1. Introduction and Who Guideline applies to

1.1 This provides guidance on the management for Multi-Drug Resistant bacteria and does not include the management of the following; please see individual policies/guidelines.

- Meticillin-resistant *Staphylococcus aureus* (MRSA) B12/2015
- Multi-drug resistant Mycobacterium tuberculosis (MDR-TB) B45/2005
- Carbapenem resistant organisms (CRO) or Extensively Drug Resistant organisms (XDR) B64/2019

1.2 Multi-drug resistant bacteria are found in the environment and the gastro-intestinal (GI) tract of people, where they do no harm i.e. colonisation, but can cause infections particularly urinary tract, blood stream and wound infections.

1.3 Multi-resistant bacteria such as GRE/VRE and MGNO are spread by contact, i.e. via staff hands, the environment and equipment. Hand hygiene is of paramount importance to prevent the spread of MDR bacteria.

1.4 Patients with MDR pose an increased risk of acting as a source of cross infection if they have one or more of the following risk factors:

- Urinary/faecal incontinence including nappies from children
- Diarrhoea including nappies from children
- High output stoma
- Sputum (if productive cough)
- Urinary catheter
- Central venous access
- Wounds/ broken skin (i.e. PEG/drain site, ulcer/skin lesion (except clean intact surgical wound & peripheral cannula sites)

1.5 This guidance is intended to support all healthcare staff employed within University Hospitals of Leicester NHS Trust and staff working in a contracted capacity on the prevention and management of MDR bacteria.

1.6 Glossary

Colonisation	The presence of micro-organism without tissue damage or invasion i.e. faecal carriage.
Contact Transmission Based Precautions (TBPs)	Contact refers to the mode of transmission and the level of isolation precautions
CMG	Clinical Management Group.
CMG IPOG	Clinical Management Group Infection Prevention Operational Group
ESBL	Extended spectrum β (beta) lactamase. This is an enzyme produced by some bacteria that gives them resistance to beta lactam antibiotics such as penicillin's and cephalosporins.
GRE	Glycopeptide-resistant enterococci are resistant to glycopeptides e.g. vancomycin and teicoplanin.
IVF	In vitro fertilisation.

MDR	A multi-drug resistant organism has non-susceptibility to at least one agent in three or more antimicrobial categories. (Magiorakis A.P et al, 2012)
MGNO	Multi-resistant Gram negative organism. May be one of a number of different bacteria predominantly from the Enterobacteriaceae.
PPE	Personal Protective Equipment.
VRE	Vancomycin-resistant enterococci. GRE are often referred to as VRE.
TIPAC	Trust Infection Prevention Assurance Committee
TIPOG	Trust Infection Prevention Operational Group

2. Guideline Standards and Procedures

2.1 Identification of patients with MDR carriage

2.1.1 The microbiology department will identify organisms that fit into the category of multi-drug resistant and will inform the Infection Prevention team. Outside of normal office hours will inform the ward or department directly.

2.1.2 The infection prevention team will inform the ward or department concerned and flag patient centre and Nervecentre with the appropriate special register alert (MGNO/VRE or MDR). Outside of normal office hours the infection prevention team will flag patient centre and nervecentre the next working day.

2.1.3 The Doctor or Nurse looking after the patient is responsible for informing the patient of the MDR result and ensuring contact TBPs are commenced. An MDR information leaflet must be provided to the patient by ward staff, leaflet available on the link: MDR patient leaflet

2.1.4 On admission all patients (including day case) must be assessed using the infection prevention risk assessment process (A-F risk assessment on Nervecentre) to identify known/previous MDR organisms.

2.2 Treatment

2.2.1 Antimicrobial treatment must be discussed with microbiology to ensure that appropriate antibiotics are used if necessary.

2.2.2 Colonisation with MDR does not need treating with antibiotics.

2.3 Transmission Based Precautions (TBPs)

2.3.1 Patients newly identified with MDR carriage (colonisation or infection) AND patients on re-admission previously identified with a MDR must be:

- assessed for risk factors for transmitting MDR organisms (see section 1.4)
- If one or more risk factors present **Contact** TBPs are required

2.3.2 Contact TBPs are used to prevent and control infections that spread via direct contact with the patient or indirectly from the patient's immediate care environment and all staff are required to wear personal protective equipment (PPE) gloves and a single use apron when entering these isolation rooms. Refer to **transmission based precautions** isolation signs on Insite.

2.3.3 PPE must be discarded in the clinical waste bin inside the single room and hand washing performed prior to exiting the room.

2.3.4 Isolation room doors must remain closed, if this is not possible, document the risk assessment on the MDR IP pathway (**MDR Pathway**) which should be used and followed for all patients with an MDR alert.

2.3.5 For further information on TBPs refer to the Infection Prevention policy **B4/2005** .

2.3.6 Patients attending outpatient departments do not require TBPs and standard infection prevention precautions (SICPs) must be followed which includes hand hygiene.

2.4 Discontinuing Transmission Based Precautions (TBPs)

2.4.1 Once risk factors are no longer present or **one negative swab/urine** result from **each** risk factor has been obtained, **Contact** TBPs may be discontinued.

- Note: The patient and their belongings must be moved from the side room into a clean bed or cot and bedspace and the side room to receive Amber clean and curtains changed.

2.4.2 For Neonatal unit (NNU) patients, the decision to discontinue **Contact** TBPs will be made in conjunction with microbiology and IP team as a risk assessment of the baby will be required.

2.4.3 Following discharge the room will require an AMBER clean, contact the facilities help desk on 17888.

2.5 Patient movement and Discharge

2.5.1 Patient movement between hospital departments should be minimised and must only occur where there is clinical need.

- If the patient requires investigation that cannot be done on the ward or requires specialist care on another ward, then the receiving ward or department must be informed prior to transfer so that appropriate measures can be taken.

2.5.3 Patients being transferred to another acute/community hospital or nursing/residential home, ward staff must inform the clinical team receiving the patient of the MDR prior to transfer.

2.5.4 If the patient is having community care after discharge the referral letter must state the MDR history.

3. Education and Training

3.1 The Infection prevention team will cascade awareness of the MDR guideline via CMG Infection prevention meetings, link staff network, the infection prevention newsletter and Insite home page.

3.2 Delivering infection prevention training available for use within UHL including E-learning, workbooks, formal group sessions and practical demonstrations. Each CMG can utilise one or more to provide a blended approach of practical and theoretical information delivery.

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
IP combined audit including hand hygiene, standard and transmission based precautions	Infection Prevention Combined Audit	Lead Nurse Infection Prevention	Biannual	CMG'S IPOG Meetings TIPOG TIPAC
Hand Hygiene Compliance at ward/department level	Hand Hygiene audit tool	Heads of nursing/Clinical Directors	Monthly	CMG'S IPOG Meetings TIPOG TIPAC

Cleaning and decontamination of equipment	Decontamination audit tool	Decontamination Lead	Annual	CMG'S IPOG Meetings TIPOG TIPAC

5. Supporting References

J Wilson et al (2016) Prevention and control of multi-drug-resistant Gram-negative bacteria: recommendations from a Joint Working Party Hospital Infection Society
Prevention and control of multi-drug-resistant Gram-negative bacteria: recommendations from a Joint Working Party (journalofhospitalinfection.com)
Accessed October 2023

French G (2000) Nosocomial gram-negative bacterial infections. *British Journal of Infection Control* **2** (1) 9-12.

Magiorakos A P et al (2011) Multidrug-resistant, extensively drug-resistant and pandrug-resistant bacteria: an international expert proposal for interim standard definitions for acquired resistance. European Society of Clinical Microbiology and Infectious Diseases. CMI **18**, 268-281.

6. Key Words

ESBL: Extended spectrum β (beta) lactamase.

GRE: Glycopeptide-resistant enterococci

MDR: A multi-drug resistant organism

MGNO: Multi-resistant Gram negative organism

VRE: Vancomycin-resistant enterococci

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) Tina Hayden Infection Prevention Matron	**Executive Lead:** Chief Nurse
Details of Changes made during review: Policy reviewed and updated. References updated Minor typos/duplicate text removed, contact transmission based precautions added, testing requirements updated	