# Methicillin Resistant Staphylococcus Aureus (MRSA) 15.9G

GUIDELINE

Guidelines are recommended actions allowing for professional judgement

island health

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| **Purpose:** | Management of patients/residents/clients who are colonized or infected with MRSA and accessing healthcare within Island Health.<br><br>Background: *Staphylococcus aureus* is a common cause of infection in hospital and the community, causing a spectrum of problems from minor skin and wound infections, to serious deep infections such as osteomyelitis and blood stream infections, which may be associated with significant morbidity and mortality. *Staphylococcus aureus* can survive on the skin, particularly the anterior nares, skin folds, hairline, perineum and umbilicus, without causing infection. This is known as colonization.<br><br>MRSA are strains of *Staphylococcus aureus* that are resistant to antibiotics such as cloxacillin, all cephalosporins and cross resistant to other classes of antibiotics. |
| **Scope:** | • All Staff and Medical Staff<br>• Emergency, Acute care (all in-patient units), Long-term Care, Community Care, Surgical Services, Contracted Services and other Island Health Partners (i.e. affiliates, academic partners)<br>• Island-wide |
| **Outcomes:** | • Safe and effective care for patients/residents/clients with MRSA.<br>• Prevent the transmission of MRSA. |

## 1.0 Screening/Risk Assessment

Island Health Antibiotic Resistant Organism (ARO) Screening Questionnaire will be completed for all inpatients admitted to acute care, as soon as possible. An inpatient admission is defined as greater than 24 hours. Routine MRSA screening is not required on patients admitted to SDC or any other daycare procedure.

Two screening questionnaires are available for use within Island Health, one for NICU ARO Admission Screening Questionnaire-Neonatal and one for all other admitted patients ARO Screening Questionnaire- Adult . Use these screening tools for:

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| Admitted Patients: Acute Care | ▪ All patients admitted to acute care inpatient units during admission assessment (swab collection should be completed preferably in ER and prior to the initiation of antibiotic therapy)<br>▪ All patients transferred between Island Health hospital sites and those transferred in from other Regional Health Authority Hospitals<br>▪ Patients who have had surgery and who are to be admitted as an inpatient |
| Screening patients after exposure to MRSA infection (Acute Care Only) | ▪ Patients identified as direct contacts (sharing a room for > 24 hours) of a patient who has not been on precautions and is newly diagnosed with an MRSA infection (not colonization) should have screening cultures collected:<br>o Baseline at time of exposure discovery<br>o 7 days after the first negative screen (if still an inpatient)<br>o Include nares, groin, existing wounds and any invasive insertion site (s) |
| Screening is **NOT** required for: | ▪ Patients who have had an MRSA screen within the previous 48hrs (within Island Health including community labs) |

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| | ▪ Outpatient areas (e.g. Surgical Daycare, Post Anesthetic Recovery Room, Endoscopy, Chemotherapy etc.)<br>▪ Long Term Care<br>▪ Clients in Community/Mental Health Care |
| **2.0 Swab Collection** | |
| ARO Screening Questionnaires | Collect swabs if there is an existing ARO alert and/or yes answer to any question on the ARO screening questionnaire (MRSA screen). |
| Adult Intensive Care Units, CCU, CVU, H.A.U. (High Acuity Unit) | ▪ On admission (unless 48hrs from last screen)<br>▪ Weekly if on the unit greater than 7 days<br>▪ On discharge from unit |
| Pediatric ICU/NICU | ▪ On admission (unless 48hrs from last screen)<br>▪ On Transfer from another hospital (within or external to Island Health)<br>▪ Screen all neonates on admission and weekly thereafter while remaining in NICU.<br>▪ If mother (or primary caregiver) requires an ARO screen, screen the baby at the same time.<br>▪ If the neonate/infant is positive for MRSA, contact Infection Prevention and Control (IPAC) for review. The medical microbiologist will provide further instruction for possible screening of the parents/caregivers.<br>▪ On discharge from unit<br><br>**For additional MRSA care management information for Pediatric ICU/NICU patients, see below in section 3.0 under 'Special Populations'** |
| Hemodialysis Unit | ▪ No routine screening.<br>▪ Patients admitted to acute care will be screened based on the ARO screening tool. |
| **2.1 Specimen Collection Procedure:** | |
| Swab site and procedure for MRSA Screen Collection (use a separate swab for each site) | ▪ Nares: Use a firm circular/twisting motion; swab just inside the rim of nose; use one swab for both sides.<br>▪ Groin: Swab the creases at the junction of the torso with the legs, on either side of the pubic area; (at the inguinal triangle, starting at its lowest point). Use one swab for both sides of the groin.<br>▪ If applicable, MRSA screen should include swabs of open wound(s), invasive device insertion site(s), ostomy site, suprapubic /indwelling catheter site. If evidence of infection appropriate clinical samples should also be obtained.<br>▪ Neonates admitted to NICU: throat (if possible), umbilicus, axilla, nares/groin<br>▪ Neonates admitted to pediatrics should receive nares/groin swabs.<br>▪ Specimen Collection Link: MRSA Screen Culture |
| Procedure for clinical infection | ▪ A specimen is collected for culture and sensitivity if there are signs or symptoms of infection (e.g. sputum, wound, urine). |

## 3.0 Management of Patients/Residents/Clients with MRSA

In addition to routine practices, further measures are required to prevent the spread of MRSA, whether a person is colonized or infected. Patients identified as MRSA positive and flagged as such on their electronic record must be placed on appropriate precautions as outlined. (see below)

Patients at increased risk of disseminating MRSA include intubated patients with a respiratory infection, patients with uncontained wounds, shedding skin conditions (psoriasis) or those who have poor hygiene. For these patients, a single room is preferred.

**An algorithm has been created as a quick reference tool to summarize important care management information for patients with MRSA. Please refer to** Appendix A: Management of MRSA Patient/Client Algorithm

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| Education | ▪ Patient/resident/client education provided by clinical staff should highlight the importance of hand hygiene and not sharing personal items.<br>▪ Patient MRSA information pamphlet |
| Electronic Health Record | ▪ The system will create automatic orders to place patients on contact precautions when they have an existing MRSA flag or when there is a new MRSA positive result. The precautions status will appear in the patient banner. |

## 3.1 Acute Care

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| Additional Precautions | ▪ Contact Precautions are required for all known and newly diagnosed patients with MRSA infection or colonization.<br>▪ Droplet and Contact precautions are required for known and newly diagnosed patients with MRSA and a cough.<br>▪ Any patient known to be MRSA positive and admitted to acute care (including rehabilitation and transitional care units) should have either a dedicated toilet or dedicated commode (commode if in multi-bed room).<br>▪ Patients must bathe at their bedside or in the bathroom/shower at a pre-arranged time to ensure appropriate terminal clean after use.<br>▪ Mobile equipment should be single patient use or dedicated. When this is not possible, all equipment must be cleaned and disinfected appropriately immediately after use and upon exit of the patient bed space.<br>▪ Limit the amount of supplies taken into the room to prevent waste. |
| Additional Precautions are **Not** required for: | ▪ Patients who are swabbed because of the ARO questionnaire, awaiting results and have not been previously identified as MRSA positive |
| Accommodation | ▪ Single rooms are preferred in the accommodation of MRSA infection. These patients take priority over those who are MRSA colonized.<br>▪ If there is a shortage of single rooms, then accommodation should be based on an individual transmission risk assessment of the patient.<br>▪ Do not cohort with patients/residents who are positive with a different ARO (e.g. VRE, ESBL).<br>▪ Patients with an MRSA infection should not share a room with:<br>o individuals who are immunosuppressed |

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| | ○ individuals who have open wounds or decubitus ulcers<br>○ individuals who have urinary catheters, feeding tubes or other invasive devices |
| Personal Protective Equipment (PPE) Acute Care | ▪ Don a gown and gloves for all contact with the patient and their physical environment.<br>▪ A surgical grade mask with visor will be worn if droplet precautions are indicated. |
| Environmental Cleaning | ▪ Cleaning will be upgraded to include a disinfectant.<br>▪ Terminal clean is required after bathing in a communal shower or tub. Bathe last session of the day or ensure there is enough time allotted in the schedule for the appropriate terminal clean to be completed. |
| Dishes, Laundry and Waste | ▪ Routine practices apply for all patients/residents/clients and no special treatment of dishes, laundry, or waste is required. |
| Mobility and Activities: | ▪ May be out of the room for tests, mobilization or rehabilitation<br>▪ The patient/resident is to wear clean attire, have any wounds covered with fresh dressings and perform hand hygiene on exiting and re-entering their room.<br>▪ The patient is NOT expected to wear a precaution gown or gloves.<br>▪ Visiting a public area (e.g. unit kitchen, cafeteria, shops) may be discouraged for patients who have an active infection.<br>▪ Encourage frequent hand hygiene when out of the room and between activities/areas.<br>▪ Participation in activities, exercise and/or mobilization will not be impeded if a patient is colonized with MRSA and the individual is hand hygiene compliant.<br>▪ For all patients with infected wounds and/or respiratory symptoms, please consult IPAC. |
| **3.2 Special Populations** | |
| Transitional and Rehabilitation Care | ▪ Patients with MRSA admitted to Transitional Care Units/Rehabilitation Units are required to have a dedicated commode or bathroom facilities regardless of whether the unit is located in long term care or acute care. |
| Pediatric ICU/NICU: | • Baby and primary caregiver are considered a 'unit'.<br>○ Implement contact precautions if either primary caregiver or neonate has suspected or confirmed MRSA.<br>○ The primary caregiver does not need to don PPE for contact with their infant (e.g. breast feeding or skin-to-skin contact).<br>○ Please consult IPAC for recommendations around care in this situation.<br>▪ Additional Precautions are **NOT** required for neonates who are transferred from another Island Health Facility and waiting for MRSA screen results |
| Community Care | ▪ Routine practices including hand hygiene and required PPE are essential.<br>▪ Open wounds should be covered with a clean dry dressing prior to a client participating in recreational activities.<br>▪ In group homes/assisted living, a person's ARO status is confidential and changes to the home are not required.<br>▪ PPE is only required for direct client care (e.g. wound care, invasive medications) from health care providers.<br>▪ Additional precautions are not required for home support services during activities such as cleaning, food preparation and dispensing oral medications. |

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| | ▪ Clean and disinfect any equipment that has direct contact with a client and/or their environment, including the nursing bag. Only bring in the supplies required for that client into the home. |
| Outpatient Areas | ▪ Infection Prevention and Control for Outpatient Settings |
| **3.3 Long Term Care** | |
| IPAC Recommendations | ▪ Screening for MRSA is not required on admission to Long Term Care.<br>▪ Residents colonized with MRSA:<br>o Are not required to have a dedicated commode and may have access to the bathroom unless they have an active infection with MRSA.<br>o May wear their own clothes.<br>o Have no restrictions on attending activities or programs.<br>o Are permitted to go to the dining room.<br>o Must perform hand hygiene prior to participating in any activity or outing.<br>o Should have assistance with hand hygiene if they are unable to do this independently.<br>▪ Residents infected with MRSA:<br>o Should be placed on appropriate additional precautions for personal care and must have a dedicated commode/toilet for the duration of their infection.<br>o The most responsible nurse will consult with IPAC to perform a formal risk assessment and develop a care plan accordingly. |
| Accommodation | ▪ Admission to a long term care facility should not be denied on the basis of colonization or infection with MRSA.<br>▪ Placement in a single room is preferred, however if accommodating in a multi-bed room, do not cohort with residents who are positive with a different ARO (e.g. ESBL).<br>▪ Consideration should be given to placement of residents who have been previously been identified as having recurrent MRSA infections. |
| PPE | ▪ Residents colonized with MRSA should be cared for using strict routine practices and do not require additional precautions.<br>▪ For residents with evidence of an active MRSA infection (e.g. infected wound, pneumonia):<br>▪ Don appropriate PPE (e.g. gown, gloves) for direct contact with the resident and their physical environment.<br>▪ Don mask with visor if the resident has respiratory symptoms.<br>▪ Dedicate a commode or toilet facility for duration of infection.<br>▪ Use precautions only for the duration of antibiotic therapy and until clinical improvement is observed. |
| **4.0 Community Care** | |
| ▪ Routine practices including hand hygiene and required PPE are essential.<br>▪ Open wounds should be covered with a clean dry dressing prior to a client participating in recreational activities.<br>▪ In group homes/assisted living, a person's ARO status is confidential and changes to the home are not required.<br>▪ PPE is only required for direct client care (e.g. wound care, invasive medications) from health care providers. | |

- Additional precautions are not required for home support services during activities such as cleaning, food preparation and dispensing oral medications.
- Clean and disinfect any equipment that has direct contact with a client and/or their environment, including the nursing bag. Only bring in the supplies required for that client into the home.

## 5.0 Visitors To All Island Health Facilities

- There are no restrictions on visiting provided visitors are well (e.g. no symptoms of influenza-like illness, gastro-intestinal symptoms etc.).
- Visitors must be directed to perform hand hygiene on entering and leaving the patient/resident room and kitchen.
- Visitors are to use gown and gloves (and surgical mask with visor if patient on droplet precautions) in addition to hand hygiene **only** if they are providing close personal care. Guidance on PPE donning/doffing must be given by the Most Responsible Nurse.
- Advise visitors not to visit any other patients or residents.

## 6.0 Transport & Transfers

**When transferring patients/residents off the unit for appointments or tests, advise personnel in the receiving unit that the patient will require additional precautions.**

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| Patient/Resident | ▪ **Not** required to gown and glove, but a surgical mask (without visor) is required if they have respiratory symptoms.<br>▪ Should be dressed in clean attire during the time of day the transfer is planned (morning, afternoon or evening) and asked to perform hand hygiene immediately prior to transfer. |
| Porter | ▪ Required to wear PPE when entering the room and assisting patient/resident to wheelchair/stretcher<br>▪ PPE is not generally required during transport.<br>  ▪ Perform a point of care risk assessment and if required, don appropriate PPE.<br>▪ If patient/resident is unable to wear a surgical mask when on droplet precautions, then a surgical mask with visor must be worn by the porter.<br>▪ Transport equipment should be cleaned and disinfected following patient/resident transfer. |
| Inter-Facility/Inter Unit/Department | ▪ Communication with the receiving unit/facility of a suspected or known positive CPO status of any transferred patient should occur **prior** to transfer. |

## 7.0 MRSA Decolonization

IPAC does not routinely recommend decolonization. However, there may be cases when decolonization is beneficial. Please consult IPAC for the following cases:

- High-risk surgical patients such as those receiving implantable devices.
- Patients/residents/clients with high-risk conditions such as diabetes, or those with ongoing or repeated infections.

The physician and IPAC will assess all other patients/residents/clients for decolonization on an individual basis.

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| Approved for decolonization: | Treatment:<br>▪ 2% Chlorhexidine solution for bathing/showering and shampooing daily for 7 days.<br>▪ The chlorhexidine soap/detergent must be in contact with the skin for 2 minutes.<br>▪ Chlorhexidine soap/detergent is not to be diluted for use in decolonization and should therefore not be added to bath water. |

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| | ▪ Mupirocin cream, applied intra-nasally twice a day for 7 days<br>▪ Medical microbiologist may consider Fucidin for Mupirocin resistant strains of MRSA.<br>Exceptions to treatment include:<br>▪ Patients/residents/clients with burns<br>▪ Patients/residents/clients with large or deep wounds or fistulas<br>▪ Patients/residents/clients with extensive dermatological conditions, such as eczema<br>▪ Do not apply Mupirocin to wounds > 2.5 cm (size of a quarter) |
| **8.0 Removal of MRSA Precautions** | |
| Consult IPAC for removal of MRSA Alert. IPAC has the sole responsibility for placing and removing the disease alerts. | |
| Colonized with MRSA | Wait **48hrs** post completion of any antibiotic treatment (topical [including eye drops], oral or injectable) or 7 days following completion of decolonization therapy. Collect dual swab set from nares/groin and any other sites previously found to be positive. Two negative sets of swabs **7 days** apart are required (the first swabs must be negative before doing the second set). |
| Infected with MRSA | Wait **30 days** post completion of any antibiotic treatment (topical, oral or injectable). Collect dual swab set from nares/groin and any other sites previously found to be positive. Two negative sets of swabs **7 days** apart are required (the first swabs must be negative before doing the second set). |

## 9.0 Definitions

- **Cohorting:** The sharing of a room or ward by two or more patients/residents who are either colonized or infected with the same microorganism; or the sharing of a room or ward by colonized or infected patients/residents who have been assessed and found to be at low risk of dissemination, with roommates who are considered to be at low risk for acquisition.
- **Clinical support staff:** Unit Clerks, admitting Clerks and any individuals supporting clinical operations.
- **Colonization:** the presence, growth and multiplication of an organism in one or more body sites without observable clinical symptoms.
- **Infection:** occurs when microorganisms invade a body site, multiply in tissue and cause clinical manifestations of local or systemic inflammation (e.g. fever, redness, heat, swelling, pain).
- **Methicillin-Resistant *Staphylococcus aureus* (MRSA):** strains of *S. aureus* resistant to penicillin, cloxacillin, ampicillin, amoxicillin/clavulanate, pipercillin/tazobactam, imipenem, meropenem, and all cephalosporins. They may also be resistant to tetracyclines, clindamycin, macrolides, quinolones, and other antibiotics. MRSA causes a range of infections from mild/moderate skin abscesses and post-operative wound infections to more invasive diseases such as bacteremia and pneumonia.
- **Patient**: refers to any individual receiving care in an acute care setting.
- **Resident:** refers to any individual residing in a long-term care facility.
- **Client:** refers to any individual receiving care in an outpatient, home or community care setting.
- **Routine Practices:** a set of infection control strategies and standards designed to protect workers from exposure to potential sources of infectious diseases.
- **Home support services:** Care provided in the home by Community Health Workers (CHWs) who are directed by a nurse. CHWs help with tasks like medications, bathing and dressing for eligible clients.
- **High Acuity Unit:** A High Acuity Unit (HAU) is part of the critical care continuum and provides an intensity of care that is intermediate between that of a ward/unit level care and the Intensive Care Unit (ICU).

## 10.0 Related Island Health Resources

- ARO Admission Screening Questionnaire-Neonatal https://intranet.viha.ca/departments/infection_prevention/Documents/ARO%20Admission/ARO%20Screening%20Questionnaire%20for%20Acute%20Care%20Admissions%20-%20Neonatal.pdf
- ARO Screener Questionnaire https://www.islandhealth.ca/sites/default/files/2018-08/ARO-alerts-screening-questions-form_0.pdf
- Environmental Cleaning Guideline https://intranet.viha.ca/departments/infection_prevention/Documents/environmental-cleaning-guideline.pdf
- Discontinuing Additional Precautions: Adult https://intranet.viha.ca/departments/infection_prevention/resources/Documents/Discontinuing-Precautions-Adult-LGLsize.pdf
- Discontinuing Additional Precautions: Pediatrics https://intranet.viha.ca/departments/infection_prevention/resources/Documents/Discontinuing-Precautions-Pediatric-LGLsize.pdf
- Managing Food Delivery https://intranet.viha.ca/departments/infection_prevention/Documents/meal-delivery-infection-control.pdf
- Patient Porters and Additional Precautions https://intranet.viha.ca/departments/infection_prevention/Documents/Procedure-porters-acutecare.pdf
- Droplet and Contact Precautions Best Practices https://intranet.viha.ca/departments/infection_prevention/resources/Pages/default.aspx

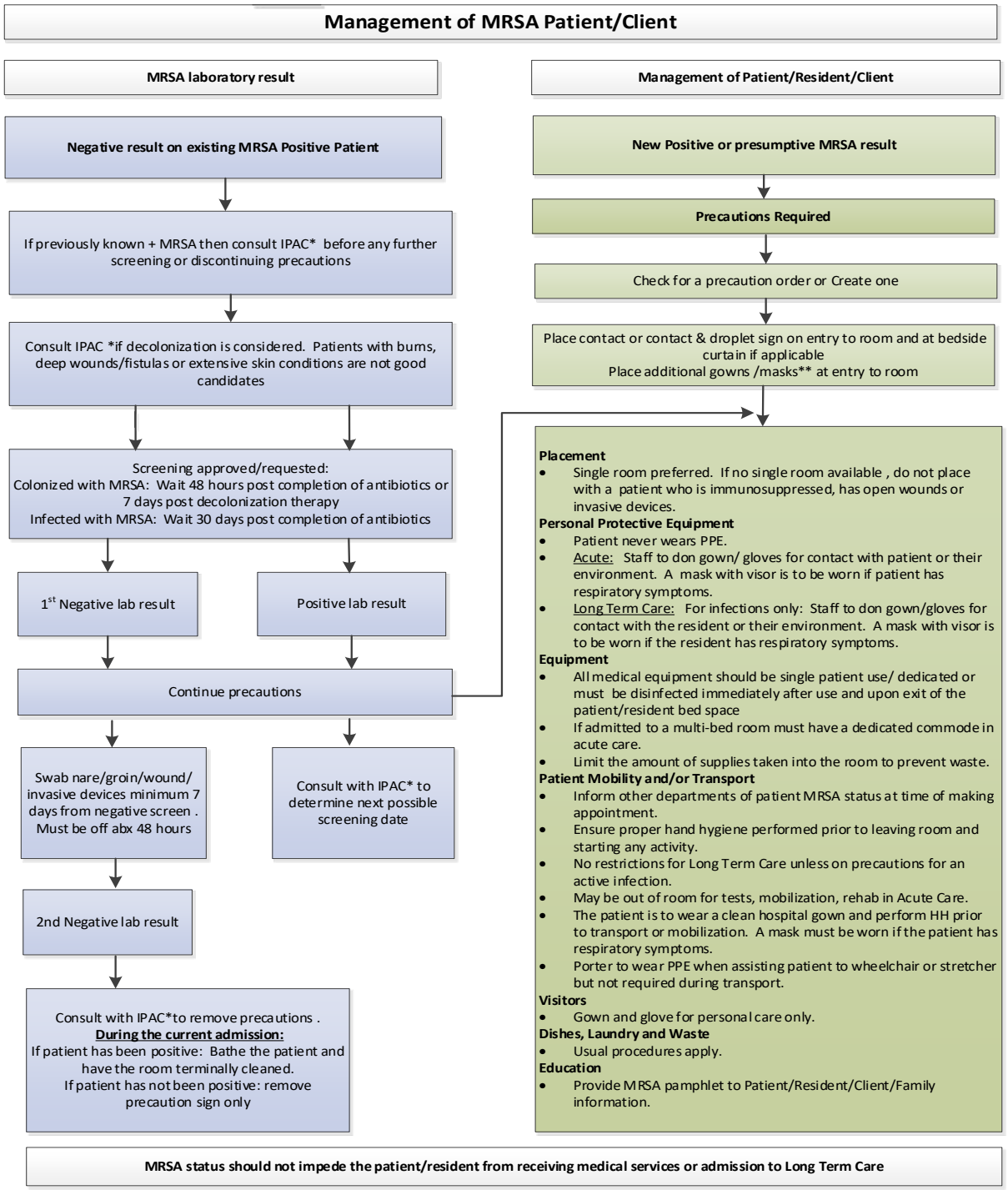
## 11.0 References


- Provincial Infection Control Network (PICNet). (2013). Antibiotic Resistant Organisms: Prevention and Control Guidelines for Healthcare Facilities. Retrieved August 25 2020 from: https://www.picnet.ca/wp-content/uploads/PICNet_ARO_Guidelines_March2013.pdf.
- Health Canada. (2012). Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings. Retrieved August 1 2018 from: https://www.picnet.ca/wp-content/uploads/PHAC_Routine_Practices_and_Additional_Precautions_2013.pdf


## 12.0 External Resources


- Healthlink BC. (October 2017). Healthlink BC Healthfile #73: Methicillin-Resistant Staphylococcus *aureus* (MRSA). Retrieved from: http://www.healthlinkbc.ca/healthfiles/hfile73.stm. February 5, 2016.
- Non-blood Laboratory Sample Collection Labelling Transport
- Provincial Infection Control Network (PICNet). (2011). Residential Care Infection Prevention and Control Manual. Retrieved Aug 25 2020 from: https://www.picnet.ca/wp-content/uploads/PICNet_Residential_Care_Manual_2011.pdf

## Appendix A




* Infection Prevention and Control (IPAC)
** Mask: Surgical mask with visor must be 120 mm Hg