Standard Infection Control Precautions Literature Review:
Management of blood and body fluid spillages in health and social care settings

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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
2.0	September 2015	Updated after review of current literature	
1.0	January 2012	Defined as final	

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

Version	Date Approved	Name	Job Title	Division
2.0	September 2015	Steering (Expert Advisory) Group for SICPs and TBPs		
1.0	January 2012	Steering (Expert Advisory) Group for SICPs and TBPs		

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Purpose:	To inform the Standard Infection Control Precautions (SICP) section on blood and body fluid spillages in the health and social care setting in the National Infection Prevention and Control Manual in order to facilitate the prevention and control of healthcare associated infections in NHSScotland health and social care settings.
Description:	This literature review examines the available professional literature on blood and body fluid spillages in the health and social 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 http://www.nipcm.scot.nhs.uk/
Update level:	Change to practice – No significant change to practice Research – No significant change

Contents:

1. Objectives

The aim of this review is to examine the extant professional literature regarding the correct technique for the management of blood and body fluid spillages in the health and social care environment. The specific objectives of the review are to determine:

- Why manage blood and other body fluid spillages?
- Who should manage blood and other body fluid spillages?
- How should blood and other body fluid spillages be managed?
- Whether there are special requirements for the management of blood and other body fluid spillages on soft furnishings?

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 professional literature on the management of blood and body fluid spillages in the health and social care environment:

Why manage blood and other body fluid spillages?

Blood and other body fluids are considered hazardous and should be dealt with immediately.

(Grade D recommendation)

(AGREE rating: Recommend)

Who should manage blood and other body fluid spillages?

Staff trained in the correct procedure for managing blood and other body fluid spillages.

(Mandatory requirement therefore no grade of recommendation can be made)

Adequate training must be given to all staff members involved in the management of blood and body fluid spillages.

(Good Practice Point (GPP))

How should blood and other body fluid spillages be managed?

Appropriate personal protective equipment (e.g. gloves, apron) should be worn when dealing with blood and other body fluid spillages.

(Grade D recommendation)

(AGREE rating: Recommend)

Products (e.g. chlorine releasing solutions/granules) for management of blood and body fluid spillages should always be prepared and used in accordance with manufacturers instructions.

(Good Practice Point (GPP))

Blood and body fluid spillages should be directly treated with a chlorine releasing agent such as sodium hypochlorite.

Urine spillages should **not** be directly treated using a chlorine releasing agent such as sodium hypochlorite.

A gelling agent may be used to solidify urine spills.

(Grade D recommendation)

(AGREE rating: Recommend)

Spill kits should be provided in areas where spills are most likely to occur e.g. A&E, theatre. (These should be regularly checked to ensure all components are present and in date).

(Grade D recommendation)

Are there special requirements for the management of blood and other body fluid spillages on soft furnishings?

Soft furnishings that can withstand chlorine releasing solutions should be cleaned using the recommended concentration solution.

Soft furnishings which cannot withstand chlorine releasing agents should be subject to a risk assessment prior to decontamination and cleaned with a solution of detergent and warm/tepid water.

If soiling with blood or body fluids has occurred and items are incapable of being adequately decontaminated then they should be disposed of.

(Good Practice Point (GPP))

4. Discussion

4.1 Implications for practice

Minimal primary research was found regarding the procedures required for the management of blood and body fluid spillages within the limits of this review. The procedures are detailed in a number of guidance/opinion based documents and as such these should be considered at an evidence rating of “best practice”.

Why manage blood and other body fluid spillages?

A review by Peate[1] defined a body fluid as “*any fluid found in, produced by, or excreted from the human body which includes blood, urine, faeces, saliva, tears, breast milk, cerebrospinal fluid (CSF), semen, vaginal fluid, amniotic fluid, pleural fluid, peritoneal fluid, bile, digestive juices, vomit and pus.*” In terms of standard infection control precautions practice, body fluids are considered hazardous and should be dealt with immediately.[1-8]

The Advisory Committee for Dangerous Pathogens (ACDP) has identified body fluids that may contain blood-borne viruses (BBV):

- Blood
- Cerebrospinal fluid
- Pleural fluid
- Peritoneal fluid
- Pericardial fluid
- Synovial fluid
- Semen
- Breast milk
- Amniotic fluid
- Vaginal secretions
- **Any** body fluids containing blood (bloodstained)

Body fluids considered unlikely to contain BBVs include urine, faeces, saliva, sputum, tears, sweat and vomit (unless they are bloodstained).[3]

(Grade D recommendation)

(AGREE rating: Recommend)

Who should manage blood and other body fluid spillages?

Clinical and nominated staff members should deal with blood and other body fluid spillages.[4]

(Mandatory requirement therefore no grade of recommendation can be made)

It is important that adequate training is given to all staff members involved in the management of blood and body fluid spillages to ensure both the protection of the staff member undertaking the cleaning and all others that may be affected by the spillage.

How should blood and other body fluid spillages be managed?

Procedures for dealing with blood and body fluid spillages are suggested in the literature, but the level of evidence is low and there are some differences in the methodologies. Nonetheless, it is consistently recommended in the literature that:

- Appropriate personal protective equipment (e.g. gloves, apron, eye/face protection) must be worn when dealing with blood and other body fluid spillages.[1;5-8]
- Detergents and disinfectants such as chlorine releasing agents (e.g. sodium hypochlorite/sodium dichloroisocynaurate) must be prepared in accordance with manufacturers instructions.[1;6;7]
- Solutions containing sodium hypochlorite should not be prepared in hot water or mixed with anionic detergents as this can result in the release of chlorine gas. These solutions should be discarded at the end of the task or at the end of the day.[8]
- Waste materials such as contaminated paper towels should be disposed of as healthcare waste (clinical waste) after use.[1;2;7;9;10]

The efficacy of chlorine releasing agents is reduced when in the presence of organic matter (e.g. blood),[5;10] therefore it is recommended that blood spills are directly treated with a chlorine releasing agent (e.g. sodium hypochlorite/sodium dichloroisocynaurate) at a concentration of 10,000 parts per million available chlorine (ppm av.cl.).[1;2;6;7;9]

The technique required for dealing with a spillage of blood differs according to the amount of blood spilt[5] and the method of decontamination (i.e. the use of a solution or the use of a granule based disinfectant). Procedures for using a granule based disinfectant for the control of

spillages are suggested in the literature and are based on **expert opinion**. Chlorine releasing granules should be applied directly to the spill and left for the required contact time before clearing up with disposable cloths or paper towels. Alternatively, the spill may be covered with paper towels which are then gently flooded with a disinfectant solution at 10,000ppm av.cl. and left for the required contact time.[1;2;7] Following disinfection using either method, the gross contamination (including towels) must be discarded as healthcare waste (clinical waste).[1;2;7;9;10] The surface is then either further disinfected or cleaned with detergent; however which method is not clear; [1;5;7-11] in NHSScotland it is recommended that surfaces are further cleaned with detergent after disinfection, this is in line with other UK guidance.[2]

It is suggested that small spills e.g. drops of blood, are dealt with by wiping with a disposable towel soaked in disinfectant (containing 10,000ppm av.cl.), followed by detergent.[2]

The procedures suggested for dealing with most other body fluid spillages are the same as for the management of blood spillages (i.e. disinfect, remove gross contamination, clean area with detergent). However, there are inconsistencies in the literature regarding the concentration of chlorine releasing agents (e.g. sodium hypochlorite) used for body fluid spillages. A concentration of 1,000ppm av.cl. is suggested for spillages of body fluids [8], but if the spill is bloodstained or suspected to be contaminated with HIV or HBV then 10,000ppm av.cl. should be used.[6;8] The use of 10,000ppm av.cl. as a standard for all spillages (i.e. blood and other body fluids) has also been suggested[1;7;9] as has the use of a detergent only, if the hospital's HIV or HBV rate is low.[8]

When dealing with urine spillages it is important that these are not treated using a chlorine releasing agent as this can result in a release of chlorine gas.[1;8;10] It is therefore suggested that these spills are first absorbed using paper towels (a gelling agent may be used to solidify the spill), disposed of as healthcare waste (clinical waste) and the area washed with either detergent[1] or disinfectant[7], however the preferred method is not clear.

Hall[7] suggests it may be useful to provide spill kits in areas where spills are most likely to occur. It is recommended that the instructions on how to deal with spillages and the associated materials required e.g. PPE, cleaning solutions, waste bags, should be included in spill kits. A

nominated staff member should carry out checks on these kits to ensure that all of the components are present and in date.

(Grade D recommendation)

(AGREE rating: Recommend)

Are there special requirements for the management of blood and other body fluid spillages on soft furnishings?

Soft furnishings (e.g. carpets) may be damaged by disinfectant products such sodium hypochlorite. The Health and Safety Executive (HSE) recommends that contaminated carpets that cannot tolerate chemical disinfection should be cleaned using a detergent and steam cleaned. If it is not possible to use either of these methods it may be necessary to dispose of contaminated soft furnishings.[2;5;6;8;10]

(Grade D recommendation)

(AGREE rating: Recommend)

4.2 Implications for research

Much of the relevant literature published examines the use of disinfectants in relation to environmental contamination and their ability to kill HAIs in such situations. An updated literature base looking at procedures for dealing with large spills and the efficacy of currently available detergents/disinfectants when dealing with large spills would be a useful addition to the currently available evidence base.

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