Appendix 11 – Best Practice - Aide memoire for Patient Placement considerations and Respiratory Protective Equipment (RPE) or Fluid Resistant Surgical Facemasks (FRSMs) for Infectious Agents

Please note that ARHAI Scotland are currently updating the 'Transmission Based Precautions Definitions' literature review inclusive of a reassessment of the evidence underpinning contact/droplet/airborne transmission routes. Appendix 11 will be updated accordingly.

The following table outlines some of the Transmission Based Precautions (TBPs) required for a number of infectious agents/diseases when delivering patient care, primarily:

- patient placement considerations whilst the patient is considered infectious[1]
- the recommended mask (Fluid resistant surgical facemask (FRSM)/Respiratory Protective Equipment (RPE)) required to minimise the transmission risk. Use or non-use of masks will depend on a risk assessment by clinical staff which should include for example, the presenting symptoms, the mode of transmission, risk of acquisition and the availability of treatment.

The Hierarchy of Controls should also be used within health and care settings to prevent the transmission of infection, see Appendix 17 for further details. For additional guidance on recommended PPE during the provision of patient care, see Appendix 15.

Aerosol Generating Procedures (AGPs) can produce aerosols. Where possible, these procedures should be carried out in well-ventilated single rooms with the doors closed if the patient is known or suspected to have an infectious agent spread by the droplet or airborne route. Only those healthcare workers who are needed to undertake the procedure should be present in the room. See Appendix 16 for more information on AGPs.

The clinical judgement and expertise of the Infection Prevention and Control Team or the Health Protection Team should be sought for novel and unusual pathogens or an increase in cases of known or suspected infectious agents in any care setting.

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
Acinetobacter baumannii	Pneumonia, bacteraemia, skin and soft tissue infections	Single en-suite room	No requirement for FRSM or RPE	No
Adenovirus	Upper +/- lower respiratory tract infection	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	No
	Conjunctivitis, gastroenteritis	Single en-suite room	No requirement for FRSM or RPE	No

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
Bacillus anthracis	Injection, inhalation, gastrointestinal or cutaneous Anthrax	Single en-suite room	No requirement for FRSM or RPE	Yes
Bacillus cereus	Gastroenteritis, sepsis, pneumonia, endocarditis, central nervous system (CNS) and ocular infections	Single en-suite room	No requirement for FRSM or RPE	Yes
Bacteria with exceptional resistance (see Appendix 13 for full list)	Varies according to pathogen	Single en-suite room	For FRSM/RPE requirements seek advice from IPC team	Some are notifiable. Refer to guidance.
Bordetella pertussis	Whooping cough	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs until patient has been established on appropriate antimicrobial treatment[4]	Yes
Candida auris	Ear, wound and bloodstream infection	Single en-suite room	No requirement for FRSM or RPE	No

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
Carbapenemase producing *Enterobacterales* (CPE) (either swab positive or positive as per clinical risk assessment criteria)	Device associated infections – urinary tract infection, catheter associated bacteraemia	Single en-suite room	No requirement for FRSM or RPE	Yes
Chlamydia pneumoniae	Pneumonia	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	No
Clostridioides difficile	*Clostridioides difficile* infection (CDI)	Single en-suite room	No requirement for FRSM or RPE	Yes
Coronavirus[5] (Non SARS-CoV)	Respiratory symptoms	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	No
Coronavirus[5] (SARS-CoV-2/ COVID-19)	Respiratory symptoms	Single en-suite room or confirmed COVID-19 cohort	• FRSM for routine care • FFP3 or Hood for AGPs	Yes

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
Corynebacterium diphtheria* or *Corynebacterium ulcerans	Pharyngeal (toxigenic strains)	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs **if pharyngeal**	Yes
Enterovirus D68	Mild to moderate upper respiratory tract infections, can cause severe respiratory illness and rarely acute flaccid myelitis (AFM)	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	No
Extended-spectrum beta-lactamases (ESBLs) (Typically ESBL-producing *Escherichia coli* or ESBL-producing *Klebsiella pneumoniae*)	Urinary tract infections, pneumonia and bloodstream infections	Single en-suite room	FFP3 or Hood for AGPs **only if pneumonia**	No
Gastrointestinal infections for	Gastroenteritis	Single en-suite room	FRSM for routine care **if patient is vomiting**	Some GI Infections are notifiable.

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
example *Salmonella* spp.				Refer to guidance.
***Haemophilus influenzae* type b**	Epiglottitis, meningitis, pneumonia, septicaemia	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs **until patient has been established on appropriate antimicrobial treatment**[4]	Yes
Hepatitis A virus	Hepatitis, Gastroenteritis	Single en-suite room	FRSM for routine care **if patient is vomiting**	Yes
Herpes zoster (Shingles) (varicella-zoster) [6]	Shingles (vesicle fluid)	Single en-suite room	No requirement for FRSM or RPE	Yes
	Shingles (lesions in the respiratory tract)	Isolation room/suite	• FRSM for routine care • FFP3 or Hood for AGPs	Yes
Chickenpox (varicella-zoster)[6]	Chickenpox	Isolation room/suite	FFP3 or Hood for routine care and AGPs	Yes

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
High consequence infectious diseases (HCID)[7]	Severe respiratory illness, pneumonia, encephalitis, gastroenteritis, multi-organ failure, systemic haemorrhaging	High level isolation unit Or Negative pressure and ante-room within an Infectious Diseases Unit Or Positive pressure ventilated lobby (PPVL) room	FFP3 or Hood for routine care and AGPs	Yes
Human metapneumovirus	Upper +/- lower respiratory tract infection	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	No
Influenza virus (Endemic strains)[5]	Influenza	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	Yes
Morbillivirus (Measles virus) [6]	Measles (rubeola)	Isolation room/suite	FFP3 or Hood for routine care and AGPs	Yes
Methicillin resistant *Staphylococcus aureus* (MRSA) (either swab positive or positive as per	Skin and wound infections, endocarditis, pneumonia, osteomyelitis, urinary	Single en-suite room	FFP3 or Hood for AGPs **only if pneumonia**	Yes

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
clinical risk assessment criteria)	tract infections and bacteraemia			
Mpox virus (MPXV): Suspected cases	Prodrome, rash (localised or widespread[8)], lesions, lower respiratory tract infection	Single en-suite	• FRSM for routine care • FFP3 or Hood for AGPs or presenting with respiratory symptoms or extensive lesions/deteriorating condition	Yes
Mpox virus (MPXV): Confirmed cases	Rash (localised or widespread[8)], lesions, lower respiratory tract infection	Single en-suite	FFP3 or Hood for routine care and AGPs	Yes
Mumps virus[6]	Mumps (infectious parotitis)	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	Yes
***Mycobacterium tuberculosis* complex**	Extrapulmonary Tuberculosis	Single en-suite room	No requirement for FRSM or RPE, **however an FFP3 or Hood when using high speed devices on the site infected with extrapulmonary TB**	Yes
	Pulmonary or laryngeal disease Tuberculosis	Negative pressure room or if not available, positive pressure ventilated lobby (PPVL) room until patient has been	FFP3 or Hood for routine care and AGPs **until patient has been established on appropriate antimicrobial treatment**[4] **and**	Yes

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
		established on appropriate antimicrobial treatment[4] and always if the patient has MDR or XDR TB	**always if the patient has MDR or XDR TB**	
Mycoplasma pneumoniae	Pneumonia	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	No
Neisseria meningitides	Meningitis – meningococcal (or presentation of clinical meningitis of unknown origin), septicaemia	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs **until patient has been established on appropriate antimicrobial treatment**[4]	Yes
Norovirus	Winter vomiting disease	Single en-suite room	FRSM for routine care **if patient is vomiting**	Yes
Novel respiratory pathogens (new and emerging)[5]	Severe respiratory illness with or without gastroenteritis, pneumonia	Negative pressure room or if not available, positive pressure ventilated lobby (PPVL) room	FFP3 or Hood for routine care and AGPs	Yes
Panton Valentine Leukocidin (PVL) – positive	Skin and soft tissues infection, necrotising pneumonia, necrotising fasciitis, osteomyelitis,	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs **only if pneumonia**	No

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
Staphylococcus aureus	septic arthritis and pyomyositis, purpura fulminans			
Parainfluenza virus	Upper +/- lower respiratory tract infection	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	No
Parvovirus B19 – (Erythema infectiosum – Erythrovirus B19)	Slapped cheek syndrome	Single en-suite room	• FRSM for routine care* • FFP3 or Hood for AGPs* (***Not required if the rash+/- arthralgia has developed)**	No
Pneumocystis jirovecii	Pneumonia	Single en-suite room in high-risk settings, for example ICU/PICU/NICU, oncology/haematology, transplant units	• FRSM for routine care • FFP3 or Hood for AGPs	No
Pseudomonas aeruginosa	Pneumonia, bacteraemia, wound or surgical site infections, catheter-associated urinary tract infections, conjunctivitis in neonates	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs **only if pneumonia**	No

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
Respiratory syncytial virus (RSV)	Upper +/- lower respiratory tract infection	Single en-suite room or planned cohorts	• FRSM for routine care • FFP3 or Hood for AGPs	No
Rhinovirus	Common cold	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	No
Rotavirus	Gastroenteritis	Single en-suite room	• No requirement for RPE • FRSM for routine care **if patient is vomiting**	No
Rubella virus[6]	German Measles	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs	Yes
Sarcoptes scabiei var hominis	Classical scabies, crusted (hyperkeratotic) scabies	Single en-suite room	No requirement for FRSM or RPE	No
Serratia marcescens	Pneumonia, bacteraemia, urinary tract infections, wound infections	Single en-suite room	No requirement for FRSM or RPE	No
***Staphylococcus aureus* (Enterotoxigenic)**	Gastroenteritis, scalded skin syndrome	Single en-suite room	No requirement for FRSM or RPE	Yes

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
Stenotrophomonas maltophilia	Bacteraemia, respiratory infections, urinary tract and surgical-site infections	Single en-suite room	No requirement for FRSM or RPE	No
Streptococcus pyogenes **(Group A Strep)**	Respiratory infection	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs **until patient has been established on appropriate antimicrobial treatment**[4]	No
	Bacteraemia, meningitis, wound infection or infection in other normally sterile site	Single en-suite room	No requirement for FRSM or RPE	Yes
Streptococcus pneumoniae	Pneumonia	Single en-suite room	• FRSM for routine care • FFP3 or Hood for AGPs **until patient has been established on appropriate antimicrobial treatment**[4]	Yes

Suspected or confirmed infectious agent	Disease	Patient placement considerations including any requirement for a specialist ventilation room[1]	Respiratory protection (RPE or fluid resistant surgical facemask (FRSMs) for healthcare workers whilst patient is considered infectious[2]	Notifiable under Public Health (Scotland) Act 2008[3]
	Bacteraemia, meningitis, wound infection or infection in other normally sterile site	Single en-suite room	No requirement for FRSM or RPE	Yes **(presence in the wound is not notifiable)**
Shiga-toxin producing *E. coli* (STEC)	Gastroenteritis, haemolytic uremic syndrome, thrombotic thrombocytopaenic purpura	Single en-suite room	No requirement for FRSM or RPE	Yes
Vancomycin-resistant Enterococci (VRE)	Bacteraemia, urinary tract, wound and surgical-site infections	Single en-suite room	No requirement for FRSM or RPE	No
Viral Haemorrhagic Fever (VHF)[7]		See high consequence infectious disease.		

Footnote 1

The 'ideal' in terms of patient placement for the purposes of IPC would be a single en-suite room for all transmissible pathogens however it is recognised that the NHSScotland estate does not allow for this. This column therefore aims to highlight the pathogens which should be prioritised for specialist ventilation rooms, and those which ideally should be prioritised for a single room. However, a risk assessment adopting clinical judgement should be performed locally when prioritising placement of patients where there are not enough single en-suite rooms for the number of patient's requiring one. The risk assessment should consider factors such as:

- All infectious agents within a unit at that time
- Mode of transmission of each infectious agent in the unit at that time (mode of transmission can be found in the A-Z of pathogens)
- Current transmissible symptoms for each patient in the unit with a known or suspected infectious agent at that time

Footnote 2

The choice to use FFP3 during non-AGP care provision by a member of health and care staff as a personal preference is supported by the Scottish Government DL (2022) 10, published on 19th April 2022.

Footnote 3

Notifications may be made on clinical suspicion by a registered medical practitioner ("notifiable diseases") or once the organism is confirmed by the director of the diagnostic laboratory ("notifiable organisms"), or where a registered medical practitioner has reasonable grounds to suspect that a patient whom the practitioner is attending has been exposed to a health risk state. "Health risk state" means a highly pathogenic infection or any contamination, poison or other hazard which is a significant risk to public health. Conditions may fall under more than one of these categories, and medical professionals and laboratories have a duty to be aware of their responsibilities under the Public Health etc. (Scotland) Act 2008.

Footnote 4

Appropriate antimicrobial treatment will include the choice of treatment, dose, frequency, and number of days of treatment. It will vary by organism and should be determined by the clinical team and informed by local and national prescribing guidance where available.

Footnote 5

Additional guidance should be followed for novel respiratory viruses as they are developed.

Footnote 6

In relation to childhood illnesses and use of RPE, no vaccine offers 100% protection and a small proportion of individuals acquire/become infected despite vaccination or known IgG immunity (previous infection). Vaccination is still the best protection against many infectious diseases. If staff are uncertain of their immunisation status, they should discuss this with their occupational health provider. It is recommended that all staff wear PPE as detailed above regardless of vaccination status to minimise any residual risk, and to promote consistency in practice across all staff groups.

Footnote 7

This includes any unknown/novel HCIDs in addition to the following list of known HCIDs: Viral haemorrhagic fevers (Argentine haemorrhagic fever (Junin virus), Bolivian haemorrhagic fever (Machupo virus), Crimean Congo haemorrhagic fever (CCHF), Ebola virus fever, Lassa fever, Lujo virus disease, Marburg virus disease (MVD), Severe fever with thrombocytopaenia syndrome (SFTS)), Andes virus infection (Hantavirus), Avian influenza A H7N9 and H5N1, Avian influenza A H5N6 and H7N7, Middle East respiratory syndrome (MERs), mpox, Nipah virus infection, Pneumonic plague (Yersinia pestis), and Severe acute respiratory syndrome (SARs). For more detailed IPC guidance for Viral Haemorrhagic Fevers, see Viral Haemorrhagic Fevers (VHF) Infection Prevention and Control Precautions Summary for the Hospital Setting (Version 3.1).

Footnote 8

In addition to appropriate selection of respiratory protection, consideration should be given to the use of long-sleeved single-use disposable gowns where a patient has a widespread rash or extensive manual handling or unavoidable skin-to-skin contact is anticipated.