





# Safe Management of Linen: 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
3.0	September 2020	Update of the literature review.
		<ul> <li>Objectives separated into SICPs and TBPs</li> </ul>
		The question set was reviewed and the following objectives added:
		<ul> <li>What is the definition of linen in health and care settings?</li> <li>Is there any guidance/information for carers regarding washing used/infectious personal clothing at home?</li> </ul>
2.1	October 2017	Additional recommendation to include detergent in laundering process and update of Department of Health reference to latest version.
2.0	October 2016	No change to recommendations, minor changes to text for clarity.
1.0	January 2012	Final for publication

Approvals	Approvals					
Version	Date Approved	Name				
3.0	September 2020	NPGO Steering Group				
2.1	October 2017	NPGO Steering Group				
2.0	October 2016	NPGO Steering Group				
1.0	January 2012	Steering (Expert Advisory) Group for SICPs and TBPs				

HPS ICT Document Inf	ormation Grid
Purpose:	To inform the Standard Infection Control Precautions (SICP) and Transmission Based Precautions (TBPs) sections on the Safe management of Linen in the National Infection Prevention and Control Manual in order to facilitate the prevention and control of healthcare associated infections in NHS Scotland health and care settings.
Description:	This literature review examines the available professional literature on linen and its management in health and care settings.
Target audience:	All NHS staff involved in the prevention and control of infection in NHSScotland.
Circulation list:	Infection Control Managers, Infection Prevention and Control Teams, Public Health Teams
Update/review schedule:	Updated as new evidence emerges with changes made to recommendations as required'.
Cross reference:	National Infection Prevention and Control Manual (NIPCM) <u>http://www.nipcm.scot.nhs.uk/</u> <u>Appendix 8 – Best practice – Management of Linen at care level</u>
Update level:	Change to practice – No significant change to practice Research – No significant change

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## 1. Objectives

The aim of this review is to examine the extant professional literature regarding the safe management of linen to form evidence based recommendations for practice.

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

- What are the legislative/mandatory requirements for the safe handling of linen?
- What is the definition of linen in health and care settings?
- How should linen be categorised?
- What is the available evidence/guidance on temperature requirements for laundering linen?
- What is the available evidence/guidance on products for effective laundering of linen?
- How should beds be stripped/made?
- How should clean linen be safely handled?
- How should clean linen be stored?
- How should clean linen be transported?
- How should used linen be sorted?
- How should used linen be labelled?
- How should used linen be stored?
- How should used linen be transported?
- Is there any specific evidence/guidance on the effective laundering of uniforms/scrubs?
- Is there any guidance/information for carers regarding washing used/infectious personal clothing at home?

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

- How should infectious linen be sorted?
- How should infectious linen be labelled?
- How should infectious linen be stored?
- How should infectious linen be transported?

This review did not seek to examine and evaluate all of the available guidance relating to laundry services in NHSScotland. NHSScotland laundry facilities are subject to legislation and guidance which determine their operating practices/procedures and, for example, outline what cleaning agents and products should be used in particular circumstances as well as determining the appropriate use of laundry equipment. Such guidance was considered not to be within the scope of this review.

Similarly, the laundering of uniforms was examined but uniform policies or dress code was excluded from the review. National guidance on uniform policy for NHSScotland is presented in DL(2018)4, which updated and replaced CEL(2010)42.

## 2. Methodology

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

## 3. Discussion

#### 3.1 Implications for practice: SICPs

#### What are the legislative/mandatory requirements for the safe handling of linen?

Relevant mandatory guidance for NHSScotland, NHS England and guidance produced by the Centers for Disease Control and Prevention (CDC) is summarised in <u>Appendix 2</u>.

Previously, NHSScotland MEL(1993)7/(1993)86<sup>1</sup> detailed the requirements for the safe management of used and infected linen in hospitals, this has been superseded by the '<u>National</u> <u>Guidance for Safe Management of Linen in NHSScotland</u>'.<sup>2</sup> There is similar legislation that applies to the safe management of linen in hospitals in England - <u>HTM01-04</u><sup>3</sup> which replaced HSG(95)18.<sup>4</sup>

#### What is the definition of linen in health and care settings?

Linen may be defined as all reusable textile items requiring cleaning/disinfection via laundry processing.<sup>3</sup> Examples of linen include bed linen (bed sheets, duvet, duvet covers, pillowcases, draw and slide sheets), blankets, curtains, hoist slings, towels, patient clothing (gowns, nightdresses and shifts, pyjama tops and bottoms) and staff clothing (coats, uniforms, scrubs).<sup>3</sup>

#### How should linen be categorised?

Linen should be categorised as: (see Appendix 2)

- Clean Linen washed and ready to be reissued to the service.<sup>2</sup>
- Used (previously called 'soiled and fouled') All used linen in health and care setting not contaminated by blood or body fluids<sup>2</sup> or likely to include e.g. wound exudates, sputum, saliva, sweat, urine<sup>5</sup>
- Infectious All linen used by a person known, or suspected to be infectious and linen that is contaminated with blood or other body fluids.<sup>2, 5</sup>
- Heat-labile Linen that may be damaged (shrinkage/stretching) by thermal disinfection.
   May also be categorised as either 'used' or 'infectious'.<sup>2</sup>

## What is the available evidence/guidance on temperature requirements for laundering linen?

National and international guidance documents have made different recommendations regarding laundering temperatures and the time laundry should be held at these temperatures. <sup>3</sup>, <sup>6-8</sup> In both Scotland and England it is a mandatory requirement that the washing process should have a disinfection cycle in which the load temperature is maintained at 65°C (150°F) for not less than 10 minutes, or preferably at 71°C (160°F) for not less than 3 minutes.<sup>1-4</sup> Mixing time must be allowed to ensure heat penetration and assured disinfection.<sup>2</sup>, <sup>3, 5</sup> (See <u>Appendix 2</u>) Results from three in-vitro studies have demonstrated a reduction in

bacterial<sup>9</sup>, <sup>10</sup> and fungal<sup>11</sup> contamination when cotton swatches went through simulated wash cycles at temperatures of at least 60°C with complete bacterial eradication achieved at temperatures 71°C or higher.<sup>9-11</sup> In contrast, the organisms tested were able to survive exposures to temperatures at 30°C, 40°C and 50°C.<sup>9, 11</sup>

#### What is the available evidence/guidance on products for effective laundering of linen?

The CDC state that linen should be processed using a detergent;<sup>7</sup> however this review did not find consistent evidence in the literature regarding products for effective laundering of linen. The experimental/in-vitro studies identified used either different/nonspecific products (detergent with activated oxygen bleach<sup>9</sup>, industrial detergent system<sup>10</sup>) or only the primary ingredient (alcohol ethoxylate<sup>11</sup>) of a detergent; regardless of products used, there is a general consensus in the literature that linen should be processed with a detergent.<sup>9-11</sup>

#### How should beds be stripped/made?

No evidence was found on how beds should be stripped/made to minimise the possible cross transmission of infection.

#### How should clean linen be safely handled?

Hand hygiene should be performed before handling clean linen.<sup>1, 2</sup>

#### How should clean linen be stored?

It is important that clean linen is stored in such a way as to protect it from contamination e.g. with an impervious protective covering. Clean linen must be stored separately (or physically separated, i.e. a separate compartment) from used/infectious linen. Clean linen must be stored above floor level.<sup>2, 3, 7, 8, 12, 13</sup>

#### How should clean linen be transported?

When transporting clean linen, it is considered important that it should be protected from contamination. Clean linen must be physically separated from used/infectious linen during transport.<sup>2, 7, 8, 12, 14</sup>

#### How should used linen be sorted?

All linen should be sorted into appropriate colour-coded hampers at the point of use, for example, immediately on removal from the bed.<sup>7, 14</sup> Used linen should be bagged separately into white hampers.<sup>2</sup> (See NIPCM's <u>Appendix 8 – Best Practice – Management of Linen at Care Level</u> for more information)

#### How should used linen be labelled?

All linen hampers must be labelled with the hospital, care area/ward/department, and dated.<sup>2</sup>

#### How should used linen be safely handled?

It is a legislative and mandatory requirement that staff handling used linen wear personal protective equipment (PPE) e.g. a disposable plastic apron and disposable non-sterile gloves. Any lesions on the hand must be covered with a water proof dressing. Hand hygiene must be performed after handling used linen.<sup>1, 2</sup> It is recommended that handling of used fabrics is done with minimum agitation to minimise dispersion of aerosols.<sup>7, 14-16</sup>

#### How should used linen be stored?

Linen should be held in a designated storage area until a viable complete load has been gathered. The designated storage area for used linen should be secure and inaccessible to the public.<sup>1, 2</sup>

#### How should used linen be transported?

Used linen should be placed into securely fastened colour coded laundry hampers for transport.<sup>1;2</sup>

#### Is there any specific evidence/guidance on the effective laundering of uniforms/scrubs?

<u>DL(2018)4</u> states that contaminated uniforms and surgical scrubs should be laundered in hospital (dedicated laundry) facilities.<sup>17</sup> The uniform/scrub should be placed into a water-soluble/alginate bag which should be placed into a secondary clear polythene bag and finally into the infectious linen hamper. The bag should be tagged for identification. Used uniforms should be laundered in hospital facilities if they are available.<sup>17</sup> Boards should have local policies in place for return of contaminated uniforms to and from laundry facilities.

Where hospital facilities are not available used uniforms should be laundered at home. DL(2018)4 states that there is no evidence that home laundering is a less effective method of laundering a used uniform. Two systematic reviews provide support to DL(2018)4; concluding that there is no evidence that home laundering of used uniforms is inferior to commercial laundering.<sup>18, 19</sup> An empirical study also suggested that domestic laundering of uniform is an acceptable alternative to central laundering, providing it is combined with tumble drying and/or ironing.<sup>20</sup> Additionally, study results from Riley et al<sup>21</sup> showed complete reduction of microorganisms with no cross-contamination on swatches experimentally inoculated with *Staphylococcus aureus* and *Escherichia coli* when they were washed in a domestic machine with a biological detergent at 60°C.<sup>21</sup> It is a mandatory requirement that used uniforms laundered in DL(2018)4:<sup>17</sup>

- Used uniforms should be kept separate from clean uniforms.
- Pockets should be empty.
- Hand hygiene should be performed before handling clean uniforms and after handling soiled uniforms.
- All uniforms should be laundered at the highest temperature suitable for the fabric as detailed on the care label.

- The detergent used should be suitable for the skin type of the healthcare worker using the uniform.
- Bleach should not be added.
- Uniforms can be ironed or tumble dried according to the care label.
- Laundered uniform should be stored separately from used uniforms.

## Is there any guidance/information for carers regarding washing used/infectious personal clothing at home?

Carers who wish to wash their friend's or relative's clothing whilst they are receiving care in hospital or care home should be referred to the "<u>Washing clothes at home</u>" leaflet. In circumstances such as the clothing being very soiled or infectious, staff may recommend that clothing be washed in the hospital or care home's laundry service if available otherwise the item should be disposed of in the appropriate healthcare waste stream following discussion with the patient or their relative(s).<sup>22</sup>

#### 3.2 Implications for practice: TBPs

#### How should infectious linen be sorted?

It is a legislative and mandatory requirement that infectious linen should be bagged separately into colour coded laundry hampers at the point of use, for example, immediately on removal from the bed.<sup>1, 2</sup> Infectious linen should first be placed into a water soluble (alginate) bag and then into a clear polythene bag before placing in an appropriate colour-coded linen bag/hamper.<sup>1, 2</sup>

#### How should infectious linen be labelled?

<u>The National Guidance for Safe Management of Linen in NHSScotland</u> states that all linen hampers/bags/receptacles must be labelled with the hospital, care area/ward/department, and dated.<sup>2</sup> Linen without appropriate labels will not be delivered or collected by portering, laundry or transport staff.<sup>2</sup>

#### How should infectious linen be safely handled?

It is a legislative and mandatory requirement that staff handling infectious linen wear appropriate personal protective equipment (PPE) e.g. a disposable plastic apron and disposable non-sterile gloves.<sup>1, 2</sup> Any lesions on the hand must be covered with a water proof dressing. Hand hygiene must be performed after handling infectious linen.<sup>1, 2</sup>

Guidelines from the CDC, Public Health England (PHE) and Public Health Agency (PHA) recommended that handling of infectious fabrics is done with minimum agitation to minimise dispersion of aerosols.<sup>7, 14-16, 23</sup> Additionally, infectious linen should not be placed on the floor or any other surfaces such as locker or table top and should not be re-handled once bagged.<sup>23</sup>

#### How should infectious linen be stored?

It is a legislative requirement that linen should be held in a designated, safe, storage area whilst awaiting uplift.<sup>2</sup> The designated storage area for infectious linen should be secure and inaccessible to the public.<sup>1, 2, 23</sup>

#### How should infectious linen be transported?

It is a legislative and mandatory requirement that infectious linen should be placed into securely fastened colour coded laundry hampers/linen bags for transport.<sup>1, 2</sup> Additionally, <u>HTM01-04</u> guidance also recommends that bags should be of an acceptable weight and should not be overfilled.<sup>3</sup> Care should be taken to prevent linen or foul seepage (blood and body fluids) escaping from laundry bags and contaminating other items or staff.<sup>1, 3</sup>

#### 3.3 Implications for research

There is a limited evidence base in the extant professional literature relating to the safe management of linen in the hospital setting; although there are mandatory requirements regulating much of the process(es). Much of the available evidence is in the form of laboratory-based experimental studies, or is professional opinion. Further research on the safe management of linen should also endeavour to address the gaps in the evidence base and should examine, as a priority, the efficacy of home versus commercial laundering of used uniforms, including: domestic washing powders and detergents, laundering uniforms separately, and the effect of tumble drying and steam ironing.

## 4. Recommendations

This review makes the following recommendations based on an assessment of the extant professional literature on safe management of linen:

#### 4.1 Recommendations for standard infection control precautions (SICPs)

#### What are the legislative/mandatory requirements for the safe handling of linen?

NHSScotland MEL(1993)7 and (1993)86 outlined the mandatory requirements for the safe management of used and infected linen in Scottish hospitals, this has now been superseded by the '<u>National Guidance for Safe Management of Linen in NHSScotland. Health and Care Environments</u>. For laundry services/distribution.'(see <u>Appendix 2</u>).

(Mandatory)

#### What is the definition of linen and health and care settings?

Linen may be defined as all reusable textile items requiring cleaning/disinfection via laundry processing.

Examples of linen include bed linen (bed sheets, duvet, duvet covers, pillowcases, draw and slide sheets), blankets, curtains, hoist slings, towels, patient clothing (gowns, nightdresses and shifts, pyjama tops and bottoms) and staff clothing (coats, uniforms, scrubs).

(Category C)

#### How should linen be categorised?

The categories of linen are:

- Clean linen: linen washed and ready to be used.
- Used linen: all used linen that is not contaminated with either blood or body fluids.
- Infectious linen: all linen used by a person known, or suspected to be infectious and linen that is contaminated with either blood or body fluids.
- Heat-labile linen: linen that may be damaged (shrinkage/stretching) by thermal disinfection.

#### (Mandatory)

## What is the available evidence/guidance on temperature requirements for laundering linen?

The washing process should have a disinfection cycle in which the load temperature is maintained at 65°C (150°F) for not less than 10 minutes or preferably at 71°C (160°F) for not less than 3 minutes.

#### (Mandatory)

Items of patient clothing that are laundered at home should be washed at the hottest temperature appropriate to the fabric. For further information refer to the "Washing clothes at home" leaflet: <u>http://www.hps.scot.nhs.uk/haiic/ic/resourcedetail.aspx?id=945</u>

#### (Category C)

#### What is the available evidence/guidance on products for effective laundering of linen?

No recommendation can be made on the chemical composition of products for laundering used or infectious linen from healthcare. Linen must be processed using a laundry detergent.

#### (Category B)

Specialised guidance on the appropriate selection and use of cleaning agents is available in specific guidance/manufacturer's instructions for NHSScotland centralised laundry facilities.

#### (Category C)

#### How should beds be stripped/made?

Handle used/infected textiles and fabrics with minimum agitation to reduce dispersion of aerosols.

#### (Category C)

Beds should be stripped in order to minimise agitation of the removed linen.

- **Used** items of linen should be removed one by one and placed in the used linen hamper/stream.
- Infectious linen should not be sorted but rolled together, ensuring that there are no extraneous items such as patient equipment, and placed into the infectious linen hamper/stream.

A disposable plastic apron should always be worn when handling used or infectious linen. Disposable non-sterile gloves should also be worn if handling infectious linen.

#### (Category C)

#### How should clean linen be safely handled?

Hand hygiene must always be performed before touching clean linen.

#### (Mandatory)

#### How should clean linen be stored?

Clean linen should be stored in such a way as to protect it from contamination, e.g. with an impervious protective covering.

#### (Mandatory)

Clean linen should be stored off the floor in a clean designated area which protects it from contamination. If a trolley is used to store clean linen, it should be designated for this purpose and completely covered with an impervious covering that is able to withstand cleaning and/or disinfection.

#### How should clean linen be transported?

Clean linen must be protected from contamination during transport.

Clean linen must be physically separated from used/infectious linen during transport.

(Mandatory)

#### How should used linen be sorted in hospitals?

All linen should be sorted into appropriate colour-coded hampers at the point of use e.g. at the bedside.

Used linen should be placed in white hampers.

(Mandatory)

#### How should used linen be labelled?

All linen hampers must be labelled with the hospital, care area/ward/department, and dated.

#### (Mandatory)

#### How should used linen be safely handled?

Staff handling linen in the soiled sorting area of the laundry facility must wear personal protective equipment (PPE) e.g. a disposable plastic apron and disposable non-sterile gloves. Any lesion on the hand must always be covered with a waterproof dressing. Hand hygiene must be performed after handling used linen.

#### (Mandatory)

Handle used textiles and fabrics with minimum agitation to minimise dispersion of aerosols.

(Category C)

#### How should used linen be stored?

Used linen should be held in a designated, safe storage area whilst awaiting uplift. The designated storage area should be secure and inaccessible to the public.

#### How should used linen be transported?

For transportation, used linen must be placed into securely fastened colour coded laundry hampers.

#### (Mandatory)

#### Is there any specific evidence/guidance on the effective laundering of uniforms/scrubs?

Contaminated uniforms and all surgical scrubs should be laundered in hospital facilities. Contaminated uniforms/scrubs should be placed into water-soluble/alginate bags followed by a secondary clear polythene bag and finally into a red laundry hamper. Laundry hampers should be tagged for identification.

Boards should have local policies in place for return of contaminated uniforms to and from laundry facilities.

#### (Mandatory)

Used (not contaminated) uniforms should be laundered in hospital facilities where they are available. If no hospital laundry facilities are available then used uniforms can be laundered at home following the guidelines on home laundering outlined in <u>DL (2018) 4</u>:

- Used uniforms should be kept separate from clean uniforms.
- Pockets should be empty.
- Hand hygiene should be performed before handling clean uniforms and after handling soiled uniforms.
- All uniforms should be laundered at the highest temperature suitable for the fabric as detailed on the care label.
- The detergent used should be suitable for the skin type of the healthcare worker using the uniform.
- Bleach should not be added.
- Uniforms can be ironed or tumble dried according to the care label.
- Laundered uniforms should be stored separately from used uniforms.

## Is there any guidance/information for carers regarding washing used/infectious personal clothing at home?

Personal items such as clothing can be sent home with the patient or a relative and laundered according to the '<u>Washing clothes at home</u>' leaflet.

If clothing is very soiled or infectious, staff may recommend that clothing be washed in the hospital or care home's laundry service if available otherwise the item should be disposed of in the appropriate healthcare waste stream following discussion with the patient or their relative(s).

(Category C)

#### 4.2 Recommendations for transmission based precautions (TBPs)

#### How should infectious linen be sorted?

Infectious linen should be bagged separately into colour coded laundry hampers at the point of use, e.g. at the bedside.

Infectious linen should first be placed into a water soluble (alginate) bag and then into a clear polythene bag before placing in an appropriate colour-coded linen bag/hamper.

#### (Mandatory)

#### How should infectious linen be labelled?

All linen bags/hampers/receptacles must be labelled with the hospital, care area/ward/department, and dated.

#### (Mandatory)

#### How should infectious linen be handled?

Staff handling infectious linen must wear appropriate personal protective equipment (PPE) e.g. a disposable plastic apron and disposable non-sterile gloves.

Any lesions on the hand must be covered with a water proof dressing.

Hand hygiene must be performed after handling infectious linen.

#### (Mandatory)

Handle infectious textiles and fabrics with minimum agitation to minimise dispersion of aerosols.

#### (Category C)

#### How should infectious linen be stored?

Infectious linen should be held in a designated safe, storage area whilst awaiting uplift.

The designated storage area for infectious linen should be secure and inaccessible to the public.

#### (Mandatory)

#### How should infectious linen be transported?

Infectious linen should be placed into securely fastened colour coded laundry hampers/linen bags for transport.

Care should be taken to prevent linen or foul seepage (blood and body fluids) escaping from laundry bags and contaminating other items or staff.

Infectious linen should not be transported with clean linen in the same vehicle unless they can be physically separated, i.e. in a separate, covered cage or trolley.

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## **Appendix 1: Grades of Recommendation**

Final recommendations are given a grade to highlight the strength of evidence underpinning them, the NIPCM grades of recommendations are as follows:

Grade	Descriptor	Levels of evidence
Mandatory	Recommendations' that are directives from government policy, regulations or legislation	N/A
Category A	Based on high to moderate quality evidence	SIGN level 1++, 1+, 2++, 2+, AGREE strongly recommend
Category B	Based on low to moderate quality of evidence which suggest net clinical benefits over harm	SIGN level 2+, 3, 4, AGREE recommend
Category C	Expert opinion, these may be formed by the NIPC groups when there is no robust professional or scientific literature available to inform guidance.	SIGN level 4, or opinion of NICP group
No recommendation	Insufficient evidence to recommend one way or another	N/A

## **Appendix 2: Guidance summary**

Organisation/ Guidance	Categories of	Effective launderi	ing	Specific guidance on laundering of uniforms/scrubs	Linen	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle		handling/sorting/ labelling	linen
NHS Scotland MEL (1993) 7 and (1993) 86, Hospital laundry arrangements for used and infected linen – this has now been superseded by the 'National Guidance for Safe Management of Linen in NHSScotland Health and Care Environments For laundry services/distrib ution' (2018)	<ul> <li>"3.1. Categories of linen</li> <li>Clean Linen - washed and ready to be reissued to the service</li> <li>Used - All used linen in the ward setting not contaminated by blood or body fluids.</li> <li>Infectious - All linen used by a person known, or suspected to be infectious and</li> </ul>	No specific products recommended. "5.3. Washing and production processes The wash stages should ensure that all linen is visibly clean by removing contamination from the fabric; a chemical or thermal disinfection stage should be performed on all linen to reduce	<ul> <li>"Wash (used and infectious) – thermal disinfection</li> <li>The washing process for both used and infectious linen should include a disinfection cycle where the temperature should be maintained at: o 65°C for not less than 10 minutes or, preferably,</li> </ul>		<ul> <li>"3. Segregation of linen in care settings</li> <li>All linen should be appropriately segregated, bagged and labelled, and stored separately at ward and other service levels/areas prior to collection or distribution. This would be either a dirty area e.g. sluice or a designated dirty linen store.</li> <li>Used/infectious linen must not be stored in</li> </ul>	<ul> <li>"4. Transport and storage of linen</li> <li>All linen bags (hampers) must be labelled with the hospital, care area/ward/department and dated.</li> <li>Portering, transport and laundry staff will not accept delivery or collect linen that is no appropriately bagged and labelled.</li> <li>4.1. Safe storage and internal transport in healthcare settings</li> </ul>

Organisation/ Guidance	Categories of	Effective launder	ing	Specific guidance on laundering of uniforms/scrubs	Linen	Storage/transport of
	linen	Products	Temperatures and wash cycle		handling/sorting/ labelling	linen
	linen that is contaminated with blood or other body fluids e.g. faeces. Used or infectious linen may also be categorised as heat-labile. <b>Heat-labile -</b> Linen that may be damaged (shrinkage/stretch ing) by thermal disinfection."	the number of viable microorganisms by killing."	<ul> <li>o 71°C for not less than 3 minutes.</li> <li>To ensure adequate mixing and heat distribution:</li> <li>o Up to 4 minutes should be added to the above times when using machines with low (less than 0.056kg/L) degrees of loading.</li> <li>o Up to 8 minutes should be added to the above times when using machines with high (more</li> </ul>		the domestic services room (DSR). 3.2. Colour coding of outer linen bags (fabric hampers) in healthcare settings Linen hampers in healthcare settings must be colour coded to denote the various categories of linen. It is suggested that the following colour coding is used: Clean White Used White Heat labile Blue Infectious Red 3.3. Use of water- soluble (alginate) bags	<ul> <li>Trolleys used for transporting linen must be impervious and have a documented cleaning schedule i place following use (responsibility to be assigned by linen services manager).</li> <li>All reusable transport containers and cages should be decontaminated daily (responsibility to be assigned by linen services manager).</li> <li>Clean linen must be protected from environmental contamination, e.g. with an impervious protective covering.</li> </ul>

Organisation/	Categories of	Effective laun	dering	Specific	Linen	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle	guidance on laundering of uniforms/scrubs	handling/sorting/ labelling	linen
			than 0.056kg/L) degrees of loading. Heat labile linen Heat labile linen will be damaged (shrinkage/ stretching) by temperatures above 40°C and therefore cannot be subjected to thermal disinfection. The majority of heat labile linen will be personal items/clothing belonging to a patient; in this case patients should have been offered		Water soluble bags (also referred to as alginate bags) are used for the storage and transport of infectious linen. The entire inner bag is made from either a soluble material or the bag is impermeable but has soluble seams so that linen is released on contact with water. These bags are intended to be placed directly into the washing machine to minimise operator contact with infectious linen. The capabilities of the equipment and composition of the load should be determined in	Clean linen should be stored separately (or physically separated, i.e. a separate compartment) from all other linen. 4.2. Safe management of linen in transfer vehicles • Clean and used/infectious linen should not be transported in the same vehicle unless they can be physically separated, i.e. in a separate, covered cage or trolley. • Drivers should have access to

Organisation/ Guidance	Categories of	es of Effective laundering		Specific	Linen	Storage/transport of
	linen	Products	Temperatures and wash cycle	guidance on laundering of uniforms/scrubs	handling/sorting/ labelling	linen
			the opportunity to take these belongings home to wash. It is unlikely that these items will present at the laundry facility" <b>Guidance for</b> <b>domestic-type</b> <b>machines only</b> If using a domestic-type washing machine to launder patients'/resident s' personal items: • Use the highest temperature setting tolerated by the fabric (see care label)".		<ul> <li>advance of linen reprocessing.</li> <li>Alginate bags must be placed in a clear polythene bag before being secured in a linen bag (hamper).</li> <li>5.1. Protection of laundry staff</li> <li>To protect against infection and cross- contamination, staff should be provided with uniforms and personal protective equipment (PPE). All staff should be trained and competent in the use of PPE, including the safe removal and disposal of PPE.</li> </ul>	<ul> <li>hand washing facilities at pickup and delivery points and carry a personal alcohol based hand rub.</li> <li>Spill kits for managing body fluids spillages should be available in all linen transfer vehicles.</li> <li>All vehicles must have a documented cleaning schedule in place for both internal and external cleaning."</li> </ul>

Organisation/	Categories of linen	s of Effective laundering		Specific	Linen	Storage/transport of
Guidance		Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
					<ul> <li>Staff changing facilities should be provided.</li> <li>Hand washing facilities should be provided at entry/exit points of all washing/ reprocessing areas.</li> <li>Staff handling linen should ensure that any abrasions or cuts on the hands are covered with a waterproof dressing.</li> <li>Staff should wear PPE at all times when handling linen, such as: o disposable gloves (*puncture</li> </ul>	

Organisation/	Categories of	Effective launderi	ng	Specific guidance on laundering of uniforms/scrubs	Linen handling/sorting/ labelling	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle			linen
					o disposable plastic aprons. • PPE should be safely removed and disposed of when moving between dirty and clean areas."	
Health Technical Memorandum 01-04: Decontamination of linen for health and social care - Management and provision 2016	<ul> <li>"Linen         <ul> <li>classifications</li> <li>5.13 The                 following                 definitions                 apply                 specifically to                 the healthcare                 setting.                 Used (soiled                 and fouled)                 linen</li> </ul> </li> <li>5.14 This                 definition                 applies to all                 used linen,</li> </ul>	Chemical disinfection including chemothermal Processes 5.52 This process is essential for some heat labile items. A variety of processes using a range of chemical agents are available, and the exact	5.50 The washing process should have a disinfection cycle in which the temperature of the load is either maintained at 65°C for not less than ten minutes or 71°C for not less than three	-	<ul> <li>5.22 Categorisation of linen should be done at local level with the appropriate colour-coded bags.</li> <li>5.23 Infectious linen in this category should not be sorted, but should be sealed in a water soluble bag, which should then be placed in an</li> </ul>	Clean linen storage and prevention of recontamination 5.91 Storage areas should be dedicated for the purpose and not used for other activities. The storage area should be appropriately designed to prevent damage to linen and to

Organisation/	Categories of	Effective launderi	ng	Specific	Linen handling/sorting/	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle	guidance on laundering of uniforms/scrubs	labelling	linen
	<ul> <li>irrespective of state, but on occasions contaminated by body fluids or blood. It does not apply to:         <ul> <li>linen from infectious patients;</li> <li>those suspected of being infectious; and</li> <li>other linen covered by the following paragraph on "infectious linen".</li> </ul> </li> <li>Infectious linen 5.15 This definition applies to:</li> </ul>	process should be chosen in discussion and agreement with the infection control team for a care provider and with the appointed Microbiologist (Decontaminat ion). 5.53 It is important that the chemical does not damage fire- retardant or other specialist coatings. Hypochlorite should not be	minutes when thermal disinfection is used. Alternative time- temperature relationships may be used as long as the efficacy of the process chosen is equal to or exceeds that of the 65° or 71°C processes. With all these options, mixing time should be added to ensure heat penetration		<ul> <li>impermeable bag immediately on removal from the bed or before leaving a clinical department.</li> <li>5.24 Water-soluble bags are also recommended for heavily fouled linen if capable of being processed by the washer and if agreed with the linen processor.</li> <li>5.25 Soiled and fouled linen should be placed in an impermeable bag immediately on removal from the bed or before</li> </ul>	allow for the rotation of stocks 5.92 Laundry rooms, central linen rooms, linen cupboards and mobile storage units should be equipped with shelving that car be easily cleaned and allow the fre movement of air around the store linen. Linen should be stored above floor level away from direct sunlight and water in a secure dry and cool environment. 5.93 Cleaning frequencies

Organisation/	Categories of	Effective launder	ing	Specific	Linen	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle	guidance on laundering of uniforms/scrubs	handling/sorting/ labelling	linen
	<ul> <li>linen from patients with diarrhoea;</li> <li>linen contaminated with blood or body fluids from patients with bloodborne viruses;</li> <li>other conditions as specified by local policy (for example, varicella zoster and measles).</li> <li>Heat-labile items 5.18 This category includes fabrics damaged by</li> </ul>	used on fabrics treated for fire retardance.	and assure disinfection. For conventionall y-designed machines and those with a low degree of loading (less than 0.056 kg/L), four minutes should be added to these times to allow for adequate mixing time. For a heavy degree of loading (that is, above 0.056 kg/L), it is		leaving a clinical department. 5.26 Water-soluble bags should be transferred to the designated washer without opening, followed by any washable, reusable laundry outer bag, which should be washed in a similar fashion. If a CTW is used, it should be validated to determine its ability to process and breakdown adequately the water-soluble bag. 5.77 Managers should assess	should be agreed locally but should be at least quarterly. 5.94 Linen stocks should be removed temporarily to facilitate thorough cleaning of the storage area and shelving. 5.95 Clean linen should be transported around wards on a clean trolley and handled with clean hands. Transport of linen 5.86 Bags should not be overfilled. They should be o an acceptable

Organisation/ Guidance	Categories of	Effective laun	dering	Specific	Linen	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle	guidance on laundering of uniforms/scrubs	handling/sorting/ labelling	linen
	the normal heat disinfection process and those likely to be damaged at thermal disinfection temperatures ."		necessary to add eight minutes."		<ul> <li>whether the risks associated with linen decontamination require the use of personal protective equipment (PPE).</li> <li>5.78 Although pre- wash sorting is not considered BP, where it does occur, staff in sorting areas must wear PPE (for example, waterproof coverage of chest and forearm areas, gloves, and possibly visors, face-masks or hats, depending</li> </ul>	<ul> <li>weight and should be securely fastened before being sent to the laundry. Care should be taken to prevent linen or foul seepage (body fluids or blood) escaping from laundry bags and contaminating other items or staff.</li> <li>5.87 If used to transport clean linen after transporting used or infectious linen, all reusable transport containers, cages and the inside hold area of transport vehicles</li> </ul>

Organisation/ Guidance	Categories of	Effective laundering		Specific	Linen	Storage/transport of
	linen	Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
					on the task being undertaken). 5.79 Any exposed lesion should always be covered with a waterproof dressing. Handwashing and changing facilities must be provided in accordance with current legislation. Clean overalls should be available to staff at each new shift or work-period change. 5.80 Staff need to discard and replace PPE between work tasks and especially when moving from dirty	should be decontaminated daily and between uses in order to ensure that the condition and decontaminated status of the liner is not compromised. This should be undertaken according to a documented procedure and the process validated. The use of easy-to- clean impervious smooth surfaces will aid this process.

Organisation/ Guidance	Categories of	Effective laun	dering	Specific	Linen handling/sorting/ labelling	Storage/transport of linen
	linen	Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>		
					to clean areas. Staff should not wear their own home clothes, but should be provided with appropriate workwear".	<ul> <li>5.88 There should be a physical barrier between clean and used or infectious linen when carried on a vehicle at the same time.</li> <li>Linen bags that ar not securely fastened should not be placed in a vehicle.</li> <li>5.89 Trolleys for cleat linen in transit should be covered with a washable o disposable cover.</li> <li>If fully enclosed and sealed containers with lockable doors are used, these covers are not required."</li> </ul>

Organisation/	Categories of	Effective laun	dering	Specific	Linen	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
The Scottish Government (2018) National Uniform Policy, Dress code and laundering policy DL (2018) 4				"Used Uniform – laundering guidance 7. Where a uniform has been worn in conjunction with appropriate PPE and is not visibly contaminated with blood or other body fluids, there is no evidence that it poses any risk to healthcare workers or the public.		
				<ul> <li>Hospital/facility laundries</li> </ul>		

Organisation/	Categories of	Effective laun	dering	Specific	Linen	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
				should be used to launder uniforms if they are available. Uniform should be laundered in accordance with local laundering policy.		
				• Where hospital laundry facilities are not available, used uniforms should be laundered at home in accordance with the Home Laundering		

Organisation/	Categories of	Effective laun	dering	Specific	Linen	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
				Guidelines (Section 3.2). There is no evidence to suggest that home laundering is a less effective method of laundering used uniform.		
				Section 3.2: HOME LAUNDERING OF UNIFORMS		
				This guidance does not apply to theatre scrub suits, any item of PPE, or contaminated uniforms, for		

Organisation/	Categories of	Effective laun	dering	Specific	Linen	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
				which Hospital/ facility laundries must be used.		
				The guidance applies to all uniform and workwear supplied by NHSScotland.		
				Segregation o Used uniform should be kept separate at all times from clean uniform.		
				o Ensure all items such as pens, coins, tissues are removed from pockets.		

Organisation/	Categories of	Effective laun	dering	Specific	Linen	Storage/transport of
Guidance	linen	Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
				<ul> <li>o Apply good hand hygiene practice utilising soap and warm water before handling clean uniform and after handling soiled uniform.</li> <li>Temperature</li> <li>o All uniform should be laundered at the highest temperature suitable for the fabric as per the care label.</li> </ul>		
				Detergents and Additives		
				o Use a detergent that		

Organisation/	Categories of	Effective laun	dering	Specific	Linen	Storage/transport of linen
Guidance	linen	Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	
				is suitable for your skin type.		
				o Do not add bleaches to the wash process or use for a 'whitening' effect.		
				Tumble Drying/Ironing o Uniform may be ironed or tumble dried as per the care label.		
				Storage and Transportation		
				o Ensure laundered uniform is stored		
				separately		

Organisation/ Guidance	Categories of	Effective laun	dering	Specific	Linen	Storage/transport of linen
Guidance	linen	Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	inten
				from used uniform.		
				o Ensure all storage and transportatio n facilities are clean and washed regularly."		
Department of Health (2007), Uniforms and Workwear: An evidence base for developing local policy	-	-	"A ten-minute wash at 60°C is sufficient to remove most micro- organisms." "There is no conclusive evidence of a	"It is good practice toWash uniforms at the hottest temperature suitable for the fabric." "It is good	-	-
			difference in effectiveness between commercial and domestic laundering in	practice toprovide sufficient uniforms for the recommended laundry practice		

Organisation/ Guidance	Categories of linen	Effective laundering		Specific	Linen	Storage/transport of
		Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
			removing micro- organisms."	(more uniforms may be needed where the trust carries out the laundry)."		
Northern Ireland Regional Infection Control Manual (2008)				"Where laundry facilities are available these should be used for laundering clinical uniforms. Where local laundry arrangements are not available and staff launder their own uniforms they must be provided with written instructions."	"Never discard sheets onto the floor. Always use the correct colour coded bag." "Always deal with linen at the bedside" "Used sheets must be rolled or folded carefully before disposal to prevent airborne dispersal of skin cells."	
CDC (2007) Guideline for Isolation	-	-	-	-	"IV.G.1. Handle used textiles and fabrics with minimum	-

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		Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007					agitation to avoid contamination of air, surfaces and persons." "IV.G.2. If laundry chutes are used, ensure that they are properly deigned, maintained, and used in a manner to minimize dispersion of aerosols from contaminated laundry." "Key principles for handling soiled laundry are 1) not shaking the items or handling them in any way that may aerosolize infectious	

Organisation/ Guidance	Categories of linen	Effective laundering		Specific	Linen	Storage/transport of
		Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
					and personal clothing with the sealed items being handled; and 3) containing soiled items in a laundry bag or designated bin."	
CDC and HICPAC, Guidelines for Environmental Infection Control in Health-Care Facilities	-	"Do not use dry cleaning for routine laundering in health-care facilities."	"If hot-water laundry cycles are used, wash with detergent in water ≥160°F (≥71°C) for ≥25 minutes." "Choose chemicals suitable for low- temperature washing at proper use concentration if low- temperature (<160°F[<71°C])	"Employers must launder workers' personal protective garments or uniforms that are contaminated with blood or other potentially infectious materials."	"Bag or otherwise contain contaminated textiles and fabrics at the point of use." "Do not sort or prerinse contaminated textiles or fabrics in patient- care areas." "Establish a facility policy to determine when textiles or fabrics should be sorted in the laundry	"Use leak-resistant containment for textiles and fabrics contaminated with blood or body substances." "Identify bags or containers for contaminated textiles with labels, colour coding or other alternative means of communication as appropriate." "Covers are not needed on

Organisation/ Guidance	Categories of linen	Effective laundering		Specific	Linen	Storage/transport of
		Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
			laundry cycles are used."		facility (i.e. before or after washing)." "Handle contaminated textiles and fabrics with minimum agitation to avoid contamination of air, surfaces, and persons." "If laundry chutes are used, ensure that they are properly designed, maintained, and used in a manner to minimize dispersion of aerosols from contaminated laundry. Category IC" "Ensure that laundry bags are closed before tossing the	contaminated textile hampers in patient- care areas." "Package, transport, and store clean textiles and fabrics by methods that will ensure their cleanliness and protect them from dust and soil during inter-facility loading, transport, and unloading."

Organisation/ Guidance	Categories of linen	Effective laundering		Specific	Linen	Storage/transport of
		Products	Temperatures and wash cycle	<ul> <li>guidance on</li> <li>laundering of</li> <li>uniforms/scrubs</li> </ul>	handling/sorting/ labelling	linen
					filled bag into the chute."	
					"Do not place loose items in the chute."	