

## Standard Infection Control Precautions Literature Review: Research Methodology

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## 1. Research methods for literature reviews

### 1.1. Research Process

For each literature review a set of specific objectives is agreed by the Infection Control Team. These are organised in a question format and these questions form the basis of the literature review. Recommendations on practice are made within the literature review based on an assessment of the extant professional literature.

A search strategy for each literature review is undertaken using key terms. This is then used to search a number of electronic databases for relevant papers. A number of websites are also searched for relevant policy or guidance documents or any significant grey literature.

Titles and abstracts are reviewed for relevance. Additional exclusion criteria are identified on consideration of the search results. This is the section of the review that is addressed via research papers alongside the mandatory legislation and guidance. Any material identified as being potentially relevant is obtained in full text.

Studies identified for review are critically appraised using SIGN-50 methodology (SIGN, 2008). Guidelines, where identified, are reviewed using the AGREE instrument (AGREE, 2001). The methodology for grading the supporting evidence is included in the evidence tables, which incorporate a considered judgment section, and are available from the HPS Infection Control Team on request.

### 1.2. Databases and resources searched

The following electronic databases were searched for all relevant papers:

- Medline
- Embase
- Cinahl (Cumulative Index to Nursing and Allied Health Literature)
- BNI (British Nursing Index)
- The Cochrane Library (Cochrane DSR, DARE, CCTR, CMR, HTA, NHSEED)

The following online resources were also searched where appropriate in order to identify any relevant policy or guidance documents or any significant grey literature:

- Scottish Government Health Department (SGHD)
- Department of Health (DH)
- World Health Organization (WHO)
- Centers for Disease Control and Prevention (CDC)
- Health Protection Agency (HPA)
- European Centre for Disease Prevention (ECDC)
- Society for Healthcare Epidemiology of America (SHEA)
- Association for Professionals in Infection Control and Epidemiology (APIC)
- National Resource for Infection Control (NRIC)
- SIGLE (Systems for the Information on Grey Literature in Europe)

### **1.3. Levels of Evidence and Category of Recommendation**

#### **1.3.1. SIGN levels of evidence**

##### **1++**

High quality meta-analyses, systematic reviews of Randomised Control Trials (RCTs), or RCTs with a very low risk of bias

##### **1+**

Well-conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias

##### **1-**

Meta-analyses, systematic reviews, or RCTs with a high risk of bias

##### **2++**

High quality systematic reviews of case control or cohort studies

High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal

##### **2+**

Well-conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal

**2-**  
Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal

**3**  
Non-analytic studies, e.g. case reports, case series

**4**  
Expert opinion

### **1.3.2. SIGN grades of recommendation**

**A** At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population; or

A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results

**B** A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 1++ or 1+

**C** A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 2++

**D** Evidence level 3 or 4; *or*

Extrapolated evidence from studies rated as 2+

### **Good Practice Points**

√ Recommended best practice based on the clinical experience of the guideline development group

SIGN. Key to evidence statements and grades of recommendations. SIGN 50: a guideline developer's handbook. Edinburgh: SIGN; 2008. Available at:

<http://www.sign.ac.uk/guidelines/fulltext/50/annexb.html> (accessed: 18/10/2009). Reproduced with permission)

### 1.3.3. AGREE grades of recommendation

**Strongly Recommend** This indicates that the guideline has a high overall quality and that it can be considered for use in practice without provisos or alterations.

**Recommend** This indicates that the guideline has a moderate overall quality. This could be due to insufficient or lacking information in the guideline for some items. If provisos or alterations are made the guideline could still be considered for use in practice, in particular when no other guidelines on the same topic are available.

**Would not recommend** This indicates that the guideline has a low overall quality and serious shortcomings. Therefore it should not be recommended for use in practice.

(AGREE Collaboration. Instructions for overall judgements. AGREE Instrument training manual. London: AGREE Collaboration; 2001. Available at:

<http://www.agreecollaboration.org/pdf/aitraining.pdf> (accessed 18/10/2009). Reproduced with permission)

## 1.4. Note about categories of recommendations

Due to the nature of the extant professional literature on infection control the ranking of evidence often yields a SIGN grading of C, D, or GPP (Good Practice Point). In part this is due to ethical restrictions which prevent randomized clinical trials or other types of quantitative research being conducted on certain aspects of infection control practice, especially in relation to disease outbreaks; however trials which assess the efficacy of equipment are often undertaken. Furthermore, infection control measures are often enacted in a multi-interventional fashion – meaning that it is not possible to assess the efficacy of any single intervention. Similarly, infection control literature based on experimental laboratory based studies cannot be easily appraised using existing methodologies. Despite this, a grading of C, D, or GPP in the review does not mean that the recommendation is weak. Instead it highlights that it is not possible for the review to make recommendations based on high level evidence because there is a paucity of such research. All literature reviews are subject to assessment by a representative panel of experts and subject specialists, therefore final recommendations also take into account existing best professional practice.

## 2. Patient (Person) Placement

### Searches undertaken

- 1 infection control/
- 2 (“infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 3 (“standard infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 4 (“routine infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 5 universal precautions/
- 6 “barrier nursing”.tw
- 7 “barrier precautions”.tw
- 8 (isolation adj2 patient\$).tw
- 9 “patient placement”.tw
- 10 (placement adj2 patient\$).tw
- 11 patients’ rooms/
- 12 cubicle\$.tw
- 13 “single room\$”.tw
- 14 “private room\$”.tw
- 15 “side room\$”.tw
- 16 (spac\$ adj2 bed).tw
- 17 (or/1-10) and (or/11-16)

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

Total results from literature search:	242
Limitations: English language only Human only Time period: 1999-current (2010)	
Total results after limits:	163
Total after duplicates removed:	143
Total after relevance exclusion/inclusion criteria:	7
Full text obtained:	1
Supplementary search results:	7
<hr/>	
Included after sift of full text articles for relevance:	1
Relevant policy, guidance or grey literature:	7
<b>Total:</b>	<b>8</b>



### 3. Hand Hygiene

#### 3.1. Indications for hand hygiene

##### Searches undertaken

- 1 Handwashing/
- 2 Hand/
- 3 exp Hygiene/
- 4 hand hygiene.mp.
- 5 hand cleansing.mp.
- 6 hand decontamination.mp.
- 7 hand sanitizing.mp.
- 8 (or/1-7)
- 9 exp Infection Control/
- 10 exp Cross Infection/
- 11 exp Disease Transmission, Infectious/
- 12 exp Infectious Disease Transmission, Patient-to-Professional/or exp Infectious Disease Transmission, Professional-to-Patient/
- 13 exp Universal Precautions/
- 14 (or/9-13)
- 15 exp World Health Organization/
- 16 5 moment\$.mp.
- 17 5 moments for hand hygiene.mp.
- 18 contact.mp.
- 19 exp Patients/
- 20 (or/15-19)
- 21 (or/1-7) and (or/9-13) and (or/15-19)

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 1541

Limitations: English language only  
Human only  
Time period: 1999-current (2010)

Total results after limits: 916

Total after duplicates removed: 906

Total after relevance exclusion/inclusion criteria: 40

Full text obtained: 9

Supplementary search results: 12

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Included after sift of full text articles for relevance: 24

Relevant policy, guidance or grey literature: 2

**Total: 26**

## 3.2. Hand hygiene products

### Searches undertaken

- 1 handwashing/
- 2 hand/
- 3 hygiene/
- 4 ((hand adj1 (hygiene or washing or clean\$ or decontamination or disinfection)) and (technique or method or practice or procedure or protocol or policy)).tw.
- 5 1 or 4 or (2 and 3)
- 6 soaps/
- 7 detergents/
- 8 anti-infective agents, local/
- 9 soap.tw.
- 10 or/6-9
- 11 alcohols/
- 12 alcohol.tw.
- 13 hand/
- 14 hand.tw.
- 15 gels/
- 16 rub.tw.
- 17 saniti\*er.tw.
- 18 ABHR.tw.
- 19 ABHS.tw.
- 20 ((11 or 12) and (13 or 14) and (15 or 16 or 17)) or (18 or 19)
- 21 Infection control/
- 22 cross infection/
- 23 ("infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 24 ("standard infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 25 universal precautions/
- 26 SICP.tw.
- 27 ("routine infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 28 or/21-27
- 29 5 and (10 or 20) and 28

**Legend:** \$ = truncated term; **tw** = text word; **adj2** = terms should occur within two words of each other; **/** = subject heading

## Data collection and analysis

The following numbers of hits were returned for each database/resource:

Total results from literature search: 2035

Limitations: English language only  
Human only  
Time period: 1999-current (2010)

Total results after limits: 962

Total after duplicates removed: 682

Total after relevance exclusion/inclusion criteria: 41

Full text obtained: 41

Supplementary search results: 6

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Included after sift of full text articles for relevance: 32

Relevant policy, guidance or grey literature: 1

**Total: 33**

### 3.3. Hand washing in the hospital setting

#### Searches undertaken

- 1 handwashing/
- 2 hand/
- 3 hygiene/
- 4 ((hand adj1 (hygiene or washing or clean\$ or decontamination or disinfection)) and (technique or method or practice or procedure or protocol or policy)).tw.
- 5 soaps/
- 6 detergents/
- 7 anti-infective agents, local/
- 8 soap.tw.
- 9 Infection control/
- 10 cross infection/
- 11 ("infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 12 ("standard infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 13 universal precautions/
- 14 SICP.tw.
- 15 ("routine infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 16 (1 or 4 or (2 and 3)) and (or/5-8) and (or/9-15)
- 17 alcohols/
- 18 alcohol.tw.
- 19 hand/
- 20 hand.tw.
- 21 gels/
- 22 rub.tw.
- 23 saniti\*er.tw.
- 24 ABHR.tw.
- 25 ABHS.tw.
- 26 ((or/17-20) and (or/21-23)) or (or/24-25)
- 27 16 not 26

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 2381

Limitations: English language only  
Human only  
Time period: 1999-current (2010)

Total results after limits: 1366

Total after duplicates removed: 1364

Additional references were obtained from an HPS ICT report 'Health Protection Scotland SBAR - An evaluation of the available evidence to support the Hand Hygiene "bare below the elbows" policy 2010' assessing the evidence relating to the so called "bare below the elbows" dress code.

Total after relevance exclusion/inclusion criteria: 140

Full text obtained: 40

Supplementary search results: 9

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Included after sift of full text articles for relevance: 42

Relevant policy, guidance or grey literature: 10

**Total: 52**

### 3.4. Skin care

#### Searches undertaken

- 1 exp Handwashing/
- 2 exp Hand/
- 3 exp Hygiene/
- 4 hand hygiene.mp.
- 5 hand sanitizing.mp.
- 6 hand cleansing.mp.
- 7 hand decontamination.mp.
- 8 (or/1-7)
- 9 exp Skin/
- 10 skin.mp.
- 11 (or/9-10)
- 12 exp Eczema/
- 13 exp Dermatitis, Irritant/
- 14 sensitization.mp.
- 15 sensitisation.mp.
- 16 exp Occupational Diseases/
- 17 (or/12-16)
- 18 (or/1-7) and (or/9-10) and (or/12-16)

**Legend:** \$ = truncated term; **tw** = text word; **adj2** = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 1185

Limitations: English language only  
Human only  
Time period:1999-current (2010)

Total results after limits: 653

Total after duplicates removed: 642

Total after relevance exclusion/inclusion criteria: 38

Full text obtained: 25

Supplementary search results: 14

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Included after sift of full text articles for relevance: 39

Relevant policy, guidance or grey literature: 1

**Total: 40**



### 3.5. Surgical Scrub

#### Searches undertaken

- 1 (surg\$ and scrub\$).tw.
- 2 surgical wound infection/
- 3 exp Specialties, Surgical/
- 4 Operating Rooms/
- 5 or/1-4
- 6 Handwashing/
- 7 hand/
- 8 hygiene/
- 9 ((hand adj1 (hygiene or washing or clean\$ or decontamination or disinfection)) and (technique or method or practice or procedure or protocol or policy)).tw.
- 10 6 or (7 and 8) or 9
- 11 5 and 10

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 564

Limitations: English language only  
Human only  
Time period: 2000-current (Jan 2011)

Total results after limits: 282

Total after duplicates removed: 203

Total after relevance exclusion/inclusion criteria: 65

Full text obtained: 11

Supplementary search results: 1

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Included after sift of full text articles for relevance: 12

Relevant policy, guidance or grey literature: 4

**Total: 16**

### 3.6. Alcohol based hand rub (ABHR)

#### Search strategy

- 1 exp Handwashing/
- 2 exp Hand/
- 3 exp Hygiene/
- 4 hand hygiene.mp.
- 5 hand cleansing.mp.
- 6 hand sanitizing.mp.
- 7 hand decontamination.mp.
- 8 (or/1-7)
- 9 exp Infection Control/
- 10 exp Cross Infection/
- 11 exp Disease Transmission, Infectious/
- 12 (prevention and control).mp.
- 13 ("infection control" adj1 (precaution\$ or procedure\$ or practice\$)).tw.
- 14 (or/9-13)
- 15 exp Soaps/
- 16 liquid soap.mp.
- 17 soap solution.mp.
- 18 handwashing solution.mp.
- 19 hand washing solution.mp.
- 20 exp Chlorhexidine/
- 21 alcohol based hand rub.mp.
- 22 alcohol gel.mp.
- 23 alcohol rub.mp.
- 24 exp Alcohols/
- 25 exp Anti-Infective Agents, Local/
- 26 (or/15-25)
- 27 exp Methods/
- 28 procedure.mp.
- 29 efficacy.mp.
- 30 (or/27-29)
- 31 (8 and 14 and 26 and 30)

**Legend:**

\$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 549

Limitations: English language only  
Human only  
Time period: 1999-current (2010)

Total results after limits: 348

Total after duplicates removed: 327

Total after relevance exclusion/inclusion criteria: 61

Full text obtained: 34

Supplementary search results: 11

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Included after sift of full text articles for relevance: 45

Relevant policy, guidance or grey literature: 6

**Total: 51**

## 4. Respiratory hygiene and cough etiquette

### Searches undertaken

- 1 cough/
- 2 sneezing/
- 3 Hygiene/
- 4 "cough etiquette".tw.
- 5 "respiratory hygiene".tw.
- 6 respiratory tract infections/
- 7 infection control/
- 8 cross infection/
- 9 ("infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 10 ("standard infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 11 universal precautions/
- 12 SICP.tw.
- 13 ("routine infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 14 (((or/1-2) and 3) or (or/4-6)) and (or/7-13)

**Legend:** \$ = truncated term; **tw** = text word; **adj2** = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 1822

Limitations: English language only;  
Human only  
Time period:1999-current (2010)

Total results after limits: 991

Total after duplicates removed: 980

Total after relevance exclusion/inclusion criteria: 54

Full text obtained: 19

Supplementary search results: 2

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Included after sift of full text articles for relevance: 16

Relevant policy, guidance or grey literature: 4

**Total: 20**

## 5. Personal Protective Equipment (PPE)

### 5.1. Gloves

#### Searches undertaken

- 1 Gloves, Protective/
- 2 Gloves, Surgical/
- 3 Glove\$.tw.
- 4 Infection Control/
- 5 Cross Infection/
- 6 ("infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 7 ("standard infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 8 universal precautions/
- 9 SICP.tw.
- 10 ("routine infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 11 (or/1-3) and (or/4-10)

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 3023

Limitations: English language only  
Human only  
Time period: 1999-current (2010)

Total results after limits: 1824

Total after duplicates removed: 1795

Total after relevance exclusion/inclusion criteria: 134

Full text obtained: 74

Supplementary search results: 4

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Included after sift of full text articles for relevance: 51

Relevant policy, guidance or grey literature: 8

**Total: 59**



## 5.2. Aprons and gowns

### Searches undertaken

- 1 (“apron\$” or “gown\$” or “overgown\$” or “over-gown\$” or “over gown\$” or “covergown\$” or “cover-gown\$” or “cover gown\$”).tw
- 2 infection control/
- 3 (“infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 4 (“standard infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 5 (“routine infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 6 SICP.tw
- 7 cross infection/
- 8 universal precautions/
- 9 1 and (or/2-8)

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 651

Limitations: English language only  
Human only  
Time period: 1999-current (2010)

Total results after limits: 367

Total after duplicates removed: 238

Total after relevance exclusion/inclusion criteria: 20

Full text obtained: 7

Supplementary search results: 6

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Included after sift of full text articles for relevance: 11

Relevant policy, guidance or grey literature: 7

**Total: 18**

### 5.3. Eyewear

#### Searches undertaken

- 1 eye protective devices/
- 2 eyewear.tw
- 3 goggles.tw
- 4 visor\$.tw
- 5 infection control/
- 6 ("infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 7 ("standard infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 8 ("routine infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 9 SICP.tw
- 10 cross infection/
- 11 universal precautions/
- 12 (or/1-4) and (or/5-11)

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

## Data collection and analysis

The following numbers of hits were returned for each database/resource:

Total results from literature search: 392

Limitations: English language only  
Human only  
Time period: 1999-current (2010)

Total results after limits: 267

Total after duplicates removed: 231

Total after relevance exclusion/inclusion criteria: 11

Full text obtained: 4

Supplementary search results: 13

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Included after sift of full text articles for relevance: 15

Relevant policy, guidance or grey literature: 7

**Total: 22**

## 5.4. Masks

### Searches undertaken

- 1 masks/
- 2 “surgical mask\*”.tw
- 3 infection control/
- 4 (“infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 5 (“standard infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 6 (“routine infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 7 SICP.tw
- 8 cross infection/
- 9 universal precautions/
- 10 (or/1-2) and (or/3-7)

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 1001

Limitations: English language only  
Human only  
Time period: 1999-current (2010)

Total results after limits: 654

Total after duplicates removed: 529

Total after relevance exclusion/inclusion criteria: 13

Full text obtained: 9

Supplementary search results: 15

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Included after sift of full text articles for relevance: 17

Relevant policy, guidance or grey literature: 7

**Total: 24**

## 5.5. Footwear

### Searches undertaken

- 1 shoes/
- 2 (“footwear” or “foot-wear” or “foot wear” or “protective-footwear” or “protective foot-wear” or “protective foot wear”).tw
- 3 (“overshoe\$” or “over-shoe\$” or “over shoe\$” or “shoe cover\$” or “shoecover\$” or “shoe-cover\$”).tw
- 4 (“boot\$” or “clog\$”).tw
- 5 infection control/
- 6 (“infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 7 (“standard infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 8 (“routine infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 9 SICP.tw
- 10 cross infection/
- 11 universal precautions/
- 12 (or/1-4) and (or/5-11)

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 569

Limitations: English language only  
Human only  
Time period: 1999-current (2010)

Total results after limits: 432

Total after duplicates removed: 413

Total after relevance exclusion/inclusion criteria: 4

Full text obtained: 4

Supplementary search results: 5

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Included after sift of full text articles for relevance: 9

Relevant policy, guidance or grey literature: 3

**Total: 12**



## 5.6. Headwear

### Searches undertaken

- 1 (“headwear” or “head wear” or “head-wear” or “headgear” or “head gear” or “head-gear” or “hats” or “caps” or “theatre hats” or “hoods”).tw
- 2 infection control/
- 3 (“infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 4 (“standard infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 5 (“routine infection control” adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw
- 6 SICP.tw
- 7 cross infection/
- 8 universal precautions/
- 9 1 and (or/2-8)

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

Total results from literature search:	350
Limitations: English language only Human only Time period: 1999-current (2010)	
Total results after limits:	272
Total after duplicates removed:	254
Total after relevance exclusion/inclusion criteria:	4
Full text obtained:	4
Supplementary search results:	6
<hr/>	
Included after sift of full text articles for relevance:	6
Relevant policy, guidance or grey literature:	3
<b>Total:</b>	<b>9</b>

## 6. Management of Care Equipment

### Searches undertaken

- 1 exp diagnostic equipment/ or durable medical equipment/ or exp "equipment and supplies, hospital"/
- 2 equipment.tw.
- 3 1 or 2
- 4 exp Equipment Contamination/
- 5 exp Disease Reservoirs/
- 6 Cross Infection/
- 7 4 or 5 or 6
- 8 Decontamination/
- 9 Sanitation/
- 10 Housekeeping, Hospital/
- 11 Infection Control/
- 12 clean\*.tw.
- 13 8 or 9 or 10 or 11 or 12
- 14 3 and 7 and 13
- 15 exp academic medical centers/ or exp hospital units/ or exp hospitals/
- 16 hospital\*.tw.
- 17 15 or 16
- 18 14 and 17

**Legend:** \$ = truncated term; tw = text word; adj1 = terms should occur within one word of each other; / = subject heading

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**Data collection and analysis**

Total results from literature search: 1428

Limitations: English language only  
Time period: 2000-current (Feb 2011)

Total results after limits: 907

Total after duplicates removed: 566

The 'human' limit that has been utilised in the other literature reviews in the HPS model policy series has been omitted as many studies did not involve human subjects. Titles and abstracts were reviewed for relevance. The nature of the evidence base and the focussed definition of non-invasive, reusable communal patient care equipment has been discussed and meant that the literature search identified material that was not considered relevant.

Full text obtained: 46

Supplementary search results: 11

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Included after sift of full text articles for relevance: 21

Relevant policy, guidance or grey literature: 13

**Total: 34**

## 7. Control of the environment

### Searches undertaken

- 1 exp Health Facility Environment/
- 2 "floors and floorcoverings".mp.
- 3 (furniture or furnishing\*).tw.
- 4 surface\*.tw.
- 5 (frequently adj touched adj surfaces).mp.
- 6 1 or 2 or 3 or 4 or 5
- 7 exp Housekeeping, Hospital/
- 8 exp Disinfectants/
- 9 Disinfection/
- 10 Infection Control/
- 11 Decontamination/
- 12 Detergents/
- 13 7 or 8 or 9 or 10 or 11 or 12
- 14 (steam adj clean\*).tw.
- 15 (spray adj clean\*).tw.
- 16 microfibre.tw.
- 17 cleaning.tw.
- 18 domestic service\*.tw.
- 19 (routine adj clean\*).tw.
- 20 (routine adj detergent\*).tw.
- 21 (routine adj disinfectant\*).tw.
- 22 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21
- 23 13 or 22
- 24 6 and 23
- 25 exp Hospitals/
- 26 22 and 25

#### Legend:

\$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

Total results from literature search:	172
Limitations: English language only Human only Time period: 2000-current (Feb 2011)	
Total results after limits:	83
Total after duplicates removed:	47
Full text obtained:	27
Supplementary search results:	4
<hr/>	
Included after sift of full text articles for relevance:	20
Relevant policy, guidance or grey literature:	14
<b>Total:</b>	<b>34</b>

## 8. Safe Management of Linen

### Searches undertaken

- 1 hypochlorous acid/
- 2 laundering/
- 3 disinfection/
- 4 disinfectants/
- 5 detergents/
- 6 decontamination/
- 7 (“handling of linen” or laund\$ or hypochlorite or “chlorine releasing agent\$”).tw
- 8 clothing/
- 9 fomites/
- 10 textiles/
- 11 “bedding and linens”
- 12 (garment\$ or attire\$ or clothes or uniform\$ or linen or fabric\$ or “surgical drapes” or “surgical scrubs”).tw
- 13 ((staff or nurs\$ or medic\$ or hospital or healthcare or health-care or HCW) adj2 uniform\$).tw
- 14 (or/1-7) and (or/8-13)

**Legend:** \$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

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**Data collection and analysis**

Total results from literature search:	1654
Limitations: English language only Human only Time period: 1999-current (2010)	
Total results after limits:	482
Total after duplicates removed:	415
Total after relevance exclusion/inclusion criteria:	34
Full text obtained:	10
Supplementary search results:	2
<hr/>	
Included after sift of full text articles for relevance:	9
Relevant policy, guidance or grey literature:	6
<b>Total:</b>	<b>15</b>



## 9. Management of Blood and other body fluid spillages

### Searches undertaken

- 1 ((blood or urine or f?eces) and spill\$.tw.
- 2 (body and fluid\$ and spill\$.tw.
- 3 Blood/
- 4 Urine/
- 5 Feces/
- 6 exp "fluids and secretions"/ or exp bodily secretions/ or exp body fluids/ or exp "exudates and transudates"/
- 7 or/3-6
- 8 spill\$.tw.
- 9 7 and 8
- 10 exp Infection Control/
- 11 Decontamination/
- 12 exp Disinfection/
- 13 Disinfect\$.tw.
- 14 exp Disinfectants/
- 15 exp Powders/
- 16 Housekeeping, Hospital/
- 17 Sodium Hypochlorite/
- 18 Sodium Hypochlorite.tw.
- 19 chlorine releasing agent\$.tw.
- 20 granules.tw.
- 21 clean\$.tw.
- 22 gel.tw.
- 23 or/10-22
- 24 1 or 2 or 9
- 25 23 and 24

**Legend:**\$ = truncated term; tw = text word; adj2 = terms should occur within two words of each other; / = subject heading

## Data collection and analysis

The following numbers of hits were returned for each database/resource:

Total results from literature search: 563

Limitations: English language only  
Time period: 2000-current (Jan 2011)

Total results after limits: 409

Total after duplicates removed: 375

Total after relevance exclusion/inclusion criteria: 7

Full text obtained: 7

Supplementary search results: 0

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Included after sift of full text articles for relevance: 4

Relevant policy, guidance or grey literature: 5

**Total: 9**

## 0. Safe Disposal of Waste

### Searches undertaken

- 1 medical waste/
- 2 hazardous waste/
- 3 "domestic waste".tw.
- 4 "special waste".tw.
- 5 "clinical waste".tw.
- 6 "health\$ waste".tw.
- 7 sharps.tw.
- 8 cross infection/
- 9 infection control/
- 10 ("infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 11 ("standard infection control" adj1 (precaution\$ or practice\$ or procedure\$ or protocol\$ or polic\$)).tw.
- 12 "universal precaution\$".tw.
- 13 SICP.tw.
- 14 safety/
- 15 risk factors/
- 16 risk management/
- 17 risk assessment/
- 18 occupational exposure/
- 19 waste management/
- 20 medical waste disposal/
- 21 housekeeping, hospital/
- 22 "segreg\$".tw.
- 23 sorting.tw.
- 24 (or/1-7) and ((or/8-13) or (or/14-18)) and (or/19-23)

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**Data collection and analysis**

Total results from literature search:	807
Limitations: English language only Human only Time period: 2000-current (Jan 2011)	
Total results after limits:	461
Total after duplicates removed:	455
Full text obtained:	46
Supplementary search results:	0
<hr/>	
Included after sift of full text articles for relevance:	15
Relevant policy, guidance or grey literature:	13
<b>Total:</b>	<b>28</b>

## 11. Occupational Exposure Management (including sharps)

### Searches undertaken

- 1 Needlestick Injuries
- 2 sharp\* and injur\*.tw.
- 3 1 or 2
- 4 equipment.hw.
- 5 device\*.hw.
- 6 Needles/
- 7 4 or 5 or 6
- 8 3 and 7

Additional searches were done combining search 3 with the SIGN search filters for reviews and randomised controlled trials on Medline, Embase and CINAHL. These were supplementary searches to ensure comprehensiveness and to ensure inclusion of any higher level evidence. It is noted that no higher evidence met the inclusion/exclusion criteria outlined for the discussion of safe systems.

**Legend:** \$ = truncated term; tw = text word; adj1 = terms should occur within one word of each other; / = subject heading

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**Data collection and analysis**

The following numbers of hits were returned for each database/resource:

Total results from literature search: 1094

Limitations: English language only  
Human only  
Time period: 1999-current (Jan 2011)

Total results after limits: 856

Total after duplicates removed: 728

Only papers covering the hospital setting were included and product-specific papers and surgery-specific papers were excluded. Additionally, it was considered that due to the on-going development of medical devices only papers from 2006 onwards would be scanned for relevance for the safety devices section of the review.

Full text obtained: 8

Supplementary search results: 0

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Included after sift of full text articles for relevance: 5

Relevant policy, guidance or grey literature: 16

**Total: 21**