Appendix 13 – Mandatory NHSScotland Alert organism/Condition list

Tables 1 to 5 outline a nationally agreed minimum list of alert organisms/conditions. The purpose of this list is to alert NHS Board Infection Prevention and Control Teams (IPCT) and Health Protection Teams (HPTs (if out-with the healthcare environment)) of the occurrence of these organisms/conditions, which may require further investigation. Unless otherwise stated, one case would require an IPCT or HPT review to advise SICPs and TBPs have been followed and continue to be applied as part of routine Public Health response (when dealing with a case). Typically, two or more linked cases should trigger further investigations into a possible outbreak.

This list is not exhaustive and specialist units e.g. those managing patients with Cystic Fibrosis will also be guided by local policy regarding other alert organisms not included within these lists.

The responsibilities for managing and investigating these organisms/conditions are outlined in Chapter 3 of the NIPCM for health and care settings and within The Management of Public Health Incidents (MPHI) Guidance for all other settings. Further information on optimal patient placement and use of respiratory protective equipment is available in Appendix 11 of the NIPCM. Pathogen specific information and links to available guidance can be found in the NIPCM A-Z of Pathogens.

In addition, Table 6 outlines resistant bacteria, the identification of which should act as an alert to Microbiology Teams, IPCTs and Antimicrobial Management Teams (AMT).

Table 1: Bacteria

Bacteria	Locations
Bacillus anthracis	All care settings
Bordetella pertussis	All care settings
Clostridioides difficile	All care settings
Corynebacterium diphtheria/ulcerans	All care settings
Legionella spp.	All care settings
Mycobacterium tuberculosis complex	All care settings
Neisseria meningitidis	All care settings
Staphylococcus aureus	Boards should implement local surveillance to allow appropriate intervention where a data exceedance is recognised for common circulating strains and where 2 or more cases with the same resistant strain are identified. This might include

	contact with the ward or development of SPC charts to ensure clusters would be detected and investigated appropriately. *NB: S.aureus bacteramia must be investigated in all wards/departments as per National surveillance protocol.*
Staphylococcus aureus – PVL	All care settings
Streptococcus pyogenes	All care settings
GI bacteria: *Campylobacter* spp., *Escherichia coli* (toxin producing strains e.g. *E. coli* O157) *Salmonella* spp., *Shigella* spp.	All care settings
Environmental bacteria: *Pseudomonas aeruginosa,* *Acinetobacte*r spp., *Stenotrophomonas maltophilia,* *Serratia marcescens* List is not exhaustive. Consider clinical likelihood of infection due to these opportunistic pathogens, particularly in patients at high risk of infection.	High risk units e.g. ICU/PICU/NICU, oncology/haematology
Resistant bacteria Extended-spectrum beta-lactamase (ESBL) producers	High risk units e.g. ICU/PICU/NICU, oncology/haematology
Meticillin-resistant *Staphylococcus aureus* (MRSA) and borderline oxacillin-resistant *S. aureus (*BORSA)	All clinical/care settings
Vancomycin-resistant enterococci (VRE)	High risk units e.g. ICU/PICU/NICU, oncology/haematology
Carbapenem-resistant organisms (CRO)	All clinical/care settings
Multi-drug resistant (MDR) or extensively drug resistant (XDR) *M. tuberculosis* complex	All clinical/care settings

Table 2: Viruses

Virus	Locations
BBV (HBV, HCV and HIV)	All clinical/care settings
Hepatitis A	All clinical/care settings
GI viruses: Adenovirus Norovirus, Rotavirus,	All clinical/care settings

Respiratory viruses: Adenovirus Parainfluenza, RSV	High risk units e.g. ICU/PICU/NICU, oncology/haematology
Respiratory viruses cont. Influenza Novel coronavirus (MERS/SARS)	All clinical/care settings
Varicella zoster virus (chickenpox)	All clinical/care settings
Parvovirus B19 (In high risk units)	All clinical/care settings
Measles, Mumps, Rubella	All clinical/care settings

Table 3: Fungi

Fungi	Locations
Aspergillus spp.	High risk units e.g. ICU/PICU/NICU, oncology/haematology
Pneumocystis jirovecii	High risk units e.g. ICU/PICU/NICU, oncology/haematology, renal unit.
Candida auris Single isolate from any patient sample	All clinical/care settings

Table 4: Parasites

Parasite	Locations
GI parasites: *Cryptosporidium* spp. *Giardia lamblia*	All clinical/care settings

Table 5: Alert conditions

Condition	Locations
Acute flaccid myelitis or paralysis with infectious aetiology e.g. EVD68	All clinical/care settings
Potentially infectious diarrhoea/vomiting	All clinical/care settings
Necrotising fasciitis	All clinical/care settings
Necrotising pneumonia (suggesting possible PVL *S. aureus* infection)	All clinical/care settings
Scabies	In-patient/care and day care settings
Shingles	All clinical/care settings
Transmissible Spongiform Encephalopathy (TSE) e.g. CJD	All clinical/care settings
Viral Haemorrhagic Fever (VHF)	All clinical/care settings

Table 6: Resistant organisms (exceptional phenotypes) - (amended version based on 'EUCAST Expert rules and intrinsic resistance, 2016', taking into account the epidemiology of Scottish isolates)

This list has been produced in conjunction with the Scottish Microbiology and Virology Network (SMVN). Not all 'drug-bug' combinations are routinely tested. Any exceptional drug/bug combinations, where reported, should be checked first to ensure accuracy by the submitting laboratory. Information on isolates for reference laboratory referral can be found here.

The HPS Scottish One Health and Antimicrobial Use and Antimicrobial Resistance (SONAAR) team monitor the exceptional drug/bug combinations within this list on a twice weekly basis and communicate with submitting laboratories if an isolate with exceptional resistance is reported into the Electronic Communication of Surveillance in Scotland (ECOSS) system.

A single isolate from a healthcare associated case would constitute an 'alert'.
If microbiologically confirmed (and not already communicated), local IPCT, HPT and AMT, as appropriate, need to be made aware to ensure appropriate actions are put in place.

Organisms	**Exceptional resistance phenotypes**
Exceptional resistance phenotypes of Gram-negative bacteria	
Any Enterobacterales	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, carbapenems or azithromycin
Pseudomonas aeruginosa	Resistant to colistin [1] Resistant to ceftolozane-tazobactam Resistant to a meropenem/imipenem AND ceftazidime AND piperacillin-tazobactam
Acinetobacter spp.	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, azithromycin or 3rd 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 and *S. anginosus* group	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. [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.