Health Protection Scotland

NHS National Services Scotland

Patient Placement, Isolation and Cohorting: Standard Infection Prevention & Control and Transmission Based Infection Control Precautions

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Version History:

This literature review will be updated in real time if any significant changes are found in the professional literature or from national guidance/policy.

Version	Date	Summary of changes	Changes marked
1.0	September 2018	Patient placement SICPs and TBPs review were amalgamated and updated using a double reviewer methodology. Term 'isolation room/suite' changed to 'enhanced single room' to align with Scottish guidance. Additional recommendation on protective isolation and the placement of patients receiving haemodialysis added.	

Approvals – this document requires the following approvals (in cases where signatures are required add an additional 'Signatures' column to this table)::

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1.0	September 2018	National Policies, Guidance and Outbreaks Steering Group		

HPS ICT Document Information Grid	
Purpose:	To inform the Standard Infection Control Precaution (SICPs) and Transmission Based Precautions (TBPs) sections on Patient Placement in the National Infection Prevention and Control Manual in order to facilitate the prevention and control of healthcare associated infections in NHSScotland hospital settings.
Target audience:	All NHSScotland staff involved in the prevention and control of infection in Scotland.
Circulation list:	Infection Control Managers, Infection Prevention and Control Teams, Public Health Teams
Description:	This literature review examines the available professional literature on patient placement in the hospital setting.
Update/review schedule:	Updated as new evidence emerges with changes made to recommendations as required.
Cross reference:	National Infection Prevention and Control Manual http://www.nipcm.hps.scot.nhs.uk SICPs Literature review: Hand Hygiene: Hand washing. http://www.nipcm.hps.scot.nhs.uk/documents/sicp-hand-hygiene-hand-washing-in-the-hospital-setting/ SICPs Literature review: Hand Hygiene: Use of Alcohol Based Hand Rub http://www.nipcm.hps.scot.nhs.uk/documents/sicp-hand-hygiene-use-of-alcohol-based-hand-rub-in-the-hospital-setting/
Update level:	Practice – **No significant change to practice** Research – **No significant change to research**

Contents:

1. Objectives

The aim of this review is to examine the extant scientific literature regarding the appropriate placement of patients (including isolation and cohorting) in hospitals to form evidence based recommendations for practice.

The specific objectives of the review in terms of SICPs are to determine:

- What is the minimum standard space required per bed/patient?
- What is the minimum standard required for a single-bed room?
- What are the minimum standards required for multi-bed rooms?
- What are the minimum standards for the provision of hygiene/sanitation facilities in patient rooms?
- What is the current guidance on single-bed room provision in hospitals?
- How should patients be assessed for infection risk upon admission/arrival at the care area?

The specific objectives of the review in terms of TBPs are to determine:

- Under which circumstances should a patient be placed in a single-bed room?
- What is an enhanced single room?
- Under which circumstances should a patient be placed in an enhanced single room (negative pressure)?
- Under which circumstances should a patient be placed in an enhanced single room (positive pressure)?
- Are there any legislative requirements relating to the use of an enhanced single room?
- What is a cohort area?
- Under which circumstances should a patient be placed in a cohort area?
- What is cohort nursing and under which circumstances should it be implemented?

N.B.

Recommendations relating to sink design and provision are outlined in the Hand Hygiene: Hand Washing Literature Review.

Recommendations relating to placement of alcohol-based hand rub products in the patient care environment are outlined in the Use of Alcohol Based Hand Rub Literature Review.

2. Methodology

This targeted literature review was produced using a defined methodology as described in the National Infection Prevention and Control Manual: Development Process.

3. Recommendations

This review makes the following recommendations based on an assessment of the extant scientific literature on patient placement:

3.1 Recommendations for standard infection control precautions (SICPs)

What is the minimum standard space required per bed/patient?

The minimum bed space in both single and multi-bed rooms should not be less than 3.6m (width) x 3.7m (depth).

Spacing should allow clinical/care procedures to be carried out from either side of the bed, with adequate circulation space to allow medical emergency teams and medical equipment to gain access to the patient.

(Mandatory)

What is the minimum standard required for a single-bed room?

A single-bed room is a room with space for one patient and should contain a clinical wash-hand basin in a visible and convenient location.

Single-bed rooms should also have en-suite sanitary facilities comprising of a shower, WC and a wash-hand basin.

Single-bed rooms require a total area of 23.5m^2.

(Mandatory)

What are the minimum standards required for multi-bed rooms?

The acceptable maximum number of beds in a multi-bed room is four.

Four-bed rooms require a total area of 72.5m^2.

Four-bed rooms require two clinical wash-hand basins for staff; one close to the entrance of the room, and another in an obvious and convenient position at the other end of the room.

Multi-bed rooms must have en-suite sanitary facilities. Ideally, an assisted shower room (with WC, shower and wash-hand basin) and a separate semi-ambulant WC (with wash-hand basin) both en-suite.

En-suite doors should not open directly onto adjacent bed areas.

(Mandatory)

What are the minimum standards for the provision of hygiene/sanitation facilities in patient rooms?

All single-bed and multi-bed rooms should have en-suite facilities with a WC and shower.

If en-suite facilities are not provided, sanitary facilities for patients should not be located more than 12m from bed areas or day rooms.

There should be clearly labelled separate, designated sanitary facilities for in-patients, clinical staff and visitors on wards in convenient locations.

(Mandatory)

There should be a sufficient number of wash-hand basins in all clinical areas.

(Mandatory)

What is the current guidance on single-bed room provision in new build hospitals and refurbishments?

There should be 100% single-bed room provision in all new build hospitals, unless there are clinical reasons to necessitate the availability of multi-bed rooms.

The minimum single-bed room provision in refurbishments is 50%, but as close to 100% single-bed room provision as possible is expected.

(Mandatory)

How should patients be assessed for infection risk upon admission/arrival at the care area?

Patients must be promptly assessed for infection risk on arrival at the care area (if possible, prior to accepting a patient from another care area) and should be continuously reviewed throughout their stay. An assessment of the potential infection, route of infection transmission and potential spread of infection; risk factors associated with exposure to blood and body fluids; and spatial considerations should be made when considering where to place a patient.

(AGREE rating: Recommend)

Patients who may present a particular cross-infection risk include those:

- Known to have been previously positive for a multidrug resistant organism (MDRO) such as meticillin-resistant *Staphylococcus aureus* (MRSA) or Carbapenemase-producing Enterobacteriaceae (CPE).
- Who have been hospitalised outside of Scotland in the last 12 months.

(Mandatory)

In addition to those:

- With diarrhoea, vomiting, an unexplained rash, fever or respiratory symptoms.

(Good Practice Point (GPP))

Patient placement decisions should be based on risk assessment which should consider the route of transmission alongside patient factors and symptoms that increase the risk of cross transmission.

A single-bed room should be considered as a minimum for patients on airborne precautions, and is preferred for patients on droplet and contact precautions.

(AGREE rating: Recommend)

3.2 Recommendations for transmission based precautions (TBPs)

Under which circumstances should a patient be placed in a single-bed room?

Patients who are known or suspected to be infected with a microorganism spread by the contact or droplet route should be cared for in single-bed rooms when available.

(AGREE rating: Recommend)

Hospitals should have systems in place to be able to rapidly identify:

- patients who have been transferred from a hospital outside of Scotland;
- patients who have been hospitalised outside of Scotland within the last 12 months;
- patients who have previously been positive for CPE (carbapenemase producing enterobacteriaceae) or meticillin-resistant *Staphylococcus aureus* (MRSA) at any body site.

(Mandatory)

Patients who are receiving haemodialysis and are known or suspected to be positive for a blood-borne virus (BBV) should be managed in a single-bed room using dedicated equipment.

(Good Practice Point (GPP))

Patients should remain isolated in a single-bed room whilst they remain symptomatic and/or are considered infectious.

(Good Practice Point (GPP))

The decision to discontinue isolation should be based on clinical judgement. The clinical judgement and expertise of the staff involved in the patient's management and the Infection Prevention and Control Team (IPCT) or Health Protection Team (HPT) should be sought.

(Good Practice Point (GPP))

The door of a single-bed room should remain closed when it is used to manage a patient with a known or suspected infection.

(Good Practice Point (GPP))

What is an enhanced single room?

An enhanced single room, often referred to as an isolation room/suite, is a single-bed room (en-suite) with in-built ventilation systems designed to prevent egress (negative pressure) or ingress (positive pressure) of potentially infectious air.

(Mandatory)

Under which circumstances should a patient be placed in an enhanced single room (negative pressure)?

An enhanced single room (negative pressure) should be used to accommodate a patient known or suspected to be infected with a microorganism spread by the airborne (aerosol) route whilst the patient is considered infectious.

(AGREE rating: Recommend)

The door of an enhanced single room must remain closed when a patient is managed within it and door opening should be kept to a minimum.

(Good Practice Point (GPP))

Under which circumstances should a patient be placed in an enhanced single room (positive pressure)?

An enhanced single room (positive pressure), ideally with a HEPA filtered air supply should be considered for patients at an increased risk of infection e.g. severely immunocompromised.

(Good Practice Point (GPP))

(AGREE rating: Recommend)

Are there any legislative requirements relating to the use of an enhanced single room?

As part of local COSHH assessments a log book should be completed for each enhanced single-bed room. These log books should be located in close proximity to the room e.g. the lobby or anteroom. The following information should be recorded for each enhanced single-bed room:

- a schematic layout of the enhanced single room and ventilation system serving it;
- information on the ventilation design parameters;
- a record of the actual ventilation performance at initial validation ("Acceptance testing");
- records of the annual validations;
- records of the lobby pressure, taken by ward staff from gauges and monitoring devices provided;
- records of any routine service and maintenance activities;
- records of any repairs or modifications;
- a method statement for disinfecting the system.

(Mandatory)

What is a cohort area?

A cohort area is a bay/ward in which a group of patients (cohort) with the same infection are placed together. Cohorts are created based on clinical diagnosis, microbiological confirmation when available, epidemiology, and mode of transmission of the infectious agent.

(AGREE rating: Recommend)

Under which circumstances should a patient be placed in a cohort area?

Patient cohorting may be appropriate when single-bed rooms are not available and there is more than one patient with the same confirmed infection.

(AGREE rating: Recommend)

Patient cohorting should be combined with other infection prevention and control measures e.g. hand hygiene, PPE and environmental decontamination.

(Grade D recommendation)

Patients should be separated by at least 3 feet (1m) from each other in a cohort area; and bed curtains can be drawn as an additional physical barrier.

(AGREE rating: Recommend)

What is cohort nursing, and under which circumstances should it be implemented?

Cohort nursing (staff cohorting) is defined as the use of a dedicated team of healthcare staff to care for patients infected with a single infectious agent.

Cohort nursing may be implemented to minimise the risk of contamination between groups of symptomatic and non-symptomatic patients if there is adequate staff resource available to do so.

(AGREE rating: Recommend)

4. Discussion

4.1 Implications for practice: SICPs

What is the minimum standard space required per bed/patient?

The majority of recommendations in guidance documents are based largely on ergonomic requirements rather than infection control needs.[1-7] However, guidance produced in 2007 by Health Facilities Scotland 'Infection Control in the Built Environment: Design and Planning'[8] and similarly, UK guidance produced in 2013 by Department of Health Estates and Facilities 'Infection Control in the Built Environment',[9] specifically recognise the important role of bed spacing in the prevention and control of infection. Specifically, the latter states that 'the principle should be to maintain sufficient space for activities to take place and to avoid cross-contamination between adjacent bed spaces'. Furthermore, 2014 guidance from Health Facilities Scotland 'Information for Design Teams, Construction Teams, Estates & Facilities and Infection Prevention & Control Teams' states that issues surrounding the design and layout of rooms can contribute to the transmission of microorganisms.[10]

There is consensus on minimum bed spacing; bed spaces should not be less than 3.6m (width) x 3.7m (depth) since it is considered that most activities can be carried out within this space.[2-5;11] Spacing should allow clinical/care procedures to be carried out from either side of the bed, with adequate circulation space to allow medical emergency teams and medical equipment to gain access to the patient.[1;7]

(Mandatory)

What is the minimum standard required for a single-bed room?

A single-bed room should contain a clinical wash-hand basin in a visible and convenient location.[4-8] Single-bed rooms should have en-suite sanitary facilities.[1;4-8] Specifically, en-suite facilities should contain a shower, WC and a wash-hand basin.[6;7] Single-bed rooms require a total area of 23.5m^2.[5;7]

(Mandatory)

What is the minimum standard required for multi-bed rooms?

The acceptable maximum number of beds in a multi-bed room is four.[1;5;7] Four-bedded rooms require two clinical wash-hand basins for staff; one close to the entrance of the room, and another in an obvious and convenient position at the other end of the room.[1;7-10] Multi-bed rooms must have en-suite sanitary facilities.[1;7;9] Best practice is to provide an assisted shower room (with WC, shower and wash-hand basin) and a separate semi-ambulant WC (with wash-hand basin) both en-suite to the bedroom area.[7] En-suite doors should not open directly onto adjacent bed areas.[7] Four-bed rooms require a total area of 72.5m.[2;5;7]

(Mandatory)

What are the minimum standards for the provision of hygiene/sanitation facilities in patient rooms?

In general, all single-bed and multi-bed rooms should have en-suite facilities with a WC and shower.[1;5;7;9] Toilet facilities should not be located more than 12m from bed areas or day rooms.[4] There should be clearly labelled, designated separate sanitary facilities for in-patients, clinical staff and visitors.[5;7] There should also be a sufficient number of wash-hand basins in all clinical areas.[1;5;7;9]

(Mandatory)

What is current guidance on single-bed room provision in hospitals?

It has been recommended that there is 100% single-bed room provision in new build hospitals, unless there are clinical reasons to necessitate the availability of multi-bed rooms.[3;4;6;7;12] In refurbishments, NHS boards should seek to maximise the number of single-bed rooms consistent with the recommendation for new builds.[3;4;6;7;12] The minimum recommended single-bed room provision in refurbishments is 50%, but as close to 100% single-bed room provision as possible is expected.[3;4;6;7]

(Mandatory)

How should patients be assessed for infection risk upon admission/arrival at the care area?

Patients must be promptly assessed for infection risk on arrival at the care area (if possible, prior to accepting a patient from another care area) and should be continuously reviewed throughout their stay.[13;14] The appropriate placement of patients within the acute healthcare setting should be determined by an assessment of the following aspects:

- The potential transmission of a healthcare associated infection when receiving healthcare in an NHSScotland facility.
- The risk factors posed by exposure to blood and body fluids by healthcare workers, patients, visitors and others.
- The potential route of transmission and spread of healthcare associated infection by blood and body fluids.
- Spatial considerations – including the availability of single-bed rooms and the current built environment within specific NHSScotland healthcare facilities.[13]

(AGREE rating: Recommend)

Patients who may present a particular cross-infection risk include those:

- Known to have been previously positive for a multidrug resistant organisms (MDRO) such as meticillin-resistant *Staphylococcus aureus* (MRSA) or Carbapenemase-producing Enterobacteriaceae (CPE); or
- who have been hospitalised outside Scotland in the last 12 months.[15-17]

(Mandatory)

In addition to those:

- With diarrhoea, vomiting, an unexplained rash, fever or respiratory symptoms.

(Good Practice Point (GPP))

There is a hierarchy of patient placement decisions that should be undertaken for patients requiring care using Transmission Based Precautions, following risk assessment. A single-bed room (neutral pressure) is always required for patients on airborne precautions as a minimum, and is preferred for patients on contact and droplet precautions.[13] This should include assessment of the route of transmission and potential spread of the infection alongside risk factors such as exposure to blood and body fluids.[13;14;18] Patient factors and symptoms that may contribute to cross transmission should also be considered (e.g. vomiting, diarrhoea, an unexplained rash, fever or respiratory symptoms).[14;18]

As single-bed rooms are often in short supply the use of an isolation priority tool is suggested in the literature.[19-23]

Patient placement decisions should be based on risk assessment which should consider the route of transmission alongside patient factors and symptoms that increase the risk of cross transmission (e.g. vomiting, diarrhoea, an unexplained rash, fever or respiratory symptoms).

(AGREE rating: Recommend)

4.2 Implications for practice: TBPs

Under which circumstances should a patient be placed in a single-bed room?

A recent (2016) Healthcare Improvement Scotland (HIS) evidence note found that there was a lack of robust evidence to demonstrate the effectiveness of single-bed rooms for preventing or reducing HAI rates.[24] The available studies are mixed in their conclusions with some demonstrating a reduction in cross-transmission of HAI in single-bed rooms compared to open wards or multi-bed rooms, and others showing no difference.[25-29]

Although there is a lack of a robust evidence base in support of isolation, there is no evidence to support the discontinuation of isolation measures in the UK.[30] There is evidence that isolation in a single-bed room is effective in reducing transmission of infections spread by the contact or droplet routes, particularly when combined with other infection prevention and control measures such as hand hygiene and PPE.[13;25;26;28;30-41] In addition single-bed room isolation has been shown to be effective for control of infections which can cause extensive environmental

contamination (e.g. patients with *C. difficile* infection)[13;35;42-46] and infections with microorganisms which are resistant to antibiotics.[15;18;33]

Patients who are known or suspected to be infected with a microorganism spread by the contact or droplet route should be cared for in single-bed rooms when available.

(AGREE rating: Recommend)

Recently carbapenemase producing Enterobacteriaceae (CPE) have become a major public health issue and guidance has been issued for NHS Scotland which recommends patients identified as high risk must be isolated in a single-bed room.[15] High risk patients are defined as those who: have been transferred from a hospital outside of Scotland; have been hospitalised outside of Scotland within the last 12 months; have previously tested positive for MRSA or CPE at any body site.[15;17] A CMO letter to reinforce this requirement has also been circulated.[16]

Hospitals should have systems in place to be able to rapidly identify:

- **patients who have been transferred from a hospital outside of Scotland;**
- **patients who have been hospitalised outside of Scotland within the last 12 months;**
- **patients who have previously been positive for MRSA or CPE at any body site.**

These patients should be prioritised for placement in a single-bed room.

(Mandatory)

The risk of seroconversion of hepatitis C virus (HCV) negative patients receiving haemodialysis in the same room as HCV positive patients has been highlighted in the literature.[47-49] It is suggested that patients with blood-borne viruses (BBV) receive haemodialysis in a single-bed room, using dedicated equipment.[47]

Patients who are receiving haemodialysis and are known or suspected to be positive for a BBV should be managed in single-bed rooms using dedicated equipment.

(Good Practice Point (GPP))

The duration that a patient should remain isolated in a single-bed room is determined by clinical judgement and depends on factors such as whether the patient is immunocompromised as this may result in prolonged shedding of microorganisms.[13;45] The clinical judgement and expertise of the staff involved in a patient's management and the IPCT or HPT should be sought.

Patients should remain isolated in a single-bed room whilst they remain symptomatic and/or are considered infectious.

(Good Practice Point (GPP))

The decision to discontinue isolation should be based on clinical judgement.

(Good Practice Point (GPP))

It is considered good practice to keep the doors to non-pressurised single-bed rooms closed, as this provides physical separation of patients in isolation from other patients.[50] One observational study found that keeping patient doors closed was associated with lower rates of hospital-acquired diarrhoea in paediatric wards.[51] Therefore, the door to the isolation room should remain closed, and should only be opened when entering/leaving; however, Department of Health guidance recognises that in some cases this may not be possible.[13;50]

The door of the single-bed room should remain closed when it is used to manage a patient worth a known or suspected infection.

(Good Practice Point (GPP))

What is an enhanced single room?

Also known as an isolation suite/room,[8] and enhanced single room has the same provision as a single-bed room (en-suite) with the addition of in-built ventilation systems designed either to prevent infectious airborne particles from leaving the room (negative pressure) or to prevent potentially infectious airborne particles from entering the room (positive pressure (typically a ventilated lobby or anteroom)).[8;11] Where a patient presents an infection risk to others, a 'negative pressure' enhanced single-bed room is used (source isolation).[11] Enhanced single rooms which include a positive pressure lobby enable the room to be used for both source and protective isolation by preventing air entering the corridor or escaping from the room. The lobby also provides an area for healthcare workers to prepare before entering/exiting the room. The

ventilation should be +10 Pascals in the lobby with respect to the corridor; patients' room should have 10 air changes per hour and be neutral in pressure to that of the corridor; the en-suite having at least 10 air changes per hour and a negative pressure to that of the patient's room.[11] For more detailed information on the requirements for an enhanced single-bed room, see SHPN 04 In-patient Accommodation: Options for Choice (Supplement 1 Isolation Facilities in Acute Care Settings).[11]

An enhanced single room is a single-bed room (en-suite) with in-built ventilation systems designed to prevent egress (negative pressure) or ingress (positive pressure) of potentially infectious air.

(Mandatory)

Under which circumstances should a patient be placed in an enhanced single room (negative pressure)?

There is consensus on the role of suitable ventilation in the prevention of infectious agents disseminated by the airborne (aerosol) route. One systematic review in which 40 original studies were evaluated by a team of experts in the field of engineering and microbiology, demonstrated strong evidence of an association between the spread of airborne infectious diseases such as chickenpox and measles and the direction of airflow and supported the use of negative pressure enhanced single rooms for the control of specific infectious agents.[52] For the purposes of infection prevention and control, an enhanced single room is the preferred choice for patients known or suspected to have infections spread by the airborne (aerosol) route.[13]

Where the enhanced single room is a negative pressure room (i.e. to prevent escape of airborne microorganisms from the room), or a positive pressure room (i.e. protective isolation to prevent airborne microorganisms from entering the room), then the door should remain closed to help maintain the correct pressure differential.[53] There is evidence that door opening can disrupt the containment effectiveness of negative pressure rooms, allowing the dispersal of airborne particles into adjacent areas.[54;55] Therefore, it is recommended that door-opening is kept to a minimum, and doors should remain closed when not in use.

An enhanced single room should be used, if available, to accommodate a patient known or suspected to be infected with a microorganism spread by the airborne (aerosol) route whilst the patient is considered infectious.

(AGREE rating: Recommend)

The door of an enhanced single room must remain closed when a patient is managed within it and door opening should be kept to a minimum.

(Good Practice Point (GPP))

Under what circumstances should a patient be placed in an enhanced single room (positive pressure)?

The CDC suggests that in general immunocompromised patients can be cared for in the same environment as other patients.[13] However, there are specific patient groups for whom isolation may provide protection from infection including:

- Any patient whose blood neutrophil count falls below, or is expected to fall below 0.5 $x10^9$/L.[56]
- Patients receiving haematopoietic stem cell transplant,[57] particularly allogeneic transplants[58]
- Patients with extensive burns[13;59]

Providing HEPA filtered air into the positive pressure room is also recommended.[57]

An enhanced single room (positive pressure), ideally with a HEPA-filtered air supply, should be considered for patients at an increased risk of infection e.g. immunocompromised.

(Good Practice Point (GPP))

(AGREE rating: Recommend)

Are there any legislative requirements relating to the use of an enhanced single room?

As part of local COSHH assessments a log book should be completed for each enhanced single room (isolation suite). These log books should be located in close proximity to the room e.g. the lobby or anteroom. The following information should be recorded for each enhanced single-bed room:

- a schematic layout of the enhanced single room and ventilation system serving it;
- information on the ventilation design parameters;
- a record of the actual ventilation performance at initial validation ("Acceptance testing");
- records of the annual validations;
- records of the lobby pressure, taken by ward staff from gauges and monitoring devices provided;
- records of any routine service and maintenance activities;
- records of any repairs or modifications;
- a method statement for disinfecting the system.

(Mandatory)

What is a cohort area?

A cohort area is a bay/ward in which a group of patients (cohort) with the same infection are placed together.[13;50] Cohorts are created based on clinical diagnosis, microbiological confirmation when available, epidemiology, and mode of transmission of the infectious agent.[13]

(AGREE rating: Recommend)

Under which circumstances should a patient be placed in a cohort area?

Cohorting forms part of a hierarchy of patient placement decisions for patients requiring care using Transmission Based Precautions. This approach is particularly used when there are increased numbers of cases e.g. MRSA and/or if single-bed rooms are in short supply.[8;13;25;30;36;46;50] It is difficult to elucidate the evidence to support the effectiveness of cohorting as it is mainly used during outbreaks, the findings suggest that it is effective when

combined with other infection prevention and control measures such as hand hygiene, appropriate PPE and environmental decontamination.[13;25;30;35;37;41;46] However, some studies have suggested that transmission between patients may occur during cohorting, particularly in the absence of microbiological typing or where some patients are convalescing/recovering and others still have active symptoms e.g. CDI.[60-62] Therefore, it is important to ensure that there is adequate separation of at least 3 feet (approximately 1 metre) between patients. The use of curtains may also be used as a further means of separation.[13]

Patient cohorting may be required when single-bed rooms are not available and there is more than one patient with the same infection.

(AGREE rating: Recommend)

Patient cohorting should be combined with other infection prevention and control measures e.g. hand hygiene, PPE and environmental decontamination.

(Grade D recommendation)

Patients should be separated by at least 3 feet (approximately 1m) from each other in a cohort area, and bed curtains can be drawn as an additional physical barrier.

(AGREE rating: Recommend)

What is 'cohort nursing', and under which circumstances should it be implemented?

Cohort nursing (staff cohorting) is defined as the use of a dedicated team of healthcare staff to care for patients infected with a single infectious agent.[13;50] Evidence suggests that this approach may be beneficial when control methods have been unsuccessful and/or an outbreak is continuing.[63-65] There is some evidence to suggest that cohort nursing is an effective intervention to further minimise the risk of cross contamination and should be implemented if there are adequate resources to do so.[46;50;66-68]

Cohort nursing (staff cohorting) may be implemented to minimise the risk of contamination between groups of symptomatic and non-symptomatic patients if there is adequate staff resource available to do so.

(AGREE rating: Recommend)

4.3 Implications for research

Limited robust literature was identified by this review regarding the appropriate placement of patients, although there is acknowledgement within guidance that adequate bed spacing, provision of single-bed rooms and provision of separate sanitary facilities for staff and visitors are important factors in infection control.[2;5;8] Furthermore, terminology in the published literature is varied and confusing, the term 'isolation' is used to mean both physical separation and other infection control measures such as use of PPE. In addition the term 'isolation room' is used to mean either an enhanced single room with negative pressure or simply a single-bed room with neutral pressure. Further research is required to ascertain: the impact of single-bed room provision on infection control across NHSScotland inpatient facilities; the effectiveness of both source and protective isolation for the prevention of HAI; the effectiveness of both patient and staff cohorting for the prevention of HAI and any potential risks of transmission associated with cohorting.

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