protocols unless no other alternative is available. Nasal povidone-iodine may have a role for certain populations where temporary MRSA suppression and not eradication is desired (for example for preoperative patients).

Decolonisation in Special Populations

Patients in non-acute healthcare facilities

- Non-acute healthcare facilities should seek expert advice before embarking on decolonisation for MRSA
- MRSA carriers will not normally require decolonisation following discharge from an acute hospital to a non-acute healthcare setting, the community or home
- If decolonisation treatment has been commenced prior to discharge it should be completed
- Decolonisation of residents in non-acute facilities may be considered in the context of an outbreak or high transmission on a unit or for individual cases (for example in advance of elective surgery or in the setting of recurrent skin infections). Expert advice should be sought in each case
- The dignity of residents is of central importance. The routine need for isolation of individuals undergoing decolonisation therapy is not recommended. Expert advice should be sought in each case.

Neonates

- Decolonisation of infants outside of high-risk units is not usually required, unless recommended by the IPC team.
- For infants colonised with MRSA in the NICU and other high-risk units, nasal mupirocin is recommended for decolonisation if the MRSA isolate is susceptible.
- For neonates >/ = 30 weeks gestation and >7 days old gentle skin bathing with octenidine dihydrochloride can be considered.
- Chlorhexidine gluconate 2% can be used in addition to mupirocin for infants >36 weeks gestation and > 4 weeks old. See advice on application in table 3. Care should be taken to prevent prolonged contact time or pooling.
- 1% chlorhexidine powder may be used on the umbilical and nappy area
- For all infants where topical treatment is used ensure adherence to manufacturer's instructions taking care to avoid pooling or prolonged contact time. Monitor closely for the development of burns or skin reactions.

Table 3: Suggested decolonisation guidance for neonates and infants less than 2 months old

Product	Age	Application frequency	Duration	Notes
2% Mupirocin		**Every 8 hours**	**5 days**	
Octenidine body wash	**Infants >/= 30 weeks gestation**	**Every 24 hours**	**5 days**	**For all infants where topical treatment is used ensure adherence to manufacturer's instructions taking**

	AND >7 days old			**care to avoid pooling or prolonged contact time. Monitor closely for the development of burns or skin reactions.**
Chlorhexidine 2%	**Infants >36 weeks gestation AND > 4 weeks old BUT < 8 weeks old**	**1 application then repeat after 48 hours**	**2 applications in total**	**For all infants where topical treatment is used ensure adherence to manufacturer's instructions taking care to avoid pooling or prolonged contact time. Monitor closely for the development of burns or skin reactions.** Do not use on open skin wounds. Do not use on broken or damaged skin. In addition, direct contact with neural tissue or the middle ear must be avoided.
	Infants > 8 weeks old	**Every 24 hours**	**5 days**	

Antimicrobial stewardship in the prevention and control of MRSA

Antimicrobial stewardship is a key strategy in the prevention of the spread of antimicrobial resistance.

- Antimicrobial stewardship (AMS) refers to any action that promotes responsible use of antimicrobials.
- AMS is an integral component of any patient safety programme.
- Overuse of broad-spectrum antibiotics promotes the emergence of MRSA.
- HSE AMRIC AMS guidance for all healthcare settings sets out the roles and responsibilities of all healthcare workers in AMS.

Consider empiric treatment with antibiotics which treat MRSA only in patients where there is clinical concern for infection with MRSA.

- Patient groups where MRSA infection might be suspected include those known to be colonised with MRSA and patients with high risk factors for MRSA colonisation (presence of invasive lines/ devices, exposure to MRSA colonised individual, significant hospital exposure).
- In patients who are not known to be colonised with MRSA and who have no high-risk factors, infection with MRSA is unlikely and empiric antibiotics to cover MRSA should be discussed with an infection specialist prior to commencement.

Where antibiotics to treat MRSA have been commenced empirically, samples should be sent to the Microbiology Laboratory to identify the causative pathogen, with the aim to review MRSA treatment within 48 hours.

- All patients who are being treated for possible MRSA infection should have appropriate clinical samples sent for bacterial culture as soon as possible and ideally prior to commencing antibiotics.
- All patients who are being treated for possible MRSA infection should have MRSA screening swabs sent to identify possible MRSA colonisation.

Start Smart, Then Focus

- Start antibiotics only if there is clinical concern for a bacterial infection.
- Review treatment after 24-48 hours with the aim to review clinical decisions and focus antibiotic prescriptions.

Key resources

- HSE AMRIC antimicrobial stewardship guidance for all healthcare settings v1 Published August 2022
- Start smart then focus: An Antibiotic Care Bundle for Hospitals

Management of MRSA infection

Treatment

The treatment of MRSA infection should be guided by an infection specialist

- Early consultation with a Clinical Microbiologist or Infectious Diseases Physician should be considered in all cases where there is clinical concern for possible or confirmed infection with MRSA.

All treatment should be guided by laboratory testing

- In all cases appropriate clinical samples should be sent to the microbiology laboratory for culture and antimicrobial susceptibility testing. If possible, samples should be sent in advance of commencing antimicrobial therapy.
- Screening swabs should be sent on all patients where infection with MRSA is suspected to identify MRSA colonisation.
- MRSA identified from normally sterile sites (blood, joint fluid etc) should generally be considered a significant pathogen.

When to suspect infection

- Suspect MRSA infection in any patient who is known to be colonised with MRSA or in patients who have risk factors for MRSA infection.
- Individuals with risk factors include patients with significant hospital exposure, previously known to be colonised with MRSA, patients who have indwelling invasive lines or devices and patients with chronic health conditions which suppress their immune system.
- Suspect MRSA infection only in patients where there is clinical concern for a bacterial infection, which is likely to be caused by MRSA. Examples of infections that can be caused by MRSA, include skin/soft tissue infections, infections of invasive lines or devices and severe pneumonia.
- Early consultation with a clinical microbiologist or an infectious disease physician is recommended if infection with MRSA is suspected.

Starting empiric antimicrobial treatment

- Start empiric antimicrobial treatment, which covers MRSA, in any patient where MRSA is suspected.
- Empiric treatment should be guided by the site and severity of the infection, by local antimicrobial resistance patterns, and by any previous MRSA screening or clinical sample susceptibility testing. Contact clinical microbiology to discuss if previous susceptibility results are not available.
- Early discussion of treatment options with a clinical microbiologist or an infectious disease physician is recommended.

Management of patients with confirmed MRSA infection

- Early source control should be prioritised where possible. This may include drainage of an abscess or removal of an invasive device or line.
- Patients who have a local skin infection only may be treated by drainage or wound management alone.

- In patients who have an MRSA bloodstream infection, thorough history and clinical examination is required to identify the source of infection. This investigation should be guided by a clinical microbiologist or an infectious diseases physician.
- For patients prescribed vancomycin, trough concentrations should be monitored and advice sought in relation to dosing to ensure effective antimicrobial concentrations.
- Oral antibiotics which treat MRSA including doxycycline, co-trimoxazole and clindamycin may be considered either as initial therapy or as step down therapy based on antimicrobial susceptibility results. Oral antibiotics should never be prescribed for MRSA bloodstream infection, unless advised by clinical microbiologist or infectious diseases physician.
- The prescribing of newer anti-MRSA agents should be controlled by reserving their use for glycopeptide failure, resistance or intolerance, or on the recommendation of a consultant microbiologist or infectious diseases physician. This recommendation is suggested to preserve the use of newer agents and to minimise the emergence of resistance.

Duration of treatment

- The duration of therapy will depend on the type of infection and the clinical response and should be discussed with a clinical microbiologist or infectious diseases physician.

Surgical antibiotic prophylaxis

- For patients undergoing implant surgery who are known to be MRSA positive or at high risk for MRSA but have not been screened, an antibiotic with MRSA activity should be considered for surgical antibiotic prophylaxis. The choice of agent for use as surgical antibiotic prophylaxis should be in line with local guidelines and complex cases should be discussed with a clinical microbiologist or infectious disease physician as required.
- Patients undergoing non-implant surgery where surgical antibiotic prophylaxis is indicated should be prescribed an appropriate agent to cover MRSA as part of their prophylaxis regimen if they are confirmed as being MRSA positive. The choice of agent for use as surgical antibiotic prophylaxis should be in line with local antibiotic prescribing guidelines. Complex cases should be discussed with a clinical microbiologist or infectious disease physician. as required.
- For elective procedures, either implant or non-implant surgery, every effort should be made to screen at-risk patients to determine if they are MRSA positive or negative prior to surgery (see screening for MRSA colonisation). If patients are identified as MRSA positive and they have received MRSA decolonisation treatment, they should still receive an antibiotic with MRSA activity included as part of the prophylaxis regimen.

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