



OPERATIONAL DIRECTIVE

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Subject: Infection Prevention and Control of Methicillin-resistant *Staphylococcus aureus* (MRSA) in Western Australian Healthcare Facilities

Compliance with this Operational Directive is mandatory for all public hospitals and those private healthcare facilities, including satellite haemodialysis units, contracted to provide services to public patients.

This Operational Directive describes the minimum requirements for the routine screening and subsequent management of people identified with methicillin-resistant *Staphylococcus aureus* (MRSA) in Western Australian (WA) healthcare facilities (HCFs). All acute care HCFs shall ensure their procedures are aligned with those described in the attached document *Infection Prevention and Control of Methicillin-resistant Staphylococcus aureus (MRSA) in Western Australian Healthcare Facilities*. Guidance for the management of MRSA positive individuals in specific acute care settings and residential care facilities (RCFs) is also provided.

The Directive also incorporates the requirements for the screening of healthcare workers (HCWs) and the subsequent management of MRSA-positive HCWs.

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This information is available in alternative formats upon request for a person with a disability.

1. INTRODUCTION

Staphylococcus aureus is an aerobic Gram-positive bacterium that most commonly lives on the skin and mucous membranes of a large proportion of healthy people without causing illness or infection. These people are said to be colonised with the micro-organism. *S.aureus* is, however, a pathogenic organism that can cause significant infection when it enters the body through broken skin e.g. cuts, bites, surgical wounds or invasive devices such as intravenous catheters. *S aureus* causes a wide range of clinical disease from minor skin infections, such as pimples, impetigo, boils and cellulitis to systemic and life threatening infections such as pneumonia, meningitis, endocarditis, osteomyelitis and bacteraemia.

MRSA are *S aureus* that have developed resistance to the beta-lactam class of antibiotics, e.g. penicillins, cephalosporins and carbapenems. While, MRSA is not more pathogenic or virulent than strains of methicillin-sensitive *Staphylococcus aureus* (MSSA), it does pose greater treatment challenges due to the reduced availability of effective antibiotics. MRSA infection is associated with increased morbidity and mortality, which is thought to be related to the delay in initiating appropriate therapy.

MRSA also pose infection prevention and control challenges because of their high transmissibility, with transmission most commonly occurring through direct or indirect contact with a reservoir, such as, an infected individual or contaminated environmental surfaces. Acquisition of MRSA is a potential risk to all individuals receiving healthcare, but MRSA infections are of particular significance for patients undergoing surgical procedures, especially with the implantation of any medical devices or prosthetic material.

MRSA is a notifiable condition, via laboratory reporting, in WA.

2. INFECTION PREVENTION AND CONTROL

It is important that all HCFs implement appropriate infection prevention and control strategies for the identification, management and control of MRSA in order to reduce the risk of transmission of MRSA and to ensure that strategies are in place to minimise the risk to patients and residents of acquiring an MRSA healthcare associated infection (HAI).

The infection prevention and control strategies to be implemented for MRSA screening and for the management of MRSA-positive individuals are described in the attached document *Infection Prevention and Control of Methicillin-resistant Staphylococcus aureus (MRSA) in Western Australian Healthcare Facilities*.

3. RESPONSIBILITIES

- 3.1 Executive Directors of public acute-care HCFs and licensed private acute-care HCFs funded to provide care for public patients, including satellite haemodialysis units, are responsible for ensuring implementation and compliance with this Operational Directive.
- 3.2 Governance bodies of WA RCFs are to ensure they have effective infection prevention and control programs in place that address the management of MRSA positive patients that are congruent with this Operational Directive.
- 3.3 All HCFs are to ensure their local infection prevention and control policies are aligned with the minimum requirements described in this Operational Directive.

- 3.4 All HCFs are to ensure procedures are in place to identify populations that require screening, and that screening is performed in a timely manner in accordance with this Operational Directive.
- 3.5 All HCFs are to ensure that a high level of communication is maintained between facilities when transferring patients who are known to be MRSA positive or a contact of a MRSA positive individual who requires screening.
- 3.6 Outbreaks of MRSA are to be reported to the Healthcare Associated Infection Unit (HAIU) located within the Communicable Diseases Control Directorate (CDCD) via the on line [outbreak notification](#) process.



Infection Prevention and Control of Methicillin- resistant *Staphylococcus aureus* in Western Australian Healthcare Facilities

Version 1.0 November 2013

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Introduction

The purpose of this document is to ensure people colonised or infected with methicillin-resistant *Staphylococcus aureus* (MRSA) are identified early and strategies are implemented to:

- reduce the risk of transmission of MRSA to other patients, clients, residents and healthcare workers (HCWs) within healthcare facilities (HCFs) and
- minimise the risk of them acquiring an MRSA healthcare associated infection (HAI).

This document describes the minimum requirements for the screening and subsequent management of MRSA-positive people in Western Australian (WA) HCFs. Guidance is provided for the management of MRSA-positive patients in specific acute care settings and residents of residential care facilities (RCFs). In addition to screening, other strategies to reduce the risk of people who are MRSA-positive acquiring an MRSA HAI are included.

The document also incorporates the requirements for the screening of HCWs and the management of those HCWs who return positive screening results.

The strict adherence to standard precautions and the adoption of transmission-based contact precautions is essential in the management of people identified with MRSA colonisation and / or infection. In addition, regular cleaning, and disinfection when required, of the environment and shared equipment is critical to prevent the transmission of organisms.

Note: at no time shall a person's MRSA status interfere with the admission, transfer or provision of healthcare in any WA HCF.

Note: all MRSA are resistant to all beta-lactam antibiotics e.g. flucloxacillin and amoxicillin/clavulanate, and all cephalosporins e.g. cephalexin.

Abbreviations

CA-MRSA:	community-associated MRSA
HAI:	healthcare-associated infection
HA-MRSA:	healthcare-associated MRSA
HCF:	healthcare facility
HCW:	healthcare worker
MRO:	multi-resistant organism
MRSA:	methicillin-resistant <i>Staphylococcus aureus</i>
MSSA:	methicillin-sensitive <i>Staphylococcus aureus</i>
RCF:	residential care facility
VISA:	vancomycin intermediate <i>Staphylococcus aureus</i>
VRSA:	vancomycin-resistant <i>Staphylococcus aureus</i>

Definitions

Acute care healthcare facility: includes all public and private hospitals, private haemodialysis units and acute care mental health facilities.

Beta-lactam antibiotics: a group of antibiotics that are primarily designed to destroy the bacteria cell wall and therefore kill the organism. This group includes all the penicillins, cephalosporins and carbapenems.

CA-MRSA: refers to distinct strains of MRSA identified by molecular typing. These strains have adapted to survive and spread successfully in the community.

Clinical Contact: HCWs who provide direct clinical care to patients i.e. have physical contact with patients.

Colonisation: the presence, growth and multiplication of microorganisms without observable clinical signs or symptoms of infection.

Contact precautions: work practices that are used in addition to standard precautions to prevent the transmission of infectious agents that are spread by direct or indirect contact with the person or their environment. Examples include single room allocation and use of personal protective equipment.

Decolonisation: is the process of eradicating or reducing asymptomatic carriage of MRSA by the use of topical and / or systemic antimicrobial agents.

Endemic: the constant presence of a disease or infectious agent in a defined area.

HA-MRSA: refers to distinct strains identified by molecular typing. These strains are known to be highly transmissible within and between healthcare facilities and cause outbreaks. Generally, HA-MRSA do not spread efficiently between people in the community who have no contact with HCFs or RCFs.

Healthcare facility: all acute care HCFs and all RCFs as per these definitions.

HCW: any employee of a healthcare or residential care facility including students, trainees, contracted staff and volunteers.

Higher-Risk Units: refers to services within acute care facilities providing care to people known to be at increased risk of MRSA infection. This includes, but is not limited to, organ and bone marrow transplant recipients, haematology and medical oncology patients, those receiving haemodialysis and those admitted to adult, paediatric and neonatal intensive care and burns units.

Infection: the invasion of bacteria into tissues with replication of the organism. Infection is characterised by isolation of the organism accompanied by clinical signs of illness such as fever, inflammation or pus formation.

Lower-Risk Units: refers to services within acute healthcare facilities providing care to people with a lower risk of developing severe MRSA infection even though they may have a risk for MRSA colonisation / acquisition e.g. rehabilitation, mental health and palliative care units.

Methicillin: a synthetic beta-lactam form of penicillin developed in the 1960's to counteract increasing resistance to penicillin by *S.aureus*. It is no longer used therapeutically, due to toxicity issues.

Micro-alert: a generic term used to refer to a flag applied to the medical record number in the electronic patient management system (TOPAS / webPAS) to identify carriers of multi-resistant organisms.

Micro-alert B and C: micro-alert codes that are assigned dependent on the strain of MRSA isolated.

Micro-alert W: micro-alert code that is assigned to an unscreened MRSA-contact of a known micro-alert C MRSA-positive person.

MRSA: are those isolates of *Staphylococcus aureus* that are resistant to methicillin and consequently all other beta-lactam antibiotics e.g. flucloxacillin, amoxycillin/clavulanate and all cephalosporins.

MRSA-contact: any person who has shared a room with a micro-alert C positive patient prior to the patient having contact precautions initiated.

MRSA-positive: any person who has had MRSA isolated from any body site.

MSSA: are those isolates of *Staphylococcus aureus* that are sensitive to methicillin.

Outbreak: an MRSA outbreak is defined as when a particular strain of MRSA is detected at rates that are clearly higher than expected. For example, when transmission between patients beyond direct physical contacts is detected or closure of wards to admissions is required as part of the management plan. Each HCF needs to consider individual circumstances to decide if the situation defines an outbreak e.g. one case in a higher-risk unit such as a burns unit will enact a management plan, whereas two or three cases in a lower-risk area might be required before action is taken.

RCF: all private and public facilities registered to provide 24 hour non-acute care to people not able to live independently. This includes nursing homes, hostels, hospices and mental health and rehabilitation facilities.

Screening: a process to identify people at risk of being colonised with a particular microorganism and obtaining appropriate specimens.

Standard precautions: work practices that constitute the first-line approach to infection prevention and control in healthcare facilities and are applied to everyone, regardless of their perceived or confirmed infectious status. Examples include hand hygiene, cleaning of reusable equipment between use, environmental equipment and appropriate use of personal protective equipment.

Suppression therapy: refers to the use of topical antimicrobial agents to reduce MRSA carriage even in patients who may not be suitable for decolonisation e.g. those with permanent indwelling devices, chronic wounds (refer section 4.0).

1. Characteristics

1.1 Background

Staphylococcus aureus is an aerobic Gram-positive bacterium that is commonly carried on the skin or in the nose of a large proportion of people without causing illness or infection. These people are said to be colonised. However, *S.aureus* is a pathogenic organism that can cause significant infection when it enters the body through broken skin e.g. cuts, puncture, surgical wounds or invasive devices such as intravenous catheters. *S.aureus* causes a wide range of clinical disease from skin infections e.g. cellulitis, boils and abscesses to systemic infection such as pneumonia, endocarditis, osteomyelitis and bacteraemia.

When *S.aureus* develops resistance to the beta-lactam class of antibiotics e.g. penicillins, cephalosporins and carbapenems it is known as methicillin-resistant *Staphylococcus aureus* (MRSA). While MRSA infection is more difficult to treat than methicillin-sensitive *S.aureus* (MSSA) infections, due to reduced availability of effective antibiotics, there is little evidence to suggest that it is more pathogenic. It is however, associated with higher morbidity and mortality, which is thought to be due to the delay in initiating appropriate therapy^{1, 2, 3, 4}.

In WA, all cases of MRSA are characterised as either healthcare-associated MRSA (HA-MRSA) or community-associated MRSA (CA-MRSA) strains based on molecular typing. HA-MRSA and CA-MRSA strains have distinct clinical, bacteriological and epidemiological characteristics.

HA-MRSA strains, such as EMRSA-15, Aus-2 and Aus-3, are usually isolated from people who have established risk factors for MRSA, such as recent exposure to a HCF, recent surgery, the presence of invasive medical devices or residence in a RCF. They are not frequent among members of the community with no contact with HCFs. Successful MRSA control strategies targeting HA-MRSA strains have been in place in WA since the mid-1980's and this is reflected in the low incidence of HA-MRSA strains in WA compared to other Australian jurisdictions.

CA-MRSA strains, such as WA-1, Qld Clone and USA 300, are primarily isolated from healthy people who lack exposure to health care systems and present with community-onset skin and soft-tissue infections (SSTIs), such as boils, abscesses, and impetigo.

CA-MRSA strains are increasingly recognised as a cause of HAIs in hospitals where they are known to cause invasive infections related to healthcare interventions. The increasing prevalence of CA-MRSA in the WA community, including in HCWs, will present new challenges for infection prevention and control in WA⁵⁻⁸.

Vancomycin-intermediate *Staphylococcus aureus* (VISA) is a strain of MRSA that has a reduced susceptibility to vancomycin. Vancomycin-resistant *Staphylococcus aureus* (VRSA) is a strain of MRSA that contains the resistance genes Van-A or Van-B. To date all VRSA have contained vancomycin-resistance genes transferred from VRE strains. Generally VISA and VRSA arise in people who have been colonised or infected with MRSA and have received multiple or prolonged courses of vancomycin⁴.

1.2 Reservoir

- People who are colonised or those with clinical infection are the major reservoir of MRSA both in hospital and the community.
- The nose is the primary site of colonisation. Other sites of colonisation include the nasopharynx, perineum, axillae, skin (especially skin folds), and the gastrointestinal tract.
- MRSA is able to survive for prolonged periods on environmental surfaces.

1.3 Routes of Transmission

- MRSA is primarily transmitted:
 - by direct contact through transient carriage on the hands of HCWs
 - indirectly after handling contaminated equipment or having contact with contaminated environmental surfaces. Patient bedding and clothing can become heavily contaminated by skin scales and are an important source of environmental contamination
 - endogenously in MRSA-positive people i.e. when it is transferred from one area of their body to another e.g. from the nose to a wound.

1.4 Risk Factors for Transmission

- Certain people with MRSA are more likely to contaminate the hands of HCWs and the environment and include those:
 - with active exfoliative skin conditions e.g. psoriasis, excema
 - with discharging wounds
 - with MRSA respiratory tract infections
 - incapable of maintaining their own personal hygiene.

1.5 Risk Factors for Acquisition

- People who have an increased risk of acquiring MRSA (colonisation and/or infection) in a healthcare setting include those:
 - who are critically ill requiring intensive care*
 - who have invasive procedures or devices*
 - with severe underlying disease or immunosuppression*
 - with surgical wounds / non-intact skin or exfoliating skin*
 - with prior or current antibiotic exposure
 - who have prolonged hospitalisation
 - who require extensive-hands-on-care
 - who are elderly
 - who are in close proximity to a MRSA colonised / infected person.

** indicates those people at risk for developing more serious complications as a result of acquiring an MRSA healthcare associated infection.*

2. Infection Prevention and Control in Acute Care Facilities

2.1 Surveillance Screening

- All HCFs shall have a protocol in place that is applied to all patients admitted to their facility, to determine the infection prevention management requirements, including the need for any microbiological surveillance screening.
- Routine microbiological surveillance screening for MRSA will be performed on or prior to admission, for patients who meet the following criteria:
 - Outside WA:
 - anyone who has been an inpatient in a HCF, resided in a RCF or has worked in either a HCF or RCF in the past 12 months.
 - Within WA:
 - anyone who is admitted from a WA RCF
 - anyone who is identified as a MRSA contact during their hospitalisation or is readmitted with a micro-alert W (unscreened MRSA contact)
 - additional screening of higher-risk unit patients should be considered. It is recommended this is performed on admission to the unit and then weekly for their length of stay and on discharge from the unit.
- Routine screening of patients, who have been hospitalised within WA acute care HCFs, in the absence of a micro-alert or outbreak notification, is not required.

2.2 Screening Specimen Requirements

- The minimum requirement is the collection of one set of nasal swabs and the collection of one swab from other sites if applicable:
 - any wounds, ulcers or skin lesions
 - a catheter urine specimen if an indwelling or suprapubic urinary catheter is in situ
 - an umbilical swab is also required from neonates.
- In addition, it is recommended that a throat swab is collected if decolonisation is to be undertaken on the return of a positive result and / or to increase sampling yield.
- The requirements for clearance screening for those patients and HCWs who are MRSA- positive are described in Section 4.2 and Section 6.0 respectively.

2.3 Screening Specimen Collection

- The appropriate screening swabs are collected by:
 - rotating a single swab, 2-3 times around the inside of the nostril, using the same swab for both nostrils
 - swabbing the posterior pharynx and lateral walls of the pharynx i.e. 'tonsillar' area, without touching the buccal mucosa or tongue
 - swabbing any discharging wounds, ulcers or skin lesions.

- Swabs collected from dry sites e.g. nostrils or non-discharging lesions, should be pre-moistened with sterile normal saline or sterile water. Swabs collected from moist sites e.g. discharging wounds, do not need to be pre-moistened.
- All swabs should be placed directly into transport medium, transported and stored at room temperature.
- All laboratory request forms are to be marked “For MRSA Screening”

2.4 Bed Placement Requirements Pending Screening Results

- Direct transfers from a HCF or RCF outside of WA require a single non-carpeted room with ensuite or dedicated bathroom facilities and initiation of contact precautions immediately upon admission.
- Single rooms are the preferred accommodation for all other patients requiring MRSA screening, including residents from WA RCFs. If single rooms are unavailable, bed placement should be managed in consultation with the HCFs infection prevention and control team.
- The level of transmission-based precautions required, pending screening results, will depend on the patient’s risk factors for MRSA acquisition and transmission. If there are increased risk factors for transmission, contact precautions should be implemented, otherwise patients can be managed with standard precautions.

2.5 Notifications

- MRSA is a notifiable condition, via laboratory notification, in WA.
- All laboratories identifying an MRSA isolate are to ensure:
 - the isolate is sent to the PathWest Gram Positive Typing Laboratory
 - the medical practitioner responsible for the care of the patient is promptly notified and in the case of a MRSA-positive inpatient, notification to the HCFs infection prevention and control team.

2.6 Micro-alert System

- A micro-alert system is an electronic flag utilised to alert HCFs of patients known to have a multi-resistant organism (MRO). It is recommended that all HCFs enable the use of such a system to ensure early identification of patients and implementation of appropriate infection prevention and control measures as soon as possible.

- The following micro-alerts are utilised for MRSA in the public hospital system:
 - micro-alert B: CA-MRSA strains
 - micro-alert C: all HA-MRSA strains and those CA-MRSA strains with increased virulence, transmissibility or antimicrobial resistance, as determined by the WA Multi-Resistant Organism (WAMRO) Expert Advisory Group
 - micro-alert W: contacts of a micro-alert C positive-patient.
- All patients identified with MRSA are to be assigned the appropriate micro-alert by the HCF isolating the MRSA as soon as possible.
- A micro-alert 'W' should be removed from the micro-alert system after one year.

2.7 Antimicrobial Stewardship

- Antimicrobial stewardship is a mandatory requirement of the National Safety and Quality Health Service Standards. All WA acute care HCFs are to ensure an antimicrobial stewardship program is in place and that:
 - the clinical workforce prescribing antimicrobials have access to endorsed therapeutic guidelines on antibiotic usage
 - monitoring of antimicrobial usage and resistance is undertaken
 - the micro-alert system is promoted and is used as a clinical flag to guide medical management and ensure appropriate antimicrobial prescribing.
 - In addition, the micro-alert system

2.8 Outbreak Management

- All HCFs shall have an outbreak management plan to ensure prompt action is taken to identify the source, stop further spread and ensure communication occurs between all concerned parties.
- All HCFs shall notify MRSA outbreaks, by use of the *Outbreak Notification Form* (Appendix 7), to the Healthcare Associated Infection Unit (HAIU) at the Communicable Disease Control Directorate (CDCD).
- The HAIU is responsible for further communication to other HCFs and key stakeholders as required.

3. Management of MRSA-Positive People in Specific Settings

MRSA status must not compromise management of a person in a healthcare setting and those who are MRSA positive shall not be refused admission to any HCF or RCF.

MRSA primarily spreads via contact. The implementation of transmission-based contact precautions (Appendix 1) is the primary intervention to reduce transmission. However, an individual risk assessment is essential when MRSA-positive status is confirmed to determine appropriate management in specific healthcare settings.

3.1 Risk Assessment

- The risk assessment must take into consideration:
 - the type of micro-alert assigned i.e. micro-alert B or C
 - the risk factors for transmission that the person may have e.g. discharging wounds (refer Section 1.4)
 - the type of unit the person is admitted to i.e. acute care higher-risk or lower-risk units, residential care
 - if potential roommates have risk factors for developing more severe complications as a result of acquiring an MRSA HAI (refer Section 1.5)
 - if potential roommates are colonised / infected with other multi-resistant organisms e.g. vancomycin-resistant enterococci (VRE).
- In some instances, it may be appropriate to manage MRSA-positive people with standard precautions. This needs to be determined on a case by case basis in consultation with the HCFs infection prevention and control team.
- When a known MRSA-positive person is re-admitted to a HCF, a review should be conducted to assess if clearance screening can be performed.
- Scheduling MRSA-positive patients last on operative / procedural lists is not justified. HCFs must ensure adequate time is allocated to allow for thorough environmental cleaning as per the HCFs routine procedures.

3.2 Acute Care – Inpatients

- It is recommended that the following patients be admitted to a non-carpeted single room, preferably with ensuite facilities:
 - all micro-alert C patients
 - all micro-alert B patients who have risk factors for transmission and or contaminating the environment (refer Section 1.4).
- All other micro-alert B patients require a risk assessment. It may be appropriate to manage these patients in shared accommodation with standard precautions.

3.3 Acute Care Facilities - Non-inpatient Setting

- These include departments where the patient is not admitted to the facility overnight and invasive procedures are performed e.g. emergency, day surgery, endoscopy and medical imaging. The following should be implemented:
 - standard precautions are to be applied to all patients at all times with an emphasis on hand hygiene compliance, skin antisepsis, aseptic techniques for invasive procedures and environmental cleaning
 - all patients should be asked to perform hand hygiene with an alcohol-based hand rub or soap and water prior to entering the area
 - on discharge, all environmental surfaces contacted by the patient should be cleaned using the HCF's standard cleaning procedures.

3.4 Acute Care Mental Health Facilities

- The surveillance screening requirements described in Section 2.1 and Section 6.0 are applicable in the mental health setting. It is acknowledged that screening may not be possible due to valid consent issues or a person's mental capabilities. Consideration should be given on an individual basis using a risk assessment approach.
- Management of any MRSA-positive person in this setting needs to be based on an individual risk assessment.
- Any person who is MRSA-positive and who has risk factors for transmission should be managed in accordance with these guidelines.

3.5 Haemodialysis Facilities

- Haemodialysis patients are a known higher-risk group for both colonisation and infection with MRSA.
- Routine MRSA surveillance screening shall be performed on all haemodialysis patients:
 - who meet the criteria for screening described in Section 2.1
 - on initial admission to a haemodialysis unit
 - following provision of dialysis outside of WA.
- Routine three monthly MRSA screening for all haemodialysis patients, excluding home dialysis patients, is recommended.
- A copy of the patient's most recent screening result should be made available when transfer between units occurs. If a patient has been screened within the last three months, they do not require rescreening prior to transfer.

- More frequent surveillance screening may be implemented on the advice of the infection prevention and control service e.g. in the event of an outbreak.
- If a haemodialysis patient is found to be MRSA-positive, decolonisation treatment (Appendix 3) should be considered. If following the decolonisation regimen a positive screen is returned, consideration should be given for suppressive treatment i.e. the use of an antiseptic body wash for daily showers especially when a cuffed catheter is in situ.
- An individual risk assessment should be completed for each MRSA-positive haemodialysis patient to identify risk factors for transmission and to determine patient placement within the unit and appropriate level of transmission-based precautions.

3.6 Dental Health Services

- Standard infection prevention and control precautions are the required precautions in ambulatory care settings including dental health services. As MRSA primarily spreads via contact, high level compliance with hand hygiene is especially important in preventing transmission. There should be a strong focus on ensuring high-level compliance with hand hygiene, use of PPE, reprocessing of equipment and environmental cleaning.

3.7 Residential Care Facilities

- The surveillance screening requirements described in Section 2.1(residents) and Section 6.0 (HCWs) are applicable in the residential care setting.
- Elderly residents and those with invasive medical devices are at increased risk for MRSA colonisation / infection and these residents serve as a major reservoir of MRSA in RCFs. Although it is recognised that a RCF is the resident's home, and it is optimal not to place restrictions on their mobilisation, socialisation or room allocation, there is also a need to ensure appropriate infection prevention and control occurs in this setting.
- It is essential that RCFs engage with their infection prevention and control personnel to ensure an individual risk assessment is performed and appropriate management of MRSA-positive residents occurs. There should be a special emphasis placed on hand hygiene for all HCWs, family and visitors involved in the care of the residents. If the resident's cognitive state is impaired, HCWs and family caring for them must be responsible for this activity, especially after contact with colonised / infected sites or devices.
- Further guidance on the management of MRSA-positive residents is provided in Appendix 2.

4. Decolonisation and Clearance of MRSA-Positive People

4.1 Decolonisation

- Decolonisation is the process of eradicating or reducing asymptomatic carriage of MRSA by the use of topical e.g. nasal antimicrobial ointment and antiseptic body wash, plus or minus, systemic antibiotic therapy.
- Decolonisation is recommended to:
 - eliminate carriage in people with recurrent infections
 - prevent the development of HAIs
 - reduce the risk of HAIs developing in high risk populations
 - interrupt the transmission of MRSA in an outbreak situation
 - reduce the risk of MRSA becoming endemic in acute care facilities.
- Decolonisation is less likely to be successful if the person has throat carriage, chronic wounds or permanent indwelling devices e.g. feeding tubes.
- Decolonisation should only commence once any active MRSA infection has cleared.
- Decolonisation should not be commenced on people with scabies or active exfoliative skin conditions e.g. excema, psoriasis, as it is likely to fail and antiseptic body wash may exacerbate their condition. Any underlying exfoliative skin condition should be treated first, in consultation with a dermatologist.
- A set of swabs should be taken one week after decolonisation is completed to determine initial efficacy of the decolonisation. If the person remains positive, repeated decolonisation should be considered.
- Refer to Appendix 3 for MRSA decolonisation regimen and Appendix 4 for an instruction sheet on decolonisation.

4.2 Clearance

- MRSA clearance can only be obtained three months after the last known positive result and if the person has not used any topical antiseptics during the past week and is not on antibiotics at the time of screening.
- MRSA clearance swabs are achieved by the collection of two sets of nasal and throat swabs, and other sites as applicable, as described in Section 2.3.
- The two sets of swabs can be collected consecutively.
- On receipt of two sets of negative clearance screening results, micro-alerts can be removed.

5. Prevention of MRSA Healthcare Associated Infections

Internationally, MRSA has emerged as a predominant pathogen in healthcare associated infections, resulting in limited treatment options and higher morbidity and mortality.

This section is under development by the Healthcare Associated Infection Unit and will be added to the document following consultation with key stakeholders. If you wish to make a submission please email: hiswa@health.wa.gov.au and cite MRSA HAIs - Infection Prevention

6. Healthcare Worker Screening and Management

- HCWs may become colonised with MRSA during contact with MRSA-positive people in HCFs, RCFs or in the community. Transmission of MRSA from HCWs to patients has been reported and several studies have described hospital outbreaks of MRSA that have been epidemiologically linked to HCWs, especially when they have exfoliative skin conditions^{9, 10}.
- The strict adherence to standard and transmission-based contact precautions, with an emphasis on hand hygiene compliance, are required to reduce the risk of acquisition and the transmission of MRSA by HCWs to their patients or residents.
- Screening of HCWs from outside of WA is performed to prevent the establishment of new HA-MRSA and CA-MRSA strains, which are prevalent elsewhere in Australia and overseas, from becoming endemic in WA HCFs.
- The HCW screening requirements apply to all healthcare settings in WA including RCFs and mental health settings.

6.1 Who to Screen

- The HCW screening requirements apply to all HCWs who have clinical contact (refer to Definitions-page 6). This includes honorary, permanent, part time or casual HCWs, students, trainees, volunteers or those providing care under contracted services.
- All HCFs need to ensure that agencies, including universities that provide clinical contact HCWs, students or trainees comply with these screening requirements.

6.1.1 New (to a HCF) HCWs:

- all HCWs, who will have clinical contact, are required to have their MRSA risk status assessed as part of a pre-employment / commencement process
- MRSA surveillance screening is required prior to commencement of work if the HCW has been hospitalised or worked in a HCF or RCF outside of WA in the previous 12 months including volunteer placements
- MRSA screening swabs can be collected outside of WA, as long as the HCW has not worked since collection of the screening swabs
- a copy of the microbiology results must be provided to the employer.

6.1.2 Current HCWs:

- current HCWs who perform clinical duties in a HCF or RCF outside of WA, including volunteer placements, and are returning to work, are to have MRSA surveillance screening performed on their return. HCWs can continue clinical duties pending results.

6.1.3 Visiting HCWs:

- any visiting HCWs who wear surgical attire and are assisting / observing in an operative / procedural setting are exempt from screening requirements
- any visiting HCWs who will be involved in clinical contact for a period greater than five days, require screening prior to placement.

6.1.4 Additional HCW Screening

- screening of HCWs should be considered when a single strain outbreak continues despite adherence to infection prevention and control measures
- there is currently no evidence to support the routine screening of HCWs who have been employed in WA RCFs prior to employment in the acute care setting, or on those HCWs who work across both acute and residential care settings. All HCWs should be educated on the increased prevalence of MRSA in RCFs, the subsequent increased risk of becoming colonised with MRSA and the importance of hand hygiene in minimising this risk.

6.2 Screening and Management

- HCW screening samples are to be taken from the nostrils, throat and any skin lesions or wounds and collected in accordance with Section 2.3.
- HCWs found to be colonised with any strain of MRSA should be given topical decolonisation as prescribed in Appendix 3. Any body piercings should be removed for the duration of the decolonisation treatment. HCWs can return to work once they have commenced treatment provided they have no skin lesions.
- HCWs are to be screened one week after completion of treatment and then at week four, eight and 12. If they return a positive result during this time, advice should be sought from an Infectious Diseases Physician/Microbiologist.
- HCWs who develop exfoliative skin conditions or skin and soft tissue infections (SSTIs) must seek immediate medical advice. MRSA screening samples should be collected from any skin lesions or wounds. HCWs with these skin conditions should not perform clinical duties until the condition has resolved.

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8. Appendices

Transmission-based contact precautions

1. *Bed Management*

- Single, non-carpeted rooms, preferably with ensuite facilities, are recommended. If preferred room accommodation is not available, contact the local infection prevention and control team.
- A clinical hand basin inside, or in close proximity to, the room is required.
- If there are insufficient single rooms, cohorting may be permitted as advised by the local infection prevention and control team.

2. *Room Preparation*

- Remove all non-essential equipment.
- Ensure impermeable covers on mattresses and pillows are intact.
- Charts shall be left outside the room (ensure confidentiality is maintained).
- Supplies of personal protective equipment (PPE) are to be available outside the room or in the anteroom, if present.
- Signage advising of required precautions shall be evident outside the room.

3. *Hand Hygiene*

- All people shall be advised, via signage, of the importance of performing hand hygiene. Alcohol based hand rub (ABHR) shall be available for use.
- All HCWs shall perform hand hygiene in accordance with the '5 moments' and in accordance with the requirements associated with donning and removing PPE.
- Following any patient contact, HCWs are to use an ABHR or an antiseptic hand wash to perform hand hygiene.

4. *Personal Protective Equipment*

- Contact precautions require the HCW to wear a gown or apron and gloves prior to entering a room if contact with the patient or the environment is anticipated.
- Disposable, single use only, fluid resistant gowns / aprons are required. They are not to be left hanging in the patient's room for use on future occasions.
- When gloves are worn, avoid touching and therefore contaminating environmental surfaces e.g. light switches, door handles, after contact with the patient.
- Prior to leaving the room, PPE is to be removed and hand hygiene performed.
- As per standard precautions, masks and eyewear are required when there is potential for blood / body fluid exposure.

5. *Equipment*

- Disposable, single-use equipment shall be used, whenever possible.
- Dedicate non-critical items to the patient's room e.g. stethoscope.
- Minimal stocks of disposable items e.g. dressings, tapes, syringes, are to be stored in the room. On patient discharge, these items are to be discarded.
- Equipment that is designated reusable and required for use on other patients shall be cleaned and disinfected prior to reuse. Items requiring further reprocessing e.g. sterilisation shall be processed as per routine procedures.

6. *Environmental Cleaning*

Persistence of environmental reservoirs of pathogens is usually related to a failure to follow recommended cleaning procedures rather than specific cleaning and disinfectant agents.

- Cleaning regimens shall ensure the room is cleaned on a daily basis as per the HCFs routine cleaning procedures. Ensure all vertical and horizontal surfaces and all room furnishings are thoroughly cleaned and pay particular attention to frequently touched surfaces e.g. call bells, bed rails, light switches.
- Increased frequency of cleaning is strongly recommended if the person has risk factors for environmental contamination i.e. uncontained wound discharge.
- Disposable single-use cleaning equipment should be used. If re-useable equipment is used it shall be dedicated to the room. If re-useable mop heads are used they are to be sent for laundering at the completion of each use.
- On patient discharge:
 - any unused / unopened disposable medical items in the patient room shall be discarded and unused linen sent for laundering
 - bed screens (and window curtains) shall be sent for laundering/dry cleaning
 - the room can be used immediately after cleaning, once surfaces are dry.

7. *Use of Disinfectants*

- As disinfectants are inactivated by organic material, any visible soiling is to be removed with paper towels prior to using a disinfectant.
- Information on how to prepare and use disinfectants and relevant safety data sheets (SDS) shall be available to cleaning staff.

8. *Transfers*

- Regarding internal transfers:
 - avoid unnecessary transfers of MRSA-positive patients within the hospital
 - notify receiving departments of patient's status prior to transfer
 - scheduling patients last on operative / procedure lists due to MRSA status is not justified (refer Section 3.1).

- Regarding external transfers to private, public or RCFs:
 - the transferring facility shall notify the receiving HCF or RCF prior to the transfer of a MRSA-positive person or unscreened MRSA contact to ensure appropriate bed management occurs
 - the medical and nursing documentation accompanying the person must include documentation that addresses the risk of MRSA transmission e.g. a discharging wound or exfoliative skin condition (refer Section 1.5).

9 *Standard Precautions*

- Standard precautions apply to the management of linen (any unused items left in a room are not to be returned to general use), crockery and cutlery, waste disposal, laboratory specimens and care of the deceased.

10. *Patient Discharge*

- All newly identified MRSA-positive patients are to be provided with information on the risk of transmission and the importance of notifying healthcare providers of their MRSA status. Refer to Appendix 5: MRSA Fact Sheet and Appendix 6: MRO Advisory letter.

11. *Duration of Contact Precautions*

- Precautions are to continue for the length of stay unless advised by the HCFs infection prevention and control team.

13. *Visitors*

- Visitors are to be instructed to perform hand hygiene prior to entering, and on leaving the person's room. Visitors are not required to wear PPE unless they are assisting with care. Visitors are not to provide personal care to other patients.

14. *Healthcare Workers*

- Staff with active exfoliative skin conditions or SSTIs should not provide clinical care to patients and should consult with their infection prevention and control personnel (refer Section 6).

Management of MRSA in Residential Care Facilities

1. MRSA screening in RCFs

- Surveillance screening of residents who are admitted from a hospital or RCF outside of WA should be screened on admission as per Section 2.3.
- Routine screening for the presence of MRSA in residents of RCFs is not required.
- Surveillance cultures should only be done if staff and / or residents are epidemiologically implicated in an outbreak, and only as directed by the infection prevention consultant in consultation with a clinical microbiologist.

An outbreak of MRSA represents an increase in the incidence of MRSA cases in the RCF above the baseline level, or a clustering of new MRSA cases that are epidemiologically linked.

- Facilities should maintain a surveillance record of the names of residents that are found to be colonised and / or infected with MRSA.

2. Management of the MRSA-positive resident

- If the MRSA-positive resident has no risk factors for transmission the resident can be managed with standard precautions.
- It is recommended that residents with MRSA do not share a room with other residents who have:
 - open wounds or decubitus ulcers
 - urinary catheters, feeding tubes or other invasive devices
 - compromised hygiene, debilitating or bed-bound conditions that require extensive 'hands on' care
 - another antibiotic resistant organism e.g. vancomycin-resistant enterococci.
- If residents with MRSA are accommodated with residents who do not have MRSA, there should be increased environmental cleaning.
- Residents with risk factors for transmission e.g. discharging wound, lower respiratory tract infection, are to have a risk assessment performed to determine the extent of transmission-based contact precautions that are required to minimise transmission of MRSA to other residents and HCWs.
- Precautions should be maintained for as long as the resident continues to have secretions or excretions that cannot be controlled or contained. When the condition changes e.g. wound drainage ceases or is contained, the precautions may be modified or discontinued.
- Transmission-based contact precautions are described in Appendix 1.
- Residents with MRSA, and who have risk factors for transmission, may attend community activities as long as any colonised / infected site or invasive device

can be securely covered e.g. chronic wound, tracheostomy tube, urinary catheter, and there is no leakage of any secretions / excretions / body fluids.

- When a MRSA-positive resident requires transfer to another HCF, the receiving facility must be notified of the resident's MRSA status.
- RCFs are to ensure they have an antimicrobial stewardship program in place that promotes prudent use of antibiotics.

3. *Clearance screening of the MRSA-positive resident*

- There is no requirement to routinely decolonise and clear residents of MRSA carriage. However, prior to a resident having elective surgery e.g. hip arthroplasty, it may be beneficial to ensure a decolonisation regimen is undertaken prior to the surgery to reduce the risk of the resident acquiring an MRSA wound infection.

4. *Healthcare workers*

- Managers of RCFs are to ensure compliance with the HCW screening requirements as described in Section 6.
- There is no evidence to support the routine screening of HCWs employed in WA RCFs. However, screening of HCWs should be considered when a single strain outbreak continues despite adherence to infection prevention and control measures.
- All RCFs must ensure their staff are competent to participate in infection surveillance, prevention and management activities and are provided with any necessary orientation, in-service training and continuing education.
- HCWs who develop exfoliative skin conditions or SSTIs must seek immediate medical advice. MRSA screening samples should be collected from any skin lesions or wounds. HCWs with these skin conditions should not perform clinical duties until the condition has resolved.

MRSA Decolonisation 5 Day Regimen

1. *MRSA antiseptics*

- Antiseptic solutions suitable for eradicating or suppressing MRSA colonisation:
 - body washes: chlorhexidine 4% solution; triclosan 1%
 - nasal ointments: mupirocin 2% (nitrofurazone 0.2% if mupirocin resistance)
 - mouth wash: chlorhexidine based solution

2. *Suggested regime*

- Using either chlorhexidine 4% or triclosan 1%, wash the entire body surface once daily for 5 days. Use approximately 25ml of the same solution to shampoo hair on day 1, 3 and 5. Conditioner can be applied after shampooing.
- 2% mupirocin should be applied inside both nostrils, twice daily, for 5 days as described below:
 - a “double match head” quantity of ointment is applied inside each nostril with a cotton bud
 - spread the ointment around the nasal vestibule by squeezing the nose between thumb and forefinger, and rubbing them together
 - patients and carers should receive careful instructions on the correct application of the nasal ointment
 - if high-level mupirocin resistance is reported, nitrofurazone 0.2% nasal ointment is used.
- Dentures should be disinfected by immersion in chlorhexidine mouthwash solution for 1 hour every night or by soaking overnight in a denture cleaning product e.g. Steradent, Polident for the 5 days.
- The use of a chlorhexidine mouthwash solution as a throat gargle can be considered for those HCW’s with throat carriage.
- MRSA-positive neonates should be managed in consultation with a Clinical Microbiologist or Infectious Disease Physician. The topical agents described above are not to be used on neonates.

3. *Systemic treatment*

In some people MRSA colonisation can be persistent. Combined topical and systemic therapy can be given. Such management should be directed by a Clinical Microbiologist or Infectious Disease Physician.

Instructions for applying MRSA decolonisation treatment

- The removal of MRSA from our body is called decolonisation. Sometimes, decolonisation can reduce the risk of acquiring repeated infections or spreading MRSA to others. Decolonisation is the use of an antiseptic body wash and an antibiotic ointment that needs to be prescribed by a doctor.

<p>How to use the nasal ointment</p> <p><i>Apply twice a day for 5 days.</i></p>	<p>How to use the body wash</p> <p><i>Use once a day for 5 days.</i></p>
<ol style="list-style-type: none"> 1. Wash your hands with soap and water or use a hand sanitiser gel just before using your ointment. 2. Use a cotton bud to apply a 'double match head' amount of ointment to the inside of each nostril. 3. Press your nostrils together with thumb and forefinger and massage for about 15 seconds. 4. Don't get the ointment near your eyes. If any of it gets into your eyes, rinse them well with cool water. 6. Wash your hands with soap and water or use a hand sanitiser gel as soon as you are finished. 7. Do not use any other nasal ointments or nasal sprays during the 5 days. 	<ol style="list-style-type: none"> 1. Using a clean washcloth or your hands, apply the body wash to all body areas. Make sure to apply under your arms, behind your ears and your knees, your groin area, and between any skin folds. The soap will not lather very much, and that is OK. 2. When you have finished applying the body wash, leave it on your skin for 2 minutes. 3. Shampoo your hair using the body wash solution on day 1 and day 3 and day 5. Your normal conditioner can be used. 4. Thoroughly rinse the body wash off your skin. Do not wash with any other soap or cleanser. 5. Close your eyes and mouth when washing your face or shampooing. If you do get the body wash in your eyes or mouth – rinse well with cool water. 6. Dry off with a clean towel and put on clean clothing. 7. Use a moisturiser for dry skin, but do not use if you are having a surgical procedure. 8. If you have dentures, remove them before bed and clean thoroughly. Soak overnight in a denture cleaning product e.g. Steradent, Polident or for 1 hour each night for 5 nights in a chlorhexidine mouthwash solution.

Additional Treatment

- You may be advised by your doctor or nurse that you require additional treatment such as mouth washes or oral antibiotics. If these are required we will provide further instructions. You will be advised by your doctor or nursing staff if you require more testing for MRSA.

Methicillin Resistant *Staphylococcus aureus*

What is Staphylococcus aureus and MRSA?

Staphylococcus aureus is a bacterium (germ) that commonly lives on the skin or in the nose or throat of people (this is called colonised). It is often referred to as staph or golden staph. When staph becomes resistant to commonly used antibiotics (meaning the antibiotics are no longer effective) it is called **Methicillin Resistant *Staphylococcus aureus* (MRSA)**.

Most of the time MRSA does not cause any problems and those who are colonised with it do not look or feel different to anyone else. However, like all staph, MRSA can cause infection if it gets into the body. This can occur when you scratch your skin, have a wound or if you have undergone surgery or had invasive procedures performed in a healthcare setting. MRSA infections are often more difficult to treat than other staph infections due to the reduced number of antibiotics available.

MRSA is a notifiable condition in Western Australia (WA). This means when a laboratory identifies MRSA it must be reported to the Department of Health. The Department closely monitors the number of MRSA cases occurring in WA.

How is MRSA spread?

MRSA is usually spread from person to person through close contact with another person who is colonised or infected with MRSA. It may also spread by having contact with items contaminated by a person with MRSA, such as towels or wound dressings or from touching surfaces that are contaminated with MRSA e.g. door handles and taps. It is not usually spread through the air.

MRSA in hospitals

MRSA infection is a known risk associated with having any invasive surgery, procedure or device inserted, such as an intravenous catheter. In WA, successful prevention programs to limit the spread of MRSA in hospital and reduce the risk to patients have been in place since the 1980s. However, not all MRSA infections are preventable and the risk of infection is also dependent on patient factors such as having diabetes or cancer, being overweight, smoking or taking medications such as steroids.

What special precautions are required for MRSA in hospital?

It is important to stop MRSA from spreading to other patients in the hospital. All hospitals have infection prevention and control policies in place to achieve this. The most important strategy in preventing the spread of MRSA is for all staff, visitors and patients to frequently clean their hands, by using an alcohol hand rub or to wash them with soap and water, before and after touching other people. If a patient is known to have MRSA, they will often be placed in a single room, and staff may wear gloves and gowns.

Will my medical treatment be different because I have MRSA?

No. Having MRSA will not interfere with your medical treatment or care. If you have an infection and are requiring surgery, your doctor may choose to delay the surgery for a few days to allow time for your infection to be treated. Having MRSA does not prevent you from being admitted to other healthcare facilities, such as a private hospital or a residential care facility.

Can I get rid of MRSA?

Your doctor or nurse may talk to you about decolonisation. This is when topical treatments are used to try and get rid of the MRSA you are carrying. It involves the use of an antiseptic body wash and nasal ointment for 5 days. This treatment is different to the antibiotics that you may have taken.

What should I do if I require admission to hospital?

When a patient is identified with MRSA, hospital staff will place an alert on the hospital's computer system. When a person is readmitted to the hospital, this alerts the staff and ensures all appropriate measures are taken.

All WA public hospitals use and access the same computer system for patient information, so if an alert is placed on you for MRSA in one public hospital, all other public hospitals can see the alert as well. Every private hospital has their own computer alert system and information is not shared with other hospitals. If you are readmitted to the same private hospital they will know you have had MRSA in the past. However, if you are admitted to a different private hospital, to a public hospital or a hospital outside of WA you will need to let the staff know. It is always a good idea to tell your doctor or nurse that you have had MRSA.

What about my family and visitors?

It is quite safe for your family and friends to visit you. Visitors should always wash their hands before entering your room and again when they leave. You, your family or visitors should not assist other patients in the hospital with personal care.

What happens when I go home?

Carrying MRSA on your skin will not affect other family members or friends, provided you have good hygiene practices. Hand hygiene is very important in stopping MRSA spread. Always make sure any wounds are covered and don't share personal items like towels, clothes or soap bars. MRSA can survive for long periods on environmental surfaces e.g. table tops and chairs, so it is important to keep your environment clean.

Where can I find more information on MRSA?

If you are in hospital, you can ask to speak to the Infection Prevention and Control Nurse. You can visit the [Department of Health's](#) website for more information.

Advisory Letter



Government of **Western Australia**
 Department of **Health**
<Insert Facility Name>

<insert facility logo>

< Patient Name>
<Address line 1>
<Address line 2>
<Date>

Dear <name>

You are receiving this letter because a laboratory test taken during your recent admission to **<name>** hospital showed that you are carrying a bacterium (or germs) called **<MRO>** that requires special management.

This bacterium is known to be resistant to a number of antibiotics (this means the antibiotics are no longer effective) and it is known to spread easily between patients within hospitals. When a bacterium becomes resistant to antibiotics we call this a multi-resistant organism or MRO. We have enclosed a fact sheet on **< MRO>** to provide you with more information.

Because it is necessary to take extra care to prevent the spread of these bacteria in hospital, information about your MRO has been stored on the hospital computer system which is confidential and securely protected. If you are readmitted to hospital, the staff will see this information and make sure correct measures are taken to protect you and other patients in the hospital. This means you may be cared for in a single room and staff may wear gowns or aprons and gloves when caring for you. This helps prevent the spread of these MROs to others.

As the computer system used in WA hospitals is not always the same, if you are admitted to a different hospital, the staff may not be able to see this information. It is important that you tell the staff at any hospital you are admitted to that you have **<MRO>** and you should take this letter with you to show them.

Finally, we would like to reassure you that having this MRO should not be a problem for you or your family at home, or in the workplace, and you do not have to do anything differently. If you have any further concerns please contact **< name or service>** on **<telephone>** between **<hours of access>**

Thank you for taking the time to read this information.

Yours sincerely

<name>
<position>
<department>

Outbreak Notification Form

Visit the [HAIU](#) website to access this form and the notification definitions



Government of Western Australia
Department of Health
Public Health and Clinical Services

HAIU Outbreak Notification Form

Further information on outbreak management can be found in relevant Operational Directives.
For advice on reporting outbreaks to the HAIU, please email HISWA@health.wa.gov.au

REPORTING HOSPITAL <input type="text"/>	REPORT TYPE <input type="text"/>
OUTBREAK ORGANISM <input type="text"/>	DATE OF FIRST CASE <input type="text"/> <input type="text"/> <input type="text"/>
TYPE OF OUTBREAK IF 'OTHER' <input type="text"/>	STRAIN (IF KNOWN) <input type="text"/>
NUMBER OF POSITIVE CASES TO DATE <input type="text"/>	TOTAL NUMBER OF WARDS INVOLVED <input type="text"/>
NUMBER OF CONTACTS MICRO-ALERTED TO DATE <input type="text"/>	TYPE(S) OF WARD INVOLVED <input type="text"/>
NUMBER OF WARDS CLOSED TO DATE <input type="text"/>	NUMBER OF BEDS CLOSED TO DATE <input type="text"/>

SUMMARY OF ACTION SINCE LAST UPDATE

NAME <input type="text"/>	PHONE NUMBER <input type="text"/>	DATE OF SUBMISSION <input type="text"/> <input type="text"/> <input type="text"/>
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