

Updated Guidelines on Screening for Carriage of Resistant *Enterobacteriaceae* in Ireland



This document contains an update to the 2013 Irish ‘**Guidelines for the Prevention & Control of Multi-Drug Resistant Organisms (MDRO), excluding MRSA in the Healthcare Setting**’, specifically the section on guidelines on screening for carriage of resistant *Enterobacteriaceae*. These updated screening recommendations supercede those in the existing 2013 document found on pages 26, 27 & 36.¹

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1.0 Background

Significant recent changes have occurred in the epidemiology of resistant *Enterobacteriaceae* in Ireland:

1. The number of Irish healthcare facilities detecting sporadic cases/small outbreaks of carbapenemase producing *Enterobacteriaceae* (also known as CRE or CPE) has continued to increase. Between 2011 and early 2014, 19 hospitals had reported 89 CRE cases [Source: Health Protection Surveillance Centre (HPSC)]
2. There has been a rapid increase in the proportion of *Klebsiella pneumoniae* causing bloodstream infections (BSI) which exhibit a multi-drug resistant phenotype (also known as MDRKP) defined as; non-susceptible to third generation cephalosporins, ciprofloxacin and gentamicin and/or carbapenemase producers. The proportion of *K. pneumoniae* BSI that were MDRKP increased from 2% (2010) to 12% (2013), with a total of 19 Irish acute hospitals reporting MDRKP BSI during that period (Source: HPSC EARS-Net surveillance scheme)
3. A recent study undertaken in a long-term care facility in the western region reported 56% of residents to be colonised with resistant *Enterobacteriaceae* carrying extended-spectrum β lactamase (ESBL) genes (Source: Professor Martin Cormican, personal communication)

In response to the increased reporting of resistant *Enterobacteriaceae*, the MDRO Committee has reviewed and updated the 2013 guidelines on screening for carriage of resistant *Enterobacteriaceae*. The committee has decided to take a precautionary, proactive approach on screening, in an attempt to contain further spread of resistant *Enterobacteriaceae*, specifically MDRKP and CRE.

The Committee acknowledges that full implementation of the updated screening recommendations will pose a resource challenge for both microbiology laboratories and clinical staff. These national screening recommendations will be reviewed on a regular basis, taking into account changes in the epidemiology of resistant *Enterobacteriaceae* in Ireland and emerging scientific evidence.

2.0 Updated Screening Recommendations

Screening for carriage of resistant *Enterobacteriaceae*, using a laboratory method that is capable of **detecting BOTH third generation cephalosporin and carbapenem non-susceptible *Enterobacteriaceae*** is advised for the following at-risk patient groups:

1. Patients epidemiologically linked to other cases of resistant *Enterobacteriaceae* infection or carriage (e.g. sharing an inpatient area with a colonised or infected patient or transferred from a unit with a known resistant *Enterobacteriaceae* outbreak)
2. Patients directly transferred/repatriated from a healthcare facility in another jurisdiction (including Northern Ireland)
3. Patients with a history of admission as an inpatient in another jurisdiction (including Northern Ireland)
4. Patients admitted to high risk areas (such as a critical care unit or neonatal intensive care unit, haematology, oncology or transplant ward), on admission and weekly thereafter
5. Patients admitted from long-term care residences
6. Patients with a history of admission to another Irish hospital should be screened, as necessary, after consideration of the source hospital history and unit/s to which the patient will be admitted. Advice should be obtained from the local infection prevention and control team

In particular circumstances, screening of additional patient groups may be appropriate, based on local epidemiology and guidance of the infection prevention and control team.

3.0 Guidance on Infection Control Precautions & Patient Placement

Contact precautions, including isolation in a single room with *en suite* facilities should be applied to a patient who is colonised or infected with resistant *Enterobacteriaceae*. Please refer to Appendix 5 in the original 2013 'Guidelines for the Prevention & Control of Multi-Drug Resistant Organisms (MDRO), excluding MRSA in the Healthcare Setting' for further information.¹

In the acute hospital setting, healthcare workers **should** use long-sleeved gowns as part of personal protective equipment (PPE) if **physical** contact with a patient who is colonised or infected with resistant *Enterobacteriaceae* is anticipated. Local guidance should specify the circumstances in which disposable aprons are sufficient.

The Committee acknowledges that many acute hospital isolation facilities in Ireland require urgent and significant capital investment to meet national recommendations.² Pending improvement in the national isolation room infrastructure and capacity, in scenarios where placement of every patient who is colonised or infected with resistant *Enterobacteriaceae* in a single room cannot be achieved, isolation **MUST** be prioritised for the following patient categories:

1. Every patient with either suspected or confirmed carbapenem resistant *Enterobacteriaceae* (CRE) infection or colonisation
2. Every patient with MDRKP (non-susceptible to third generation cephalosporins, ciprofloxacin and gentamicin and/or carbapenemase producer) infection or colonisation
3. Every patient with resistant *Enterobacteriaceae* colonisation or infection, who upon the risk assessment of the local infection prevention and control team is deemed to require isolation (e.g., diarrhoea, incontinence, uncontrolled secretions etc.)

The Committee recommends that in every scenario where patient isolation cannot be achieved, owing to deficit in local isolation room capacity, that all efforts are made to minimise potential cross-infection and that each incident is formally reported via the local hospital's risk management protocols and escalated via the appropriate corporate management structures. If required, a daily report should be provided to management on patients who are deemed to require isolation and who are not yet isolated or cohorted.

4.0 References

1. Guidelines for the Prevention & Control of Multi-Drug Resistant Organisms (MDRO), excluding MRSA in the Healthcare Setting (2013)
2. Infection Prevention & Control Building Guidelines for Acute Hospitals in Ireland (2009)

Both guidelines are available at:

<http://www.hpsc.ie/A-Z/MicrobiologyAntimicrobialResistance/InfectionControlandHAI/Guidelines/>

Appendix A Current Irish Guidance on Surveillance & Notification of Resistant *Enterobacteriaceae* (including MDRKP and CRE)

Medical practitioners and clinical directors of diagnostic laboratories **are required** to notify unusual clusters or changing patterns of illness to the Medical Officer of Health (MOH) (who is the local Director of Public Health, or the designated Specialist in Public Health Medicine (SPHM). This includes clusters/outbreaks of multi-drug resistant organisms (similar typing pattern in two multi-drug resistant organisms from two different patients). Table 1 describes notification requirements.

Table 1: Notification of Resistant *Enterobacteriaceae* in Ireland

	Scenario	What to do
1	Unusual clusters or outbreaks of infection and/or colonisation due to resistant <i>Enterobacteriaceae</i>	Notify the Medical Officer of Health http://www.hpsc.ie/NotifiableDiseases/Whotonotify/
2	Invasive infection of blood, CSF or other normally sterile site caused by laboratory confirmed carbapenemase-producing carbapenem resistant <i>Enterobacteriaceae</i> (CRE)	Blood or CSF: Report the first CRE isolate per patient per quarter to HPSC via EARS-Net surveillance scheme AND notify on CIDR AND return a completed CRE enhanced surveillance form* to HPSC Other sterile site: Return a completed CRE enhanced surveillance form* to HPSC *See below table for weblink to CRE enhanced surveillance form
3	Laboratory detection of multi-drug resistant <i>Klebsiella pneumoniae</i> (MDRKP) [§] whether colonisation or infection, from any patient (inpatient, outpatient, GP patient or long-term care facility resident) [§] MDRKP = non-susceptible to third generation cephalosporins, ciprofloxacin and gentamicin and/or carbapenemase producer	Report the first MDRKP isolate per patient per quarter to HPSC via the monthly MDRKP Excel reporting template AND if the MDRKP is a carbapenemase-producing carbapenem resistant organism (CRE), return a completed CRE enhanced surveillance form* to HPSC *See below table for weblink to CRE enhanced surveillance form
4	Isolation of laboratory confirmed carbapenemase-producing carbapenem resistant <i>Enterobacteriaceae</i> (CRE) from a non-sterile site (e.g., urine, respiratory secretions, wound swab, screening rectal swab or faeces)	Return a completed CRE enhanced surveillance form* to HPSC *See below table for weblink to CRE enhanced surveillance form

*<http://www.hpsc.ie/A->

[Z/MicrobiologyAntimicrobialResistance/StrategyforthecontrolofAntimicrobialResistanceinIrelandSARI/CarbapenemResistantEnterobacteriaceaeCRE/SurveillanceForms/](http://www.hpsc.ie/A-Z/MicrobiologyAntimicrobialResistance/StrategyforthecontrolofAntimicrobialResistanceinIrelandSARI/CarbapenemResistantEnterobacteriaceaeCRE/SurveillanceForms/)