SOP Objective

To ensure that patients with MDRGNOs are cared for appropriately and actions are taken to minimise the risk of cross-infection.

This SOP applies to all staff employed by NHS Greater Glasgow & Clyde and locum staff on fixed term contracts and volunteer staff.

KEY CHANGES FROM THE PREVIOUS VERSION OF THIS SOP

- Updated wording in linen and patient clothing sections
- Updated Appendix 1

Important Note: The version of this policy found on the Infection Prevention & Control (eIPC Manual) on the intranet page is the only version that is controlled. Any other versions either printed or embedded into other documents or web pages should be viewed as uncontrolled and as such may not necessarily contain the latest updates, amendments, or linkages to other documents.

Document Control Summary

Approved by and date	Board Infection Control Committee 15th December 2020
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Developed by	Infection Prevention and Control SOP Sub-Group
Related Documents	National IPC Manual NHSGGC Decontamination Guidance NHSGGC Hand Hygiene Guidance NHSGGC SOP Cleaning of Near Patient Equipment NHSGGC SOP Twice Daily Clean of Isolation Rooms NHSGGC SOP Terminal Clean of Ward/Isolation Rooms NHSGGC Waste Management Policy
Distribution/ Availability	NHSGGC Infection Prevention and Control web page www.nhsggc.scot/hospitals-services/services-a-to-z/infection-prevention-and-control
Lead	Lead Infection Prevention Control Doctor
Responsible Director	Executive Director of Nursing

CONTENTS

1. Responsibilities

Health Care Workers (HCW) must:

- Follow this SOP.
- Inform a member of the Infection Prevention and Control Team (IPCT) if this SOP cannot be followed.
- Implement Care Checklist

Senior Charge Nurses (SCN) / Managers must:

- Support HCWs and Infection Prevention and Control Teams (IPCTs) in following this SOP.
- Advise HCWs to contact the Occupational Health Service (OHS) as necessary.

Infection Prevention and Control Teams (IPCTs) must:

- Keep this SOP up-to-date.
- Provide education opportunities on this SOP.

Occupational Health Service (OHS) must:

- Provide staff with advice as appropriate
- Support an Incident Management Team (IMT) with necessary investigations as required

2. General Information on Multi-Resistant Organisms (MDRO)

Communicable Disease / Alert Organism	Multi-drug resistant bacteria are bacteria that are resistant to at least three different antibiotics. These bacteria are commonly found in the gut, where they do no harm; however, they can cause infection at other body sites, mainly in patients who are vulnerable due to other underlying diseases, injury or hospitalisation. Infection often happens when the bacteria enter the body through an open wound or via a medical device such as a catheter. These infections are difficult to treat, and can cause additional pain to patients with slow wound healing and other complications such as pneumonia or infection in the blood. This can prolong the length of stay in hospital and, in some cases, can cause death. MDROs include the following; Extended-spectrum beta-lactamase (ESBL) producers; Vancomycin-resistant Enterococci (VRE), Carbapenem-resistant organisms (CRO) (For CPE, MRSA and XDR Tb, please see appropriate IPC SOP). Also included in this SOP are those exceptional organisms listed in Appendix 1
Clinical Condition	Patients may be colonised or infected with these organisms. Infections include but are not limited to bloodstream infections, device-related infections, pneumonia and wound infections.
Mode of Spread	This group of organisms are spread by multiple routes depending on their location in the body and the type of infection. Contact: Via hands or contaminated equipment and environment. Droplet: With respiratory infection, droplets from the respiratory tract can travel short distances during coughing and sneezing Airborne: Some respiratory MDROs spread by the airborne route while others can become airborne during aerosol generating procedures.
Incubation period	No specific incubation period.
Period of Communicability	As long as the organism is isolated.

Persons most at-risk	Patients in intensive care units, Renal Units, High Dependency Units (HDU) and haemato-oncology who have had a variety of antibiotics and/ or prolonged antibiotic therapy. Patients who have received medical care overseas

3. Transmission Based Precautions for MDROs

Accommodation (Patient Placement)	Patients with infection should be placed in a single ensuite room with the door close. Where isolation facilities are unavailable contact a member of the IPCT who will provide advice on the most appropriate placement. Patients colonised with VRE/ESBL should be discussed with a member of the IPCT for the most suitable accommodation.
Care checklist	Yes
Clinical Waste	Non-sharps waste should be designated as clinical/ healthcare waste and placed in an orange waste bag. Please refer to the NHSGCC Waste Management Policy
Contacts	Contacts may be screened on the advice of a member of the IPCT.
Domestic Advice	Domestic staff must follow the SOP for Twice Daily and Terminal Clean of Isolation Rooms and ward. Cleans should be undertaken at least four hours apart. NHSGGC SOP Twice Daily Clean of Isolation Rooms NHSGGC SOP Terminal Clean of Ward/Isolation Room
Equipment	Where practical allocate dedicated equipment, e.g. own washbowl, commode, moving sling or slip-sheet. Decontaminate equipment as per the NHSGGC Decontamination Guidance
Hand Hygiene	Hand hygiene is the single most important measure to prevent cross-infection. Hands must be decontaminated before and after each direct patient contact. Refer to the NHSGGC Hand Hygiene Guidance
Last Offices	Please see last Offices in the National Infection Prevention and Control Manual.
Linen	Treat used linen as soiled/ infected, i.e. place in a water soluble bag then a clear plastic bag, tied and then into a laundry bag. (Brown bag used in mental health areas) Please refer to National Laundry guidance
Moving between wards, hospitals and departments (including theatres)	The patient should only be transferred to another department for essential procedures and investigations. All patient movement should be kept to a minimum. Prior to transfer, the ward should inform the receiving department, ward, hospital, health board, of the patient's infectious condition. The receiving area should put in place arrangements to minimise contact with other patients and arrange for additional domestic cleaning if required.
Notice for Door	Yes, yellow IPC notice

Patient Clothing	If relatives or carers wish to take personal clothing home, staff must place clothing into a domestic water soluble bag then into a patient clothing bag and ensure that a Washing Clothes at Home Information Leaflet is issued. **NB** It should be recorded in the nursing notes that both advice and the information leaflet has been issued.
Patient Information	Inform the patient/ parent/ guardian/ next-of-kin (as appropriate) of the patient's condition and the necessary precautions. Answer any questions and concerns they may have.
Personal Protective Equipment (PPE)	To prevent spread through direct contact PPE (disposable gloves and yellow apron) must be worn for all direct contact with the patient or the patient's environment/equipment. If there is a risk of splashing/spraying of blood or body fluid a fluid repellent surgical face mask and eye protection should be worn. **Fit tested FFP3 mask**, disposable yellow apron and gloves must be worn if Aerosol Generating Procedures (AGP) are undertaken on a patient with **a MDRO respiratory infection.**
Precautions Required until	Please contact your local IPCT for advice on when/if transmission based precautions can be discontinued.
Specimens Required	Please contact your local IPCT for advice on which specimens are required and when (including readmission).
Terminal Cleaning of Room	Refer to NHSGGC SOP Terminal Clean of Ward/Isolation Rooms
Visitors	No specific restrictions. Encourage any visitors to undertake hand hygiene before and after visiting.

4. Evidence Base

HPS (2018) National Infection Prevention and Control Manual

Appendix 1

Organisms	Exceptional phenotypes
Exceptional resistance phenotypes of Gram-negative bacteria	
Any Enterobacteriaceae	Resistant to colistin 1 (except *Proteus* spp, *Providencia* spp, *Morganella* spp and *Serratia marcescens*) Resistant to meropenem or is a carbapenemase producer Resistant to ceftazidime-avibactam
Salmonella typhi	Resistant to fluoroquinolones and/or carbapenems or azithromycin
Pseudomonas aeruginosa and *Acinetobacter spp.*	Resistant to colistin 1 Resistant to ceftolozane-tazobactam Resistant to a meropenem/imipenem AND ceftazidime AND piperacillin-tazobactam
Acinetobacter baumannii	Resistant to colistin 1 Resistant to meropenem or imipenem
Stenotrophomonas maltophilia	Resistant to co-trimoxazole
Haemophilus influenzae	Resistant to any 3rd/4th/5th generation cephalosporins or carbapenems
Moraxella catarrhalis	Resistant to any 3rd/4th/5th generation cephalosporins, carbapenems or fluoroquinolones
Neisseria meningitidis	Resistant to meropenem, any 3rd generation cephalosporins, fluoroquinolones or rifampicin
Neisseria gonorrhoeae	Resistant to spectinomycin and / or azithromycin and/or third-generation cephalosporins
Exceptional resistance phenotypes of Gram-positive bacteria	
Staphylococcus aureus	Resistant to vancomycin, teicoplanin, daptomycin (MIC > 4 mg/L), 2 linezolid, tedizolid, quinupristin-dalfopristin, tigecycline, ceftaroline or ceftobiprole
Coagulase-negative staphylococci	Resistant to vancomycin, daptomycin (MIC > 4 mg/L), 2 linezolid, tedizolid, quinupristin-dalfopristin, tigecycline, ceftaroline or ceftobiprole
Corynebacterium spp.	Resistant to vancomycin, teicoplanin or linezolid
Streptococcus pneumoniae	Resistant to carbapenems, vancomycin, teicoplanin, linezolid or rifampicin. Also isolates with high level penicillin resistance (MIC > 2 mg/L) and those intermediate or resistant to 3rd generation cephalosporins (MIC > 0.5 mg/L)
Group A, B, C and G β-haemolytic streptococci	Resistant to penicillin, cephalosporins, vancomycin, teicoplanin, dalbavancin, oritavancin, daptomycin, linezolid, tedizolid or tigecycline

Enterococcus spp.	***E. faecalis***: Resistant to ampicillin/amoxicillin or daptomycin (MIC > 2 mg/L) ***E. faecium:*** Resistant to daptomycin (MIC > 4 mg/L) **All enterococci**: Resistant to tigecycline or linezolid
Exceptional resistance phenotypes of anaerobes	
Bacteroides spp.	Resistant to metronidizole
Clostridium difficile	Resistant to metronidizole, vancomycin.
Exceptional resistance phenotypes of anaerobes	
Bacteroides spp. 3	Resistant to metronidizole
Clostridioides difficile	Resistant to metronidizole or vancomycin
Exceptional resistance phenotypes of *Candida* species	
Candida spp.	Resistant to amphotericin B or any echinocandin
Candida albicans	Resistant to any azole (invasive isolates)
Aspergillus fumigatus	Resistant to amphotericin B, echinocandins or azoles (excluding fluconazole)

Notes

1. Colistin resistance should be determined locally by use of broth microdilution testing prior to sending to Glasgow Reference Laboratories for further confirmatory testing
2. Daptomycin MIC of > 4 mg/L is higher than that stated by EUCAST in relation to daptomycin resistance in staphylococci. This may be reviewed in the future.
3. This is not an exhaustive list of species where metronidazole resistance would be exceptional. N.B some anaerobes are intrinsically resistant to metronidazole e.g. *Actinomyces* spp.