HAI-SCRIBE (Healthcare Associated Infection System for Controlling Risk In the Built Environment)









## HAI-SCRIBE

(Healthcare Associated Infection – System for Controlling Risk In the Built Environment)

## **Implementation Strategy**



September 2007



#### National Services Scotland

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#### NATIONAL Services

## 1. Executive summary

#### Healthcare Associated Infection - System for Controlling Risk In The Built Environment

This document describes the main components of the HAI-SCRIBE system and identifies the steps required to ensure that the use of HAI-SCRIBE has been successfully implemented.

HAI-SCRIBE consists of four Development Stages, which are supported by a comprehensive range of questions designed to determine the actual and potential risk of patients developing an infection whilst using a healthcare facility.

The risk assessment method is effective in identifying actual and potential infection control hazards in the four development stages:

- proposed site for development;
- design and planning of the healthcare facility;
- refurbishment and building extensions to existing healthcare facilities;
- ongoing maintenance and repair of healthcare facilities.

It is recommended that this guidance be used as a working document when carrying out the different development stages of the risk assessment.

Contained within each of the development stage sections of this document, there is a risk assessment sheet and notes page. These are designed to give a historical, accountable record of the risk assessment process and the assessors involved for each of the development stages.

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## 2. Background

#### What is HAI?

Healthcare Associated Infection (HAI) is an infection that a patient has acquired during a visit, or stay, in a healthcare establishment.

The incidence and prevalence of HAI necessitates high standards of hygiene in existing hospitals and primary care settings and also in the design, planning, construction and ongoing maintenance of new and refurbished healthcare facilities.

#### What is HAI-SCRIBE?

HAI-SCRIBE is the acronym for 'Healthcare Associated Infection System for Controlling Risk in the Built Environment' and is aimed at all personnel who may be involved in providing newly built, refurbished or extended healthcare establishments.

It is intended for use in conjunction with Scottish Health Facilities Note (SHFN) 30: Infection Control in the Built Environment: Design and Planning.

#### Rationale

The rationale for using HAI-SCRIBE is to maintain a safe healthcare environment and to minimise the risk of HAI through assessment and planning, prior to and during, new build and renovation projects. It is also applicable when considering the ongoing maintenance of the healthcare facility.

#### Purpose <

The purpose of using HAI-SCRIBE is to engage the collaboration and expertise from a wide range of healthcare experts, ensuring that key personnel are involved in reducing risk.

### Principle

Demolition, construction or maintenance activities, in or near healthcare establishments, can pose significantly increased HAI risks to vulnerable individuals. In the main these risks can result in serious life-threatening airborne or water-borne infections such as Legionellosis, Cryptosporidiosis or Aspergillosis.

Patients using healthcare facilities are more likely to be immunocompromised and also more likely to receive intensive medical interventions, which in turn increases their vulnerability to opportunistic infections. Therefore every effort must be taken to acknowledge and ultimately reduce these risks.

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## 3. HAI-SCRIBE - What does it mean?

HAI-SCRIBE aims to provide information on the prevention and control of infection, and on the prevention of cross-infection and cross contamination in healthcare facilities, to those responsible for the planning, design construction, refurbishment and maintenance of such facilities.

There are three (3) stages to HAI-SCRIBE:

- 1. Identify the hazard (this may be an actual or potential hazard).
- 2. Assess the risk.
- 3. Manage the risk (either eliminate the risk or reduce the risk to minimise its impact).

The three (3) stages are supported by a specific range of questions, which are applicable during four (4) Development Stages, which cover:

Development Stage 1 - The proposed site and location of the new facility.

Development Stage 2 - The design and planning of the building.

**Development Stage 3 -** The construction or refurbishment of the facility.

Development Stage 4 - The ongoing maintenance of the operational facility.

#### Who should implement HAI-SCRIBE?

Implementation of HAI-SCRIBE should be the responsibility of a specialist multidisciplinary professional team who have the necessary skills in relation to the healthcare facility being planned, designed, constructed, refurbished or maintained. The use of a multi-disciplinary team is necessary for the success of a new build or refurbishment healthcare project. Therefore the planning and implementation process should include an array of both healthcare professionals and contractor personnel. However, it is essential that all members of the project team have a background understanding of the principles of prevention and control of infection in the built healthcare environment.



## 4. Project Team - Membership

Membership of this team would be expected to include the following:

- Project Owner this will be a senior officer from the local NHS Board who has policy responsibility for the project;
- Project Sponsor who will represent and have the authority of the client;
- Project Manager may be the representative of the healthcare organisation which is undertaking redevelopment who requires to ensure that the objectives of the group are achieved;
- Infection Control Manager designated as having overall responsibility for the management of infection control within the health board area and reporting directly to the local NHS Board.
- Infection Control Specialists this may be an experienced Microbiologist and/or an Infection Control Nurse advisor;
- Healthcare Planner/Clinical Advisor with a clear understanding of health facility operations and the principles of health facility design;
- Architect/Design Team with knowledge and experience in designing healthcare facilities from project inception to completion;
- Building Services Engineer with experience in healthcare facility services installation;
- Estates/Facilities Manager with experience in healthcare facility management;
- Departmental Representatives from a Ward or Department to represent users and healthcare staff;
- Other relevant specialists who have appropriate experience and skills to contribute in the management of infection control in the provision of healthcare services, e.g. Risk Manager;
- Administrator/secretarial the services of a member of administration staff will be helpful in providing administration support to members of the team throughout the project.

# It is essential that a member of the Project Team is identified as the Project Manager to facilitate and co-ordinate the activities of team members.

It is also important to confirm the full commitment and availability of all members of the project team. A directory of telephone and e-mail contact details should be maintained.

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### **Project Team – Individual roles and responsibilities**

The Project Team should comply with HAI SCRIBE and agree preventative strategies to negate HAI risks as a result of the project. Infection control advice should be implemented with specific reference to 'SHFN 30: Infection Control in the Built Environment'.

Team members should meet regularly as a working group until completion of the project, to ensure that infection control risks have been negated.

#### **Project Owner**

Each project must have a Project Owner. A senior officer within the local NHS board who has policy responsibility for the project, should normally fulfil this role. The Project Owner should have the status and authority to provide the necessary leadership and be clearly accountable for delivering the project requirements in accordance with the approvals given from individual funders at particular stages.

#### Main responsibilities of the Project Owner:

- Business Case and Budget overseeing the preparation of the business case and budget;
- Structure and Communication establishing an appropriate structure and the necessary communication process;
- Terms of Reference agreeing all aspects of the scope and limits of the project;
- Reporting overseeing the progress and reporting procedures.

#### **Project Sponsor**

It is mandatory that the NHSScotland body nominate a Project Sponsor. This is normally an appropriate employee, who will represent and have the authority of the client in respect of the project. All instructions given by the Project Sponsor are deemed to have been given by the client. NHSScotland bodies should ensure that adequate support is provided for Project Sponsors, so that they can carry out their duties effectively.

#### Main responsibilities of the Project Sponsor:

- Commissioning professional services required for all aspects of the project work;
- Compliance with the relevant EU Directives;
- Health and Safety ensuring Health and Safety legislation is met and adhered to;
- Guidance ensuring compliance with all relevant guidance and procedures.



#### **Project Manager**

The Project Manager may be the representative of the healthcare organisation, which is undertaking redevelopment. The person should be of appropriate seniority to ensure that the objectives of the group are achieved e.g. the Infection Control Manager, and is either a NHS Board member or is directly accountable to a NHS Board member, i.e. having direct access to the Project Sponsor. (HDL(2001)10 and HDL(2005)8 describes the Infection Control Manager as the person who is designated as having overall responsibility for management processes and risk assessment relating to infection control.)

#### Main responsibilities of the Project Manager:

- Partnership working and communication with all members of the project • team;
- Managing Information between all members of the Project Team;
- Co-ordination of the activities of all personnel involved in the project;
- Authority to stop the work if there is a breach of any infection control preventive measures during construction or refurbishment;
- Record Keeping to ensure that all minutes of meetings held, decisions taken, actions agreed and planned, amendments made etc. are recorded and kept for future reference throughout the project;
- Risk identifying, managing and mitigating project risk;
- Planning preparing any follow-on action recommendations as required and identifying, tracking, managing and resolving all project issues;
- Strategies adopting technical and quality strategies.

#### Infection Control Specialists

#### Microbiologist and/or Infection Control Nurse

Infection control specialists should be involved at the beginning of each project stage being assessed, when key decisions are being made, to ensure that robust infection control practices are built into the project design. They should advise on whether there are increased HAI risks associated with each of the four development stages of the project.

If such key specialists are not involved from the outset, then potential changes to building design or equipment may arise at later stages resulting in costly adjustments, additions, replacements and work delays.

#### Main responsibilities of the Infection Control specialists are:

Partnership working and communication - with all members of the project • team, especially non-clinicians, in the understanding of prevention and infection control principles;



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- Education, advice and guidance on infection control issues such as operational and workflow arrangements, cleaning, storage, decontamination and preventive measures;
- Risk Assessment where vulnerable patients may be at risk during a refurbishment, it is important that an appropriate risk assessment is carried out in advance of any demolition works or alterations to a building;
- Inspection of the construction site regular visits will be required to ensure that contractors are following the building design and recommendations;
- Stopping the work advising the Project Manager to ensure adequate information is available on which to make a decision to stop the construction work, if a breach of preventive measures has occurred.

#### Healthcare Planner/Clinical Advisor

The Healthcare Planner or Clinical Advisor should have a full understanding of the proposed healthcare building project, and will advise, develop, review and monitor the clinical specification for the new or refurbished facility in conjunction with all clinical groups.

#### Main responsibilities of Healthcare Planner/Clinical advisor are:

- Partnership Working with the infection control specialists and other members of the project team;
- Advice and guidance on planning issues such as design development, accommodation schedules and equipment requirements;
- Clinical specification developing and agreeing requirements with relevant clinical personnel;
- Liaison with all relevant personnel to ensure compliance with operational requirements and current Scottish Health Planning Notes (SHPNs), Scottish Health Facilities Notes (SHFNs), Scottish Health Technical Notes (SHTNs) and Scottish Health Technical Memoranda (SHTMs);
- Fit for Purpose to advise on the new facility being functionally suitable for healthcare delivery and patient use.

#### Architect/Design Team

The Architect and Design Team should include the views of all relevant healthcare personnel into the final design of the new healthcare facility. In addition, the timescale involved to plan a new healthcare build or refurbish an existing establishment, can vary from a short period of a few months in the case of a small refurbishment, to as long as three or four years for a major capital project. Therefore it is important that infection control teams are notified of current capital bids, or contracts awarded, at the earliest possible opportunity.

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#### Main responsibilities of Architects are:

- Partnership Working with the infection control specialists and other members of the project team;
- Obtaining advice from all key healthcare professionals to incorporate views into the final project design;
- Meeting building objectives ensuring that the construction or refurbishment meets the healthcare facility's exact requirements;
- Compliance with professional standards and regulations in development and design;
- Understanding Infection Control an up-to-date knowledge of prevention and control principles.

#### **Building Services Engineer**

The Building Services Engineer should review the proposed programme of work and advise on equipment and materials in the design, installation and maintenance of energy-using elements within the facility.

#### Main responsibilities of the Building Services Engineer are:

- Partnership Working with the infection control specialists and other members of the project team;
- Compliance with design legislation, standards and health and safety regulations;
- Liaison with contractors in the organisation and assessment of work;
- Awareness of risks from the ongoing construction project, site environment and installation of building services;
- Safe methods of working ensuring that all contractors work safely whilst in the healthcare environment;
- Construction site requires to be kept organised, safe, clean, functional and clear of debris.

#### Estates / Facilities Manager

The Estates/Facilities Manager must keep the HAI-SCRIBE Project Team up-todate on new projects where the project work itself potentially increases the risk of HAI as determined by the Infection Control Risk Assessment specified in HAI-SCRIBE.



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#### Main responsibilities of the Estates / Facilities Manager:

- Partnership Working with the infection control specialists and other members of the project team;
- Communication with the infection control specialists to keep everyone up to date on all new projects where the work potentially increases the risk of HAI;
- Safe methods of working ensuring that all visiting contractors work safely in the existing healthcare environment.

#### **Departmental Representatives**

Key healthcare staff, currently working in relevant wards and/or departments, should be involved in the project from the earliest opportunity to ensure that the needs of patients and staff are taken into consideration when planning the new or refurbished facility.

#### Main responsibilities of the Ward/Departmental representatives:

- Partnership Working with the infection control specialists and other members of the project team;
- Patient safety awareness of the patient population and the potential health risks that may occur during a project;
- Special precautions require to be identified to mitigate risks for specific patient groups e.g. patients who are immunocompromised or who have underlying medical conditions;
- Fit for Purpose to advise on the new facility being functionally suitable for healthcare delivery and patient use.



## 5. Getting Started - preparation

All questions in each of the four Development Stages of HAI-SCRIBE should be answered. It is expected that many of the questions will have a YES response.

However, please do not enter into a 'box ticking' exercise when answering the questions at each stage. Each Yes or No answer should be backed up with additional written information relevant to the particular question, as some questions may require further consideration. Such information will be useful for reference at different stages of a new build project.

For example, if answering 'YES' to the following question at Development Stage 1:

"Are there industries or other sources in the neighbourhood which may present a risk of noise, smell, other pollution or infection e.g. animal by-products processing plant?"

Please describe fully what these 'industries' or 'other sources' are.

Similarly, if answering 'YES' to:

*"Will lack of space limit the proposed development and future expansion of the facility?"* 

Please describe fully what the 'limitations' are and what actions need to be taken to eliminate or minimise the risk posed by these limitations.

#### Getting Started - Some points for consideration

Have you:

- 1. Identified all members of the multi-disciplinary project team?
- 2. Confirmed that all members of the project team have background knowledge in prevention and infection control?
- 3. Identified a Project Manager?
- 4. Obtained full telephone and e-mail contact details to confirm full commitment and availability to participate in the project?

## DO NOT proceed to Step 1 until you can answer YES to the above four questions.

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### 6. Step 1: Development Stage 1 - Proposed site for development

The initial application of HAI-SCRIBE examines the intended site for the new build healthcare facility.

If any actual or potential hazards are identified during this initial stage, it is important that a full risk assessment is carried out to identify the nature of the risk. If risks are highlighted, remedial measures need to be identified in order that systems and processes can be designed into the project plans, so that the impact of the risk can either be eliminated, or its impact reduced.

The risks and the remedial actions should be clearly documented.

#### **Development Stage 1 – Some points for consideration. Have you:**

- Identified the proposed site for development?
- Confirmed the suitability of existing utility services?
- Carried out research on the existing local area?
- Identified potential pollution issues?
- Identified the prevailing wind direction?
- Highlighted any relevant site issues that need to be referred to specialists for an expert opinion?

Please ensure that you can provide robust documentary evidence when considering the above issues. This will ensure that you have facts and data to refer to at future stages of the project.

#### Notes relating to Development Stage 1

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## Please now complete the HAI-SCRIBE risk assessment on the next page to confirm the risk/s identified at Development Stage 1.

Development Stage 1 completed by					
Signature	Date				
Signature	Date				
Signature	Date				
Signature	Date				
Signature	Date				
Signature	Date				

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#### HAI-SCRIBE Risk Assessment

Name of establishment:	
HAI-SCRIBE Development Stage:	
Person carrying out risk assessment:	
Description of planned construction or refurbishment:	
Construction activity type:	

What are the hazards?	Who might be harmed?	Risk to patients?	What action is necessary?	Action by whom?	Action by when?	Date completed
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## 7. Step 2: Development Stage 2 - Design and Planning

The second stage in applying HAI-SCRIBE to the new build project or refurbishment involves the project team members carefully considering the proposed plans to construct the facility.

### Legislation and Regulations

Before any work commences, there is a need to be aware of all legislative issues, which apply to the project. Examples of relevant legislation may include:

- The Health and Safety at Work Act 1974;
- The Construction (Design and Management) Regulations 1994 (CDM);
- The Provision and Use of Work Equipment Regulations (PUWER) 1998;
- The Control of Substances Hazardous to Health (COSHH) Regulations 1999.

#### **Development Stage 2 – Some points for consideration. Have you:**

- Reviewed the proposed construction or refurbishment plans?
- Reviewed the proposed ventilation system requirements?
- Identified the patient population groups that will use the new facility?
- Checked that proposed single room occupancy is between 50% and 100% of the total planned bed numbers?
- Checked that bedspace is not less than 3.6m x 3.7m in each shared room?
- Identified the range of healthcare services to be provided?
- Carried out an infection control risk assessment of the proposed design and layout of the new facility?
- Designed in preventive measures, which will ensure that processes and procedures are in place to manage identified infection risks?
- Confirmed that no carpeted surfaces are planned for clinical areas such as patient bedrooms or treatment areas?
- Checked the locations of toilet, bath and shower accommodation in relation to convenience and accessibility for patients?
- Checked the accessibility of staff changing facilities?
- Reviewed the arrangements to dispose of clinical waste?
- Confirmed that clinical hand washing facilities comply with current regulations and guidance?



**Note:** All handwash sinks used for clinical purposes must include the following:

- a mixer tap with elbow/wrist action lever, or automatic sensor, to avoid contamination;
- single horizontal tap spout with open nozzle and flow straightener (swan neck taps should be avoided;
- concealed ducted services.
- no plug, chain or overflow hole;
- washing under running water. The tap outlet should not point directly into the sink outlet;
- liquid soap, paper towel and alcohol gel dispensers at each sink.

Please ensure that you can provide robust documentary evidence when considering the above issues. This will ensure that you have facts and data to refer to at future stages of the project.

On completion of Step 2, you may find that changes and amendments are required to be made to the plans. However, it is better to identify any potential risk issues early on, rather than encounter costly project delays during the ongoing work.

### Notes relating to Development Stage 2

## Please now complete the HAI-SCRIBE risk assessment on the next page to confirm the risk/s identified at Development Stage 2.

Development Stage 2 completed by	
Signature	Date

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#### HAI-SCRIBE Risk Assessment

What are the hazards?	Who might be harmed?	Risk to patients?	What action is necessary?	Action by whom?	Action by when?	Date completed



# 8. Step 3: Development Stage 3 - Construction and refurbishment

#### **Refurbishment of existing healthcare facilities**

The third stage in applying HAI-SCRIBE is when a refurbishment or building extension is planned for an existing healthcare facility.

The major difference in applying HAI-SCRIBE at Step 3 compared to Steps 1 and 2, is due to healthcare services continuing to be provided during the construction work period to a population which consists of patients, healthcare staff and visitors.

#### Risk assessment

It cannot be over emphasised at this stage that a full risk assessment requires to be carried out to identify the nature of any risks from the refurbishment, which may affect existing patients already in the premises, many of whom will be immunocompromised due to ongoing complex medical treatments.

#### **Development Stage 3 – Some points for consideration. Have you:**

- Identified the specific area of the healthcare premises intended for refurbishment?
- Confirmed the exact nature of the refurbishment work to be carried out?
- Identified the patient population remaining in the premises?
- Identified the degree of risk to all groups of patients?
- Discussed the possibility of patients being moved to another healthcare location for the duration of the work period?
- Identified dedicated entry and exit points for use by healthcare staff and visitors during the construction/refurbishment?

If any actual or potential hazards are identified during the refurbishment work, it is important that full risk assessments are carried out and documented to identify the nature of the risk.

If risks are highlighted, remedial measures need to be identified in order that systems and processes can be designed into the refurbishment plans, so that the impact of the risk can either be eliminated, or its impact reduced.

Please ensure that you can provide robust documentary evidence when considering the above issues. This will ensure that you have facts and data to refer to at future stages of the project.

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#### Notes relating to Development Stage 3

## Please now complete the HAI-SCRIBE risk assessment on the next page to confirm the risk/s identified at Development Stage 3.

Development Stage 3 completed by	
Signature	Date

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#### HAI-SCRIBE Risk Assessment

Name of establishment:	 	 
HAI-SCRIBE Development Stage:		
Person carrying out risk assessment:		 
Description of planned construction or refurbishment:		
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Construction activity type:		

What are the hazards?	Who might be harmed?	Risk to patients?	What action is necessary?	Action by whom?	Action by when?	Date completed



# 9. Step 4: Development Stage 4 - Ongoing maintenance

### Ongoing use of HAI-SCRIBE in an existing healthcare facility

The final stage in applying HAI-SCRIBE is when an existing healthcare facility is fully operational.

The three (3) stages to HAI-SCRIBE are by their nature ongoing and involve:

- 1. Identifying hazards (this may be an actual or potential hazard)
- 2. Assessing the risks
- 3. Managing the risk (either elimination of risk or reducing risks to minimise their impact)

The use of HAI-SCRIBE on an ongoing basis is recommended. The exact frequency of use should be determined by those staff responsible for risk management in the establishment.

#### **Development Stage 4 – Some points for consideration. Have you:**

- Identified any proposed developments within the local environment, which may affect the healthcare establishment?
- Considered the infection risk from the finished surfaces of all fixtures and fittings?
- Confirmed that physical space around patient beds complies with current guidance?
- Confirmed that clinical hand washing facilities comply with current regulations and guidance?
- Confirmed that decontamination facilities and arrangements meet current regulations and guidance?
- Confirmed that engineering services, such as water, heating and ventilation systems, provided to the establishment meet current regulations and guidance?
- Considered the storage arrangements in terms of suitability for day-to-day use and also for episodes of contamination?
- Confirmed that the laundry facilities have sufficient capacity to cope with the healthcare service being provided?

Please ensure that you can provide robust documentary evidence when considering the above issues.



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All applications of HAI-SCRIBE should be recorded for future reference, especially where objectives and targets may have been set to address HAI concerns.

#### Notes relating to Development Stage 4

Please now complete the HAI-SCRIBE risk assessment on the next page to confirm the risk/s identified at Development Stage 4.

Development Stage 4 completed by	
Signature	Date

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#### HAI-SCRIBE Risk Assessment

Name of establishment:	
HAI-SCRIBE Development Stage:	
Person carrying out risk assessment:	
Description of planned construction or refurbishment:	
Construction activity type:	

What are the hazards?	Who might be harmed?	Risk to patients?	What action is necessary?	Action by whom?	Action by when?	Date completed





## **Further information**

Further information on **HAI-SCRIBE** can be found at <u>http://www.hfs.scot.nhs.uk/guest/SHFN30/HAIScribe.pdf</u>

Information on SHFN 30 Version 3: 'Infection control in the built environment: Design and planning' can be found at: http://www.hfs.scot.nhs.uk/guest/SHFN30/SHFN30V3.pdf

NHS Scotland e-library: http://www.elib.scot.nhs.uk/portal/elib/pages/index.aspx

Further advice on HAI-SCRIBE Version 2 and SHFN 30 Version 3 can be obtained from Health Facilities Scotland.