Report on a National Acute Hospitals Hygiene Audit undertaken on behalf of the National Hospitals Office, Health Service Executive

Desford Consultancy Limited

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Appendices

Acknowledgements

Desford Consultancy would like to thank the Infection Control Nurses Association (ICNA) for its kind permission to reproduce and use parts of the Audit Tools for Monitoring Infection Control Standards 2004.

1. Executive summary

This report details the results of a national acute hospitals hygiene audit undertaken by Desford Consultancy Limited on behalf of the National Hospitals Office, Health Service Executive (NHO).

Prevention and control of healthcare associated infection (HAI) is a major challenge for the NHO. A number of concerns were expressed about the level of healthcare associated infection and the standards of hygiene in hospitals. In response to these concerns, the Director of the NHO set up the Infection Control and Cleaning Standards Working Group to provide guidance on infection control and cleaning services in publicly funded acute healthcare facilities. The Working Group comprises staff representative of those with responsibility for and interest in cleaning and infection control in hospitals throughout the country. The development of suitable standards and the facilitation of a national hygiene audit to ascertain current levels of hygiene was an important part of the Working Group's remit.

This is the first ever national acute hospitals hygiene audit undertaken in Ireland. The results will be used to establish baseline standards as part of a wider initiative to improve hygiene levels within the healthcare environment.

The terms of reference of the audit were to undertake a hygiene audit of sample clinical areas at fifty four acute hospital sites throughout the country during July and August 2005. The visits to each hospital were to be unannounced. The audit findings and recommendations were to be documented in a report.

The NHO decided that the Infection Control Nurses Association (ICNA) Audit Tool for Monitoring Infection Control Standards (2004) best reflected their needs even though it would not normally be used for a whole hospital audit. Furthermore, this audit tool acknowledges that a multidisciplinary approach to hygiene standards is essential. The elements of the audit tool are listed below;

- Environment
- Ward/departmental kitchens
- Handling and disposal of linen
- Waste management (hospital wide)
- Departmental waste handling and disposal
- Safe handling and disposal of sharps
- Management of patient equipment
- Hand hygiene

The audit represents a 'spot check' of standards observed on the day of the visit. The results do not represent standards throughout each hospital over a period of time. However, they do provide an indication of the elements that may need addressing on a hospital wide basis.

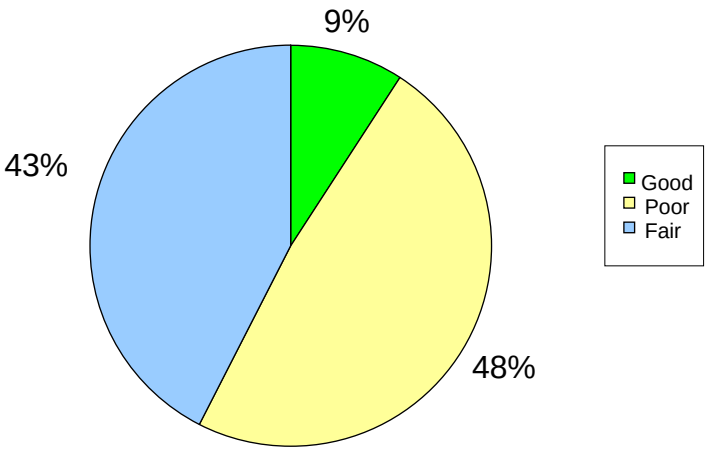
The number of areas audited in each hospital did not reflect a specific sample size. The maximum number of clinical areas audited per hospital was six. Hospital wide waste was audited at every site.

The scores have been categorised and colour coded as follows;

Green indicates **good -** a score of **85% or above**
Blue indicates **fair** - a score of **76% to 84%**
Yellow indicates **poor -** a score of **75% or below**

Using the overall hospital score, the figure below shows the percentage of hospitals in each category.

FIGURE 1 - HYGIENE RESULTS: ALL HOSPITALS- OVERALL SCORES
% OF HOSPITALS BY CATEGORY



The figure above illustrates that there is significant improvement required in the majority of hospitals. The main areas of concern can be summarised as follows;

- Policies and Procedures – there are very few national policies in place. The key areas where policies and procedures require developing are colour coding, linen, waste, uniforms, ward kitchens, decontamination and service level agreements.

- Hospital accommodation – the levels of cleanliness varied between hospitals. In many cases, it was the attention to detail that was of concern. In some hospitals space was at a premium and many wards and departments did not have adequate storage facilities. Many of the hospitals did not have hand washing facilities that complied with current requirements.

- Maintenance of equipment and building fabric - a number of hospitals require the fabric of the building to be improved. Minor and major capital investment may be required to upgrade facilities to ensure that they meet hygiene requirements. Similarly, it may be necessary to upgrade some of the general use items e.g. waste bins, chairs and tables.

- Waste management - in many hospitals there was a lack of responsibility and accountability for waste management both at ward/department level and hospital wide. There was no consistency in the use of colour coding of waste bags.

- Equipment and cleaning materials - a variety of cleaning equipment and materials were in use across the country. In many hospitals, cleaning equipment was out dated or inappropriate for the area. There was little evidence available to confirm that chemicals were being diluted correctly. There were no national specifications for equipment and materials.

- Technical support - It was evident in some hospitals that the amount of technical support available in areas such as infection control, waste management, health and safety and cleaning services was limited. In the larger hospitals, technical advice and support was generally available in all areas whilst the smaller sites did not have this and some expertise was shared within a group of hospitals.

- Training - From the evidence provided, the level and effectiveness of in-house training varied across the country. The results of the audit identified a number of areas where training may be required.

A comprehensive analysis of results by hospital and element is detailed in the report.

It is clear from the audit that historically there has not been a cohesive national approach to the management and improvement of hygiene standards. Each hospital has developed its own approach to hygiene and this is reflected in the different policies and procedures in place. Information and best practice has not been shared between hospitals. The establishment of the Infection Control and Cleaning Standards Working Group represents an important step forward in developing a national approach to improving hygiene standards.

The key recommendations arising from the audit are:

- A multi disciplinary approach is required at national and local level if hygiene standards are to be improved.
- National policies and procedures need to be developed and then implemented at local level
- Training of staff is essential and a national training strategy that supports the national policies, procedures and standards needs to be developed.
- The amount of technical support available within hospitals should be reviewed to ensure that timely and up to date advice is readily available
- A number of multi-disciplinary technical working groups should be convened to develop specific standards at a national level
- Hygiene standards should form part of the national performance monitoring framework used by the NHO. They should comprise clearly defined objectives with measurable outcomes.
- A multi-disciplinary audit tool reflecting agreed national policies, procedures and standards should be developed and used in all hospitals.

- Whilst hospital General Managers/Chief Executives have ultimate accountability for hygiene standards, it is recommended that a senior manager at hospital management team level takes personal responsibility for the implementation and monitoring of the national policies, procedures and standards.
- Hospital multi-disciplinary working groups should be convened and they should have responsibility for the ongoing development, implementation and review of local hygiene standards. These groups need to develop a hygiene strategy and action plan including short, medium and long term goals that address the issues arising out of local and national audits
- Hospitals should review the skill base of non- clinical staff involved in the delivery of hygiene standards and undertake a gap analysis against the national training strategy requirements. Appropriate training programmes should be developed reflecting the needs at a local level.
- Hospital multi-disciplinary working groups should be required to validate proposals and sign off plans in relation to minor and major building schemes. It will be important to ensure that designs, finishes and facilities have a high level of ‘’cleanability’’.

The results of the hygiene audit show that there is a need to improve standards in almost all hospitals. It will be important to build on the work already started at both national and local level and ensure the momentum is maintained. The results provide a baseline which can be used to measure and monitor improvements in hygiene standards.

2. Introduction

2.1. This report details the results of a national acute hospitals hygiene audit undertaken by Desford Consultancy Limited on behalf of the National Hospitals Office, Health Service Executive (NHO).

2.2. Within the European Community and elsewhere, hygiene standards are recognised as being an essential component in the provision of quality healthcare. This is the first ever national acute hospitals hygiene audit undertaken in Ireland. The results will be used to establish baseline standards as part of a wider initiative to improve hygiene levels within the healthcare environment. The audit covers a number of elements, detailed later in this report, covering many aspects of hygiene as well as environmental cleanliness.

2.3. Elsewhere, other countries are undertaking similar projects to improve hygiene standards. For example, in England, the Healthcare Commission has recently undertaken a series of unannounced hospital cleanliness audits. These have been undertaken on a sample basis and the results are due to be published in autumn 2005.

2.4. Prevention and control of healthcare associated infection (HAI) is a major challenge for the Health Service Executive (HSE). Hospital and clinical managers must ensure that they have effective systems in place to minimize the risks of infection to patients, staff and visitors.

2.5. Hygiene standards rely on a multi disciplinary approach being adopted within each hospital. The cleaning service provided, whether in-house or contracted out, is one of the crucial components of a hospital hygiene system. A clean hospital can make a difference to how patients feel about how they have been treated. A clean environment is also key to reducing healthcare associated infections and is important for efficient and effective healthcare. Similarly, the practices adopted by clinical staff, the maintenance of the estate and waste management all impact significantly on hygiene standards

2.6. Following concern about healthcare associated infection and standards of hygiene in hospitals, Mr. Pat McLoughlin, Director of the NHO, set up the Infection Control and Cleaning Standards Working Group to provide guidance on infection control and cleaning services in publicly funded acute care facilities. The Working Group comprises staff representative of those with responsibility for and interest in cleaning and infection control in hospitals throughout the country. The development of suitable standards and the facilitation of a national hygiene audit to ascertain current levels of hygiene was an important part of the Working Group’s remit.

3. Terms of Reference

3.1. The terms of reference, as defined by the Health Service Executive, through the National Hospitals Office, were to undertake a hygiene audit of sample clinical areas in acute hospitals throughout the country during July and August 2005. The visits to each hospital were to be unannounced. The audit findings and recommendations were to be documented in a report, the first draft of which was to be completed by the 30th September 2005.

3.2. The specific outcomes required were as follows:

- To establish current levels of hygiene in selected clinical areas
- To advise on the existence of standards
- To make recommendations on the future development of hygiene standards

3.3. The National Hospitals Office identified the sample clinical areas as:

- Accident and Emergency Department
- Surgical Ward
- Medical Ward
- Intensive Care Unit
- Outpatients Department
- Specialist area (e.g. Orthopaedics, Paediatrics, Maternity, Gynaecology)

3.4. Furthermore, the elements to be audited were defined as:

- Environment
- Ward/departmental kitchens
- Handling and disposal of linen
- Waste management (hospital wide)
- Departmental waste handling and disposal
- Safe handling and disposal of sharps
- Management of patient equipment
- Hand hygiene

4. Scope of the Audit

4.1. The NHO provided a schedule of hospitals/sites to be visited and the areas to be audited. This is shown in Appendix 1. In total there were 54 hospital sites identified in the schedule. The number of areas audited per hospital ranges between 2 and 6 (as per Appendix 1). The size of the sample in each hospital was based on the different clinical areas present and not on a percentage of the total number of areas within each site. In addition the management of waste at a hospital level has been audited on all sites. Each hospital has been allocated a number and this is used throughout this report. Appendix 2 lists the hospitals, their respective number and overall audit score.

5. The Audit Tool

5.1. The NHO reviewed a number of tools and considered the appropriateness, strengths and weaknesses of each. They concluded that the Infection Control Nurses Association (ICNA) Audit Tool for Monitoring Infection Control Standards (2004) best reflected their needs even though it would not normally be used for a whole hospital audit. Furthermore, it is understand that Infection Control Nurses and other staff with a responsibility for hygiene and infection control in Ireland are familiar with and use this audit tool.

5.2. The Infection Control and Cleaning Standards Working Group decided to exclude two elements and a number of questions from the tool as they were deemed to be outside of the remit of the hygiene audit. Agreement to use the tool in its modified form was given by the ICNA.

5.3. The elements excluded are detailed below:

- The Management of Patient Equipment in Specialist Areas (section 4.8 of the audit tool). This section covers specialist areas such as physiotherapy, occupational therapy and dermatology departments that were not included in the scope of the audit.

- Clinical Practice (section 4.10 of the audit tool) The ICNA advise that, ‘’the clinical practice audit should be completed over a period of time to allow for the observation of as many practice elements as possible. The assistance of link personnel and ward staff may be required to achieve this.’’ Due to the timescale of the audit this would not be achievable and was therefore excluded.

5.4. Six sections from the Management of Patient Equipment (general) element (section 4.7 questions 16 to 39) were excluded as they were also deemed to be outside the remit of the audit.

5.5. Similarly, eight other questions were deemed not to be applicable within the Irish healthcare environment as either a national standard did not exist or time constraints would not allow for the observations of procedures. The questions deemed to be not applicable were:

- 4.2 Ward/department kitchens. Question 15- There is a thermometer in the fridge and freezer
- 4.4 Waste Management. Question 20- Biological agents are made safe by autoclaving before leaving the laboratory for final disposal
- 4.4 Waste Management. Question 32- Supplies of mattress bags are available and are used for contaminated mattresses ready for disposal
- 4.5 Departmental waste handling and disposal. Question 12- All prescription only medicines must be disposed of as hazardous/special waste and the bin labeled accordingly
- 4.6 Safe handling and disposal of sharps. Question 5- All sharps’ bins are labeled and signed according to hospital policy
- 4.9 Hand Hygiene. Question 7- Antibacterial solutions are used for invasive procedures and surgical scrubs
- 4.9 Hand Hygiene. Question 22- Patients are offered hand hygiene facilities after using the toilet/commode/bedpan e.g. hand wipe
- 4.9 Hand hygiene. Question 23- Patients are offered hand hygiene facilities prior to meals

5.6. Apart from these exclusions, the audit tool has remained as devised by the Infection Control Nurses Association. A blank copy of the audit questionnaire used is shown in Appendix 3.

Elements of the audit tool

5.7. The audit tool comprises eight elements. Each is designed to achieve a particular standard and they cover a number of aspects. The standard and areas covered in each element are shown below.

5.7.1. Environment

Standard: The environment will be maintained appropriately to reduce the risk of cross infection.

- Adequate facilities for hand hygiene are available i.e. one wash basin per 6 beds or enclosed area
- Facilities available including clean and dirty utility, toilets and bathrooms, domestic rooms and hand washing facilities
- Cleanliness of each of the areas in the ward or department
- The general state of repair of fixtures, fittings and equipment
- Cleanliness of fixtures, fittings and equipment
- Storage facilities available for cleaning equipment and materials
- The availability of colour coded equipment/cloths

5.7.2. Ward/departmental kitchens

Standard: Kitchens will be maintained to reduce the risk of cross infection in accordance with legislation.

- Cleanliness of the area
- Cleaning materials
- The general state of repair of fixtures, fittings and equipment
- The cleanliness of fixtures, fittings and equipment
- Temperature recording of refrigerator/freezer
- Correct storage of food
- Dish washing facilities
- Availability of hand washing facilities
- Evidence of planned, preventative maintenance of equipment
- The availability of suitable, labelled and clean waste bins

5.7.3. Handling and disposal of linen

Standard: Linen is managed and handled appropriately to prevent cross infection.

- Adequate storage facilities
- Cleanliness of the area
- Segregation and adherence to colour coding policy
- Safe handling of linen, use of protective clothing, safe handling of linen bags
- Safe storage of clean and dirty linen
- Use of local laundry facilities, evidence of planned, preventative maintenance (PPM) of equipment

5.7.4. Waste management (hospital wide)

Standard: Waste is disposed of safely without the risk of contamination or injury and in accordance with legislation.

- Waste contractors have appropriate licenses
- There is an adequately trained and designated Waste Officer who has received training in the last 2 years
- All documentation is available and kept for one year e.g. transfer notes and completed consignment notes.
- A secure, clean, covered and dedicated compound is available with adequate segregation facilities
- Each category of waste is stored appropriately
- The waste bins are secure, clean and appropriate
- An audit trail is available to physically trace waste to final disposal
- Waste is segregated for transportation within the hospital

5.7.5. Departmental waste handling and disposal

Standard: Waste is disposed of safely without the risk of contamination or injury.

- Each category of waste is stored appropriately
- Staff knowledge of segregation procedures
- Staff are appropriately trained
- Waste handling
- Waste is stored securely
- Waste bins are clean and appropriate
- Waste bags are not tied onto trolleys/containers

5.7.6. Safe handling and disposal of sharps

Standard: Sharps will be handled safely to prevent the risk of needle stick injury

- Sharps' bins comply to national standards
- Sharps' bins are used in accordance with hospital policy
- Safe practice
- Promotion of a sharps policy
- Policy awareness amongst staff
- Sharps' bins are stored securely

5.7.7. Management of patient equipment

Standard: There is a system in place that ensures as far as reasonably practicable that all reusable equipment is properly decontaminated prior to use and that the risks associated with decontamination facilities and processes are adequately managed. All decontamination must be undertaken in accordance with local policy and manufacturers' instructions.

- A decontamination policy is available at ward/departmental level
- Knowledge of decontamination policy
- Appropriate storage of surgical instruments
- Cleanliness of patient equipment e.g. IV stands, pillows, wheelchairs
- The responsibility for cleaning equipment is clearly defined

5.7.8. Hand hygiene

Standard: Hands will be decontaminated correctly and in a timely manner using a cleansing agent, at the facilities available, to reduce the risk of cross infection.

- Adequate facilities for hand washing are available i.e. One wash basin per six beds or enclosed area
- Facilities are appropriate e.g. taps are automatic or elbow operated in clinical areas
- Availability and cleanliness of hand washing materials/dispensers
- Availability of alcohol rub
- Promotional materials are clearly displayed
- Staff training has been undertaken

The scoring system

5.8. The ICNA tool requires a score of 85% or more to achieve the required level of compliance that demonstrates the importance placed on controlling infection within healthcare environments.

5.9. The scores have been categorised and colour coded as follows;

Green indicates **good -** a score of **85% or above**
Blue indicates **fair** - a score of **76% to 84%**
Yellow indicates **poor -** a score of **75% or below**

5.10. The Infection Control Nurses Association audit tool calculates scores for each element of the audit. The score, expressed as a percentage, is calculated by dividing the number of "yes" answers by the total of ''yes'' and ''no'' answers. "Not applicable" answers are excluded from the calculation of the percentage score.

For example;

If an element comprises 20 questions, 12 answers are ''yes'', 4 answers are ''no'' and 4 not applicable (N/A) the score is calculated as follows;

12(yes answers) divided by 16 (the total of yes and no answers) multiplied by 100

The score therefore in this example would be 75%

5.11. The methodology in the audit tool to calculate the average percentage score where more than one element has been audited is to add up the scores for each element and divide by the number of areas audited.

For example:

Environment	75%
Ward/departmental kitchens	78%
Handling and disposal of linen	90%
Departmental waste handling and disposal	65%
Safe handling and disposal of sharps	79%
Management of patient equipment	84%
Hand hygiene	89%
Total	560

The average score for this area is 560 divided by 7 equals 80%

5.12. This methodology has been used to calculate the hospital average for each element and has also been used to calculate the overall hospital score.

6. Methodology

Preparation

6.1. Preparation for the project commenced immediately following the award of the contract. Guidance notes were produced by Desford Consultancy Limited and circulated to all auditors. Each person involved was an experienced auditor with an in depth knowledge of hygiene related issues Each auditor was personally briefed and inducted by the Project Director to ensure the audits were carried out objectively, consistently and in the required format. The project plan was then devised and teams were allocated specific hospitals to visit during each week.

6.2. Prior to the start of the visits, each hospital was notified in writing by the NHO of the policies, procedures and documentation required on the day of the visit e.g. information relating to waste management, colour coding policy. This was required to be available from the 4th July 2005 onwards. Similarly, each hospital was required to provide contact details of the key personnel at each hospital who would be involved in the visit.

Conducting the Audit

6.3. The audits commenced on the 4th July 2005 and were undertaken by teams of auditors who visited all the 54 hospital sites involved in the survey. All audits were unannounced and one hospital had a further unannounced visit. This was to preserve the integrity of the process as there was a suggestion that the hospital may have known the date of the visit. Each team comprised two auditors and the visits were undertaken throughout July and most of August 2005. The Project Director undertook audits every week and was in daily contact with each team and the NHO Project Leader.

6.4. Upon arrival at each hospital the audit team contacted the nominated person and then chose which areas they wished to visit e.g. a surgical ward, a medical ward etc. On entering a ward/department the auditors introduced themselves to the person in charge and confirmed that it was convenient to carry out the audit. In one hospital, an area was excluded from the survey due to clinical issues on the day of the visit. The audits were carried out without reference to cleaning service specifications. The audit comprised a physical inspection based on the elements and standards in the audit tool.

6.5. The standards and processes observed were classed as either 'Yes' they conform, 'No' they do not conform or 'Not Applicable'. The latter category was used to indicate that a question was either not applicable to the area e.g. pressure relieving mattresses in OPD or if the standard or process was not observed at the time of the visit e.g. staff were not available to answer questions.

6.6. The information from the audit was entered into specially devised computer software, verified and then the scores were calculated for each hospital.

7. Limitations

7.1. The audit represents a 'spot check' of standards observed on the day of the visit. The results do not represent standards throughout each hospital over a period of time. However, they do provide an indication of the elements that may need addressing on a hospital wide basis. The timescales involved did not allow the opportunity to revisit areas if a particular element was not observed or staff was unavailable at the time of the visit. Consequently, a 'Not Applicable' entry may appear against a particular question in some areas even though the standard or question was applicable to the area.

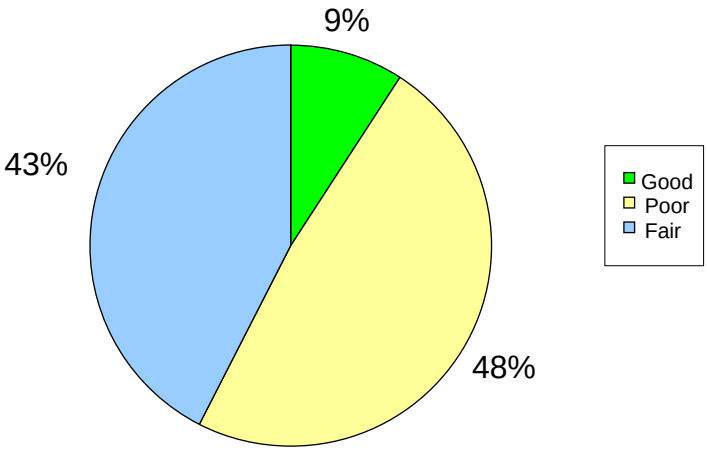
7.2. The number of areas audited in each hospital did not reflect a specific sample size. The maximum number of clinical areas audited was six plus hospital wide waste, irrespective of the hospital size. Consequently within the large and medium sized hospitals the number of areas audited, as a percentage of the total hospital, is relatively low but in the smaller hospitals the percentage may be higher.

8. Overall hospital scores

8.1. Overall scores for each hospital have been calculated and these are shown in bar chart form in Appendix 4. The overall average score per hospital has been calculated using the methodology specified in the Infection Control Nurses Association audit tool.

8.2. The pie chart below represents the overall hospital scores categorised as good, fair and poor.

FIGURE 1 - HYGIENE RESULTS: ALL HOSPITALS- OVERALL SCORES
% OF HOSPITALS BY CATEGORY



8.3. The overall scores have also been classified into small (100 beds or less), medium (101 to 300) and large (more than 301 beds). These results are shown in Appendix 5.

8.4. The pie charts below represent the hospital scores classified as small, medium and large and categorised as good, fair and poor.

FIGURE 2 - HYGIENE RESULTS: LARGE HOSPITALS MORE THAN 300 BEDS
OVERALL SCORES
% OF HOSPITALS BY CATEGORY

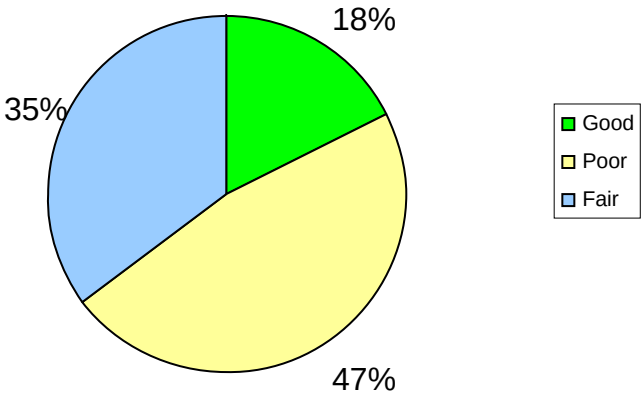


FIGURE 3 - HYGIENE RESULTS: MEDIUM HOSPITALS BETWEEN 101 AND 300 BEDS
OVERALL SCORES
% OF HOSPITALS BY CATEGORY

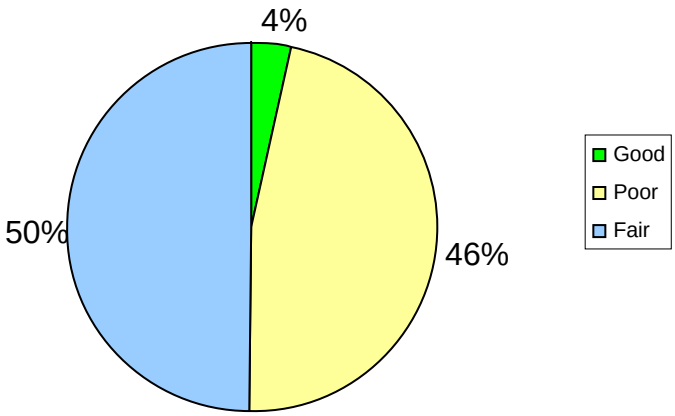
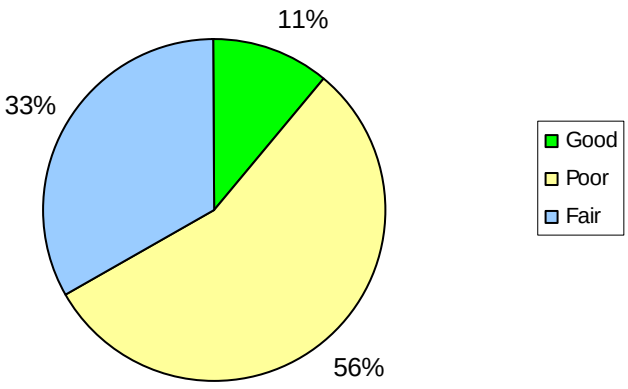


FIGURE 4 - HYGIENE RESULTS: SMALL HOSPITALS 100 BEDS OR LESS
OVERALL SCORES
% OF HOSPITALS BY CATEGORY



8.5. The scores achieved by each hospital for each element and each clinical area audited are shown in Appendices 6, 7 and 8.

9. Main findings

9.1. This section of the report details the main findings from each of the elements of the audit and also provides a general overview. The findings are based on the main themes arising from the audit of the fifty four hospital sites. The score achieved by each hospital for each element and clinical area audited is shown in Appendix 6. The overall scores for each hospital for each element are shown as bar charts in Appendix 7. The overall scores for each hospital for each type of clinical area are shown as bar charts in Appendix 8.

General findings

9.2. The general findings are:

- It was evident from the audits that there is a significant amount of work being undertaken within hospitals to improve hygiene standards but the results as shown in Figure 1 above highlight the breadth of work still to be undertaken.
- The pie charts shown in Figures 2, 3 and 4 above show that the overall results do not significantly vary between small, medium and large hospitals.
- There appears to be little sharing of information and best practice between hospitals and in some cases trials are replicated on several sites.
- There was a general lack of consistency in approach and methodology across a number of elements e.g. waste segregation, colour coding etc. at both a hospital and national level.

Environment

9.3. The overall scores for each hospital for this element are shown as a bar chart in Appendix 7. The scores range between 89% and 46%.

- In general there were adequate facilities for hand hygiene. However there were a number of older hospitals where there was a shortfall.
- Many wards and departments did not have dedicated or adequate storage facilities for cleaning materials and equipment. Some facilities were shared with another ward/ department, some consisted of a cupboard only and others were outside of the area. Personal protective clothing was available and appropriately used.
- The majority of areas visited had an identified area for the storage of clean and sterile equipment but this varied from shelves only to a dedicated room. It is evident from the audit that the storage areas were not large enough to store supplies and very often products were stored on the floor. The majority of these areas had been cleaned to the required standard.
- Most areas had a dedicated dirty utility although some shared the facility with another ward/department. Within dirty utilities, approximately half did not have separate hand washing facilities in the room; most had a separate sink for equipment decontamination and a sluice hopper. Where macerators and bed pan washers were installed they were generally clean and in working order.
- Most bathrooms and washrooms were appropriately used i.e. not used for the storage of equipment. The majority of wards were not using single use personal items e.g. shampoo sachets, although this is not currently a requirement in Ireland. The levels of cleanliness in bathrooms varied and in many areas there was a lack of attention to detail.

In most cases, materials to clean baths/showers/sinks after each patient's use were not readily available.

- The cleanliness of toilets and sinks was poor in many areas visited although toilet floors were generally clean. Most toilets had adequate hand washing facilities but in some areas, soap and paper towel dispensers were either not available or empty. Some areas had roller towels or hot air dryers in place of paper towels. The majority of toilets for female use did have a facility for sanitary waste disposal.
- Many wards/departments did not have colour coded cleaning equipment or cloths, or information on the colour coding system in use.
- In patient/clinical areas, the majority of lockers, chairs and tables were in a good state of repair and clean. However, in approximately half of the clinical areas visited, some chairs were not made of an impermeable fabric e.g. vinyl.
- The majority of floors were clean.
- The standard of cleanliness of high and low level surfaces including air vents and fans was varied.
- The cleanliness of work station equipment in clinical areas including telephones, computers, printers etc was poor in almost half of the areas audited.
- Curtains and blinds were generally clean and free from stains and in most areas staff stated that there was a pre-planned curtain changing programme in place although this was not documented.
- Of the bed frames audited, more than half showed a lack of attention to detail when cleaning as evidenced by dust and staining.
- The majority of patient audio equipment and call bells examined were clean.

Ward/departmental kitchens

9.4. The overall scores for each hospital for this element are shown as a bar chart in Appendix 7. The scores range between 93% and 33%.

- The kitchen floors were generally clean but there was a lack of attention to detail around edges and corners.
- The majority of fixtures, fittings, shelves, cupboards and drawers were clean and in a good state of repair.
- The majority of kitchens had a policy regarding visitor and patient access.
- There was no evidence of infestation in kitchens.
- Where there were open windows many did not have fly screens fitted.
- The majority of cleaning materials used were identifiable and stored separately.
- Many kitchens did not have all the facilities for hand washing available e.g. liquid soap, paper towels and a separate hand wash basin.
- Where observed almost all staff washed hands before serving patient meals and drinks.
- In the majority of refrigerators audited, patient and staff food was not labelled. The majority of food products were within their expiry date. However, most opened food was not stored in containers.
- A number of hospitals did not have planned preventative maintenance for kitchen equipment.
- In the majority of cases tea towels were used for drying equipment, crockery and surfaces instead of paper roll.
- The majority of waste bins were not labelled and/or were dirty.

- It is understood that the daily recording of ward/department refrigerators and freezers is undertaken by catering staff and records kept in the catering department. A requirement of the audit tool is that the records are available in the ward kitchen.
- Toasters, microwaves and milk coolers were clean in most kitchens.
- At the time of the audit, some kitchens did not have a temperature probe available for use with a microwave oven. It is understood that they may be brought from the main kitchen by catering staff at meal times.
- Stock levels of dry goods were very high in some hospitals due to the infrequent delivery schedules that caused problems with storage and stock rotation.

Handling and disposal of linen

9.5. The overall scores for each hospital for this element are shown as a bar chart in Appendix 7. The scores range between 100% and 67%.

- Almost all wards/departments had a clean designated area for the storage of clean linen.
- Almost all linen was free from stains.
- In most cases, linen was segregated in appropriate colour coded bags, which were less than 2/3 full and stored correctly prior to disposal.
- In most cases correct procedures were in use for the movement and handling of linen.
- There were five hospitals that had ward-based laundry facilities but there was no evidence that the machines were subject to a pre-planned maintenance programme.
- Where ward based washing machines/washer dryers were used, clear operational guidelines and procedures were not always readily available.

Waste management (hospital wide)

9.6. The overall scores for each hospital for this element are shown as a bar chart in Appendix 7. The scores range between 97% and 31%.

- At almost every hospital there was evidence available to show that the waste contractors were registered with licences.
- More than half of the hospitals visited did not have an appropriately designated waste officer who had undergone training within the last two years.
- At the time of the audit, many hospitals could not show evidence of all the required documentation relating to transfer and final disposal of waste. In some cases the information was kept off site at another hospital.
- More than half of all hospitals had a secure, clean, covered and dedicated compound available with adequate segregation facilities.
- UN (United Nations) approved rigid containers are used for the transportation of clinical waste at all hospitals and virtually all returned containers were clean although many containers were found to have broken locks. It is understood that the waste contractor is responsible for the maintenance of the bins whilst the hospitals are required to monitor their cleanliness and state of repair.
- The majority of sharps boxes were correctly sealed but they were not safely stored as they were in unlocked bins.
- In the majority of hospitals, special waste was stored separately to other waste.
- There was no evidence provided by hospitals to show that they had carried out an audit trail to physically trace waste from the hospital to the point of final disposal.

- In most hospitals there was a system for transporting waste through the hospital but the clinical waste was not always segregated from other waste.
- In most hospitals a record was kept of the coded tags issued to each ward/department.
- Many wards/departments did not have a clinical waste storage area away from the public. This was usually due to the limited amount of storage space available.

Departmental waste handling and disposal

9.7. The overall scores for each hospital for this element are shown as a bar chart in Appendix 7. The scores range between 93% and 43%.

- It is understand that a national waste management policy is not in place.
- The majority of areas displayed posters detailing the requirements for waste segregation.
- Approximately half of all areas visited had waste bins which were enclosed, foot operated, lidded and in good working order.
- Apart from bins in ward/department kitchens, the majority of waste bins were clean.
- The majority of internal storage facilities were unlocked and/or accessible to the public.
- Almost all staff were aware of waste segregation procedures and the majority had attended a training session.
- Most staff were using the correct waste bags although in many areas there was a lack of bins for the disposal of glass. In some hospitals blue waste bags were used for both clinical and domestic waste. This was not detailed in the hospital waste policy.

Safe handling and disposal of sharps

9.8. The overall scores for each hospital for this element are shown as a bar chart in Appendix 7. The scores range between 94% and 61%.

- All sharps' bins used complied with UN standards and almost all had been assembled correctly.
- Almost all staff questioned were aware of the procedure following an inoculation injury**.**
- Almost all wards/departments had a policy or poster available regarding the management of an inoculation injury.
- The temporary closure mechanism on sharps' bins was not generally used.
- Generally sharps' bins were not stored securely and/or away from public access when sealed and locked. This may be due to a lack of secure storage space at ward/department level.
- An empty sharps' bin was not always available on the cardiac arrest trolley but when available, it was usually safely secured.
- In the majority of areas clean sharps' trays with integral and compatible bins were available.
- At the time of the visit, in almost every area, needles and syringes were disposed of appropriately and at the point of use.

Management of patient equipment

9.9. The overall scores for each hospital for this element are shown as a bar chart in Appendix 7. The scores range between 96% and 52%.

- In virtually all wards/departments visited, the responsibility for cleaning patient equipment was understood by the member of staff in charge. They could also describe the cleaning procedure used. However, only a small number of hospitals had the responsibilities specified in writing.
- Although staff were aware of the need for equipment to be decontaminated prior to repair, many staff were unclear as to the documentation required.
- The majority of staff questioned could not describe the symbol used to indicate single use items.
- A decontamination policy was available in almost all wards and departments.
- Very few areas undertook local decontamination of instruments in clinical areas and most were stored correctly prior to collection for decontamination elsewhere.
- The majority of patient equipment e.g. IV stands, pillows, wheelchairs, was visibly clean.

Hand hygiene

9.10. The overall scores for each hospital for this element are shown as a bar chart in Appendix 7. The scores range between 90% and 50%.

- In general there were adequate facilities for hand hygiene. However there were a number of older hospitals were there was a shortfall.
- Only one hospital had visible thermostatic mixing valves fitted to hand wash basins in clinical areas.
- In the majority of clinical areas, taps were automatic or elbow operated. However most wash hand basins did not conform to HBN (Hospital Building Note) 95 i.e. they had overflows, plugs or the water jet flowed directly into the plug hole.
- The majority of areas had liquid, single use, cartridge soap dispensers available at wash hand basins although in some areas, bar soap and refillable soap dispensers were observed.
- In many areas, the cleanliness of hand wash basins, taps, splash backs and dispenser nozzles was not to the required standard.
- Alcohol rub was generally available at the point of care and was also portable for clinical procedures. However in most areas, it was not available at the point of entry and exit to wards/departments.
- Some staff involved in patient care were observed wearing jewellery.
- Posters promoting the importance of hand hygiene were clearly displayed in most areas.
- The majority of staff confirmed that they had received training in hand hygiene and training records were also validated. Where available, the training material used appeared thorough and many staff also commented that they had practical demonstrations at ward level on a regular basis.

10. Discussion

This section of the report reviews the findings using a number of topic headings and explores in more detail the underlying issues. The comments have been compiled using evidence from the audit findings.

10.1. **Policies and Procedures**

10.1.1. It was evident from interviews with staff that most were aware of the policies and procedures in place but some did not know where to find the documentation. Where available, the information was not always concise or user friendly.

10.1.2. The information below highlights the main areas where policies and procedures have an impact on hygiene standards:

10.1.2.1. Colour coding

- The aim of a colour coding system is to prevent cross contamination.
- A national colour coding system is not currently in place.
- The audit revealed a lack of consistency across the country with regard to the colours used for identifying equipment and cleaning cloths. Some hospitals have fully operational colour coding systems in place for cleaning equipment (mops, buckets etc.) personal protective equipment (gloves, aprons) and cleaning cloths. Other hospitals did not have a system in place.
- The evidence showed that in some instances, the policy found within hospital documentation differed from that being used at ward/department level. The policy was not always comprehensive and in some cases was confusing i.e. the use of yellow mop buckets with blue cloths for ward areas.
- In a few instances there were a number of different systems operating within the same hospital. For example, red cloths provided by the catering department for use in ward kitchens were also the colour used by other staff for cleaning sanitary areas. Furthermore, we were informed that if the stores department ran out of a particular coloured cloth, a different coloured cloth was sometimes sent which compromised the colour coding system.

10.1.2.2. Linen segregation

- A national policy for the segregation of linen is not in place.
- In a number of hospitals it was observed that the linen segregation policy was not fully implemented at ward level because the same coloured linen skip was utilised for both used and soiled/contaminated linen. Although soiled/contaminated linen was first segregated into alginate bags, these bags were sometimes mixed with used linen.
- There was a lack of consistency across hospitals with regard to the segregation procedures in place.

10.1.2.3. Uniform and work wear

- Whilst staff were observed wearing clean uniforms/work wear which met the hospital requirements, a number of staff involved in patient care were observed wearing watches, stoned rings and other wrist jewellery. Staff were also observed off site in uniforms and theatre clothing was worn outside of theatres which would suggest that a detailed uniform policy was either not in place or not being followed.

10.1.2.4. Ward/department based kitchens

- The responsibility for pantries generally comes under the remit of the catering department. However, as pantries are remote from the main kitchen, it is not always apparent at ward level which policies/procedures should be followed, and this leads to poor practice.
- A ward pantry policy would normally include a colour coding system, responsibilities and schedules for cleaning, temperature testing of refrigerators/freezers and action required for non conformance. In addition the policy would provide guidance on kitchen access, stock rotation and minimum/maximum stock levels, food labelling and the use of microwaves and other heating/cooking equipment.

10.1.2.5. Decontamination/cleaning and disinfection policy

- Very few hospitals used a decontamination certificate confirming that surgical equipment to be repaired/serviced had been correctly decontaminated. It is important that this practice is adopted to minimise cross infection.
- Many hospitals had policies detailing cleaning and disinfectant processes and an outline of products to be used for various tasks/equipment. However, it was not always clear by whom the information was meant to be used by e.g. clinical staff, household staff, catering, contractor's staff or porters. Cleaning products were generally identified by trade names as opposed to the chemical make-up e.g. neutral detergent that could be confusing should the product no longer be available or the requirements change.

10.1.2.6. Service level agreements

- It is important that staff at ward/department level have a good understanding of the cleaning services provided to ensure they meet the needs of the area. Cleaning specifications may not have been reviewed for some time particularly where services are provided in-house. Service level agreements need to be clearly defined and flexible in order to meet changing needs. Similarly, this applies to all other services provided to wards and departments e.g. waste collection schedules, curtain changing programmes, planned preventative maintenance etc.

10.2. **Hospital accommodation**

- In many hospitals, internal storage space was at a premium and very often linen and cleaning equipment rooms were not available. This led to the inappropriate storage of linen and domestic equipment/materials resulting in unsafe practice. Similarly there are issues around the storage of dirty linen and both clinical and domestic waste. Consequently, although hospitals may have policies in place, in some cases it was

physically impossible to comply with storage and segregation requirements. A few hospitals had resolved some of the issues by providing lockable bins on corridors or purpose built mobile linen units.

- There was a shortage of appropriate external space for waste compounds in many hospitals. A number had provided innovative solutions to the problem that complied with national requirements.
- Where storage space was available, it was often untidy and in some cases contained inappropriate items.
- The availability of wash hand basins in some hospitals, particularly older ones, did not meet with the required standard and may be difficult to resolve. This was reflected in a reduced audit score in a number of sections. Similarly, visible thermostatic mixing valves fitted to hand wash basins in clinical areas were absent in all but one hospital visited. In some cases valves may have been concealed behind fixtures and fittings.
- Due to the lack of space in a number of wards/department, shared facilities or rooms were put to multiple uses e.g. a public toilet was also used as a sluice.
- Conversely, in a number of other hospitals, where space was not an issue, the facilities at ward and department level were poorly utilised.

10.3. **Maintenance of equipment and building fabric**

- Although the quality of the building fabric was not part of the formal audit, it was evident from many of the visits to hospitals that care and attention had been paid to the internal and external painting, grounds maintenance and general building fabric. A lack of notices/ poster on walls and clutter free corridors and rooms provided the visitor with the perception of a well maintained environment. Unfortunately this was not the case in all hospitals.
- In a number of hospitals, some wards and departments were in desperate need of refurbishment; plasterwork was in a poor state of repair, paint was flaking on walls, skirting boards were badly damaged and there was evidence of damp penetration.
- Some fixtures and fittings observed were very old, badly damaged and unsuitable for the area e.g. untreated wood shelves in a pantry, fabric chairs in clinical areas.
- Clearly, poor maintenance and the timeliness of repairs impacts heavily upon the ability of staff to adequately clean areas and therefore maintain hygiene standards. An environment that is difficult to clean or keep clean may cost the hospital more to manage.
- There was inconsistency in the approach to planned preventative maintenance (PPM) for ward based dish-washers, ice machines etc. Some hospitals had invested fully in PPM programmes whilst others had made a conscious decision not to invest. A lack of PPM may cause operational problems and in some cases compromise hygiene and health and safety standards.
- Minor and major capital investment may be required to upgrade facilities to ensure that they meet hygiene requirements. Similarly, it may be necessary to upgrade some of the general use items e.g. waste bins, chairs and tables.

10.4. **Waste management**

- Few hospitals had an appropriately designated waste officer who had undergone training within the last two years. However, even in the hospitals where there was a designated waste officer, compliance levels were not always achieved.
- In many hospitals there was a lack of responsibility and accountability for waste management both at ward/department level and hospital wide.
- Whilst it is important to minimise and control the costs associated with waste disposal, it should not compromise good practice. For example many hospitals are manually double handling waste to optimise bin weights which compromises good practice.
- The procedures for validating the final disposal of clinical and household waste were varied and in some cases the documentation was not available at the time of the visit. This may compromise the ability of hospitals to ensure that waste is disposed of appropriately.
- There was no consistency in the use of colour coding of waste bags. In a number of instances, blue bags were being used for food, clinical and household waste and were then put into other coloured bags within the same hospital.

10.5. **Equipment and cleaning materials**

- The quality and quantity of materials and equipment can impact on the effectiveness and efficiency of cleaning.
- A variety of cleaning equipment and materials were in use across the country. There may be an opportunity to improve the buying power of hospitals by rationalising the products/equipment used.
- In many hospitals cleansing equipment was out dated (deck scrubbers and floor cloths for mopping) or inappropriate for the area (none vacuum aided burnishing machines in clinical areas).
- There was little evidence available to confirm or otherwise that chemicals were being diluted correctly. This can impact on the product effectiveness, cost and health and safety.

10.6. **Technical support**

- It was evident in some hospitals that the amount of technical support available in areas such as infection control, waste management, health and safety and cleaning services was limited. In the larger hospitals, technical advice and support was generally available in all areas whilst the smaller sites did not have this and some expertise was shared within a group of hospitals.
- It is important that hospitals have sufficient resources available in order to provide timely and up to date information on hygiene related issues. This is essential if hygiene standards are to be improved.

10.7. **Training**

- The effectiveness of the training was not formally measured. Where provided, the quality of the training material in most cases was very good. There was a lack of consistency with regard to the retention of training records.
- Ongoing training and education for all grades of clinical and support staff is imperative to ensure improvements in hygiene standards and safe working practices.
- The results of the audit identified a number of areas where training may be required. The specific areas were:

    - Hand hygiene
    - Basic cleaning techniques
    - Control of substances hazardous to health (COSHH)
    - The use of cleaning chemicals and dilution rates
    - Colour coding
    - Waste and linen segregation
    - Safe handling and disposal of sharps
    - Manual handling

11. Conclusions and Recommendations

11.1. National Level

- It is clear from the audit that historically there has not been a cohesive national approach to the management and improvement of hygiene standards e.g. no national colour coding or linen segregation policies. There is now a need to build on the work already underway at a national and local level in order to ensure that there is an agreed framework for the ongoing improvement of hygiene standards.
- It is recommended that a multi disciplinary approach be adopted and that there is a forum in place for the exchange of experiences and best practice.
- Hygiene standards should form part of the national performance monitoring framework used by the NHO. They should comprise clearly defined objectives with measurable outcomes.
- A number of issues need to be developed nationally and cascaded down to each hospital through the networks. In particular this would initially involve:

    - Agreeing a national colour coding policy for cleaning, waste, linen etc. This would provide a consistent approach particularly for transient staff and longer term reduce training costs.
    - Completing the development work on the National Cleaning Standards.
    - Developing a generic cleaning specification/service level agreement for use with in-house staff and/or contractors.
    - Reviewing and implementing the national guidelines for the management of waste.
    - Developing a generic ward kitchen policy incorporation policies, procedures and practices.

- Develop a multi-disciplinary audit tool reflecting agreed national policies, procedures and standards.
- Develop a national training strategy that supports the national policies, procedures and standards.
- Convene a multi-disciplinary technical working group to develop national standards and life cycle costing in relation to:

    - Facilities, fixtures, fittings
    - Equipment
    - Maintenance
    - Materials
    - Consumables

- Review the procurement arrangements following the development of national standards and guidelines. There may be a cost benefit if the range of products is rationalised and the number of suppliers reduced.

11.2. **Hospital Level**

- Whilst hospital General Managers/Chief Executives have ultimate accountability for hygiene standards, it is recommended that a senior manager at hospital management team level takes personal responsibility for the implementation and monitoring of the national policies, procedures and standards.
- The senior manager should convene and chair a multi-disciplinary working group including representatives from Infection Control, General Services (household services, portering and linen services), Cleaning Contractor (if applicable), Human Resources, Estates, Finance and staff organisations. This group would have responsibility for the ongoing development, implementation and review of local hygiene standards. Initially the group would:

    - Review the results and findings of the hygiene audit.
    - Require all ward and department managers to undertake an internal audit of hygiene standards.
    - Develop a hygiene strategy and action plan including short, medium and long term goals that address the issues arising out of local and national audits.
    - Following the production of the agreed national policies, procedures and standards, develop a local implementation plan.
    - Develop clearly defined service level agreements for wards and departments.

    In the longer term this group would take responsibility for ensuring that standards are regularly monitored and improvements actioned.
- The multi-disciplinary working group would be required to validate proposals and sign off plans in relation to minor and major building schemes. It will be important to ensure that designs, finishes and facilities have a high level of ‘cleanability’.
- Review the skill base of non clinical staff i.e. household staff, porters, nursing assistants etc. involved in the delivery of hygiene standards. Undertake a gap analysis against the national training strategy requirements and implement appropriate training programmes.
- Review the level of technical support available.
- Undertake a baseline audit to identify the condition of the hospital fabric e.g. floors, walls, ceilings etc. Develop an action plan to repair or replace defective items.
- Undertake a space utilisation survey with a view to identifying additional storage space at ward and department level.