NHS National Services Scotland

Patient and Resident Placement for Isolation and Cohorting Literature Review

Executive Summary

Version 1.0

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Antimicrobial Resistance & Healthcare Associated Infection (ARHAI) Scotland
An NHS Scotland Assure Service

Introduction

This literature review informs the 'Patient and Resident Placement for Isolation and Cohorting' content in the National Infection Prevention and Control Manual (NIPCM) and the Care Home Infection Prevention and Control Manual (CHIPCM). See section 1.1 Patient Placement/Assessment for Infection Risk in Chapter 1, section 2.1 Patient Placement/Assessment for Infection Risk in Chapter 2 and Appendix 11 – Aide Memoire for Patient Placement Considerations and Respiratory Protective Equipment (RPE) or Fluid Resistant Surgical Facemasks (FRSM) for Infectious Agents in the NIPCM. Also see section 1 'Resident Placement /Assessment for Infection Risk' in Chapter 1, section 1 Resident Placement /Assessment for Infection Risk and section 2 Safe Management of Care Equipment in an Isolation Room in Chapter 2 of the CHIPCM.

There are three documents to note:

1. Literature review, which provides a comprehensive, systematic review of the evidence
2. Considered judgement forms which outline the evidence base and expert opinion used to develop the recommendations and good practice points for each literature review research question. Also detailed are the benefits, potential harms, feasibility of implementation, value judgements, intentional vagueness, and exceptions associated with the recommendations and good practice points
3. Evidence tables which detail all the included studies and provide an assessment of the evidence for each research question of the literature review

Scope

Research Questions

There are five research questions (RQ) in this literature review. Four of these came from consolidating some of the questions from the previous update. A new question was added to explore the evidence on infection risk assessment before discontinuing isolation and cohorting (RQ5).

- RQ1 covers infection risk assessment prior to patient placement
- RQ2 explores types of isolation rooms/suites and the circumstances in which patients/residents may be placed there
- RQ3-4 covers cohorting of patients/residents as well as staff.
- RQ5 discusses infection risk assessment before ending isolation or cohorting.

Changes to Practice

No significant changes to practice are expected as a result of this literature review update. Although there are new recommendations and good practice points, they reflect current practice.

New Good Practice Points (GPPs) and Recommendations

Infection risk assessment

New GPPs on virtual infection risk assessment prior to in-person outpatient appointments (GPP1.3) and risk evaluation before discontinuing isolation or cohorting (GPP5.1, 5.2, 5.3 and 5.4).

Isolation room types and indications for use

New GPPs on optimal placement for source isolation (GPP2.1, 2.3), protective isolation (GPP2.6) for pathogens spread by the airborne route, source isolation for viral haemorrhagic fevers (VHFs) (GPP 2.5), source isolation for pathogens spread

by contact (GPP2.9), and alternatives when the preferred placement is unavailable (GPP2.2, 2.4, 2.7, 2.8).

Patient or resident Cohorting

New GPPs on the indications for cohorting (GPP3.1), and practical considerations during cohorting (GPP3.3 – 3.7)

Staff Cohorting

New GPPs on indications for staff cohorting (GPP4.1) and practical considerations (GPP4.2).

Summary of Recommendations (R) and Good Practice Points (GPP)

Research Question 1: How should patients or residents be assessed for infection risk prior to placement within the health and care setting?

GPP1.1 **Service users should be promptly assessed for infection risk on arrival at the healthcare facility (and if possible or necessary, before transfer of a service user to/from another care area/care home). Infection risks to be considered include, but are not limited to:**

- **Symptoms such as diarrhoea, vomiting, fever or respiratory symptoms**
- **Foreign travel**
- **Open wounds**
- **Known exposure to a case or an area with cases of transmissible infection**
- **Hospitalisation or receipt of medical or cosmetic treatments in any country outside of Scotland in the last 12 months.**
- **Inability to maintain appropriate hygiene.**

- **Being previously positive for a multidrug-resistant organism (MDRO)**

R1.1	**Service users who may present a particular transmission risk, as per national protocols, must be isolated on arrival, appropriate screening undertaken, and clinical samples collected as required to establish the causative infectious agent. This includes but is not limited to patients who:**

- **Have been previously positive for Carbapenemase-producing Enterobacteriaceae (CPE); or**
- **Have been hospitalised outside of Scotland in the last 12 months (including those who received dialysis); or**
- **Have been transferred from a hospital abroad.**

GPP1.2	**The infection risks of service users should be continuously reviewed throughout their stay. [New]**
GPP1.3	**Virtual assessments (by telephone, email or other appropriate media) of infection risk should be conducted where possible for patients due to attend in-person outpatient appointments, including general practice and dental settings. [New]**

Research Question 2: What different types of isolation areas are there and when should patients or residents be placed in these areas?

GPP2.1	**Service users who are known or suspected to be infected with a high-consequence infectious disease (HCID) spread by the airborne route, a novel respiratory infection with pandemic potential or any other air-transmitted infection that poses a public health risk should be placed in a negative-pressure isolation room, preferably with an anteroom. [New]**
GPP2.2	**If negative pressure isolation rooms are not available, service users who are known or suspected to be infected with an HCID spread by**

	the airborne route, a novel respiratory infection with pandemic potential or any other air-transmitted infection that poses a public health risk, should be placed in positive pressure ventilated lobby (PPVL) rooms or, if these are not available, single rooms (preferably with an ensuite) with appropriate risk assessment. [New]
GPP2.3	**Service users with confirmed viral haemorrhagic fevers (VHFs) should be placed in specialist high-level isolation units (HLIUs). When it is not possible to do so, they should be placed in negative-pressure isolation suites. [New]**
GPP2.4	**Severely immunocompromised service users (including those who have undergone solid organ transplants as well as allogeneic neutropenic patients) should be placed in positive-pressure isolation rooms for protective isolation to minimise exposure to opportunistic airborne infectious agents. [New]**
GPP2.5	**In the absence of a positive-pressure room, severely immunocompromised service users (including those who have undergone solid organ transplants as well as allogenic neutropenic patients) should be placed in a positive-pressure ventilated lobby (PPVL) isolation suite or in the absence of this, a single room, with appropriate risk assessment. [New]**
GPP2.6	**Service users who require both source and protective isolation should be placed in a positive-pressure ventilated lobby (PPVL) isolation suite or a positive-pressure room with a negative-pressure lobby. In the absence of these, a single room may be used with appropriate risk assessment. [New]**
GPP2.7	**Service users who are known or suspected to be infected with an infectious agent spread by contact or droplet should be placed in a single isolation room/suite. [New]**
GPP2.8	**Rooms used for service user isolation should have an ensuite facility. If these are not available, a dedicated commode should be considered for the duration of the isolation period or until a suitable ensuite room becomes available. [New]**

GPP2.9 **Rooms used for service user isolation should have a lobby for PPE donning, doffing, and disposal. If a lobby is not available, arrangements should be made, with appropriate risk assessment, to ensure that these procedures can be performed safely. [New]**

GPP2.10 **In situations where there are not enough isolation rooms for managing infectious patients, service users should be prioritised with an appropriate risk assessment. Such risk assessment should consider factors such as:**

- **Severity of illness caused,**
- **Organism transmissibility (including organisms that may be transmitted in the absence or before the onset of symptoms),**
- **Symptoms (for example., those with cough, diarrhoea, uncontrolled secretions, or draining wounds). [New]**

GPP2.11 **Clear signage, noting the type of precaution, should be put up on the doors of rooms in use for patient isolation. [New]**

Although EPIRs were encountered in the evidence, **no recommendations were made** due to the limited evidence.

Although there is an extant body of evidence to suggest appropriate patient placement when AGPs are performed, **no recommendations or good practice points have been made** in this regard. This is in recognition of ongoing work by ARHAI Scotland to review transmission-based precautions, including how infectious agents are released into the air of the health and care environment from the respiratory tract, with consideration of particle size, distance and clearance/fallout time. It is anticipated that new content which will take account of AGPs as they are currently described in the context of the new transmission descriptors will be published soon.

Research Question 3: What is a cohort area, and when should patients or residents be placed in these areas?

GPP3.1	**In situations where more than one service user is infected with the same infectious agent, cohorting of service users should be considered if there is an inability to place them in single rooms and following appropriate risk assessment in conjunction with the IPCT.**
GPP3.2	**Risk assessment should be carried out before cohorting of service users is implemented to ensure that the following are not cohorted together:**

- **Service users with different infectious agents**
- **Service users with the same infectious agents but with varying mechanisms of antimicrobial resistance, Service users with a co-infection with other communicable diseases other than the infectious agent (s) being cohorted for. [New]**

GPP3.3	**Service users with suspected infection and those with confirmed infection (with the same infectious agent) should not be cohorted together. [New]**
GPP3.4	**In circumstances where there are insufficient single rooms for isolation, confirmed cases should be prioritised for cohorting, while single rooms should be preferentially allocated to suspected or probable cases. [New]**
GPP3.5	**In circumstances where there are not enough single rooms, asymptomatic individuals identified as contacts exposed to the same infectious source may be cohorted together with risk assessment and consultation with the IPC team. Such risk assessment should consider the infectious agent, individual patient risk factors (that may make them particularly prone to infection or at risk of more serious disease if infected), and epidemiological risk factors. [New]**

GPP3.6	In circumstances where there are not enough single rooms, individuals who meet the case definition for suspected cases (same infectious agent) may be cohorted together following risk assessment and consultation with the IPC team. Such risk assessment should consider the infectious agent(s), similarities in clinical symptoms, individual risk factors (that may make them particularly prone to infection or at risk of more serious disease if infected), and epidemiological risk factors. [New]
GPP3.7	Service users' beds/chairs should be adequately spaced in a cohort area, and bed curtains (where available) should be drawn as an additional physical barrier where it is safe to do so. Where possible, dedicated or disposable equipment should be used. [New]

Research Question 4: What is staff cohorting and when should it be implemented?

GPP4.1	Staff cohorting should be considered during outbreaks as a control measure for outbreak management. [New]
GPP4.2	The following should be considered for staff, in conjunction with Occupational Health, when implementing staff cohorting. These include:

- Pregnancy status
- Immune status
- Vaccination status
- Co-morbidities that may mean staff are vulnerable to infection or at risk of severe outcomes if infected
- Previous exposure (with confirmed infection) to the infectious agent of interest. [New]

Research Question 5: How should patients or residents be assessed for infection risk prior to discontinuing isolation and cohorting?

GPP5.1	**Isolation should be discontinued when the service user is no longer considered to be infectious. [New]**
GPP5.2	**The following factors may inform the assessment of service user infectivity for ending isolation, and these should be continually reviewed:**

- **characteristics of the infectious agent, including the probability of prolonged carriage or long-term shedding and/or recurrence**
- **time since the onset or resolution of specific signs and symptoms**
- **time since known exposure**
- **clinical test results**
- **evidence of effective treatment**
- **immune status and/or age of infected person [New]**

GPP5.3	**When determining whether or when to terminate isolation, the vulnerability of other service users in the vicinity should be considered. [New]**
GPP5.4	**The need for a cohort should be continually assessed. Some considerations for ending or closing a cohort include**

- **Availability of enough single rooms to isolate the individual patients**
- **Recovery of the service users in the cohort [New]**