

# Waste management in Scottish hospitals

A follow-up report

Prepared for the Auditor General for Scotland

May 2005



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## Part 1. Main findings



Safe handling and disposal of hospital waste reduces health and safety risks for both patients and staff, and contributes to a better environment for the whole community.

- 1. Managing waste effectively involves:**
    - correctly identifying, segregating and handling clinical waste to avoid risks to staff, patients and the environment
    - not including domestic waste with clinical waste to avoid incurring extra costs of disposal unnecessarily
    - segregating sanpro waste subject to proper risk assessment, and disposing of it appropriately
    - maximising the benefits of recycling.
  - 2. Costs are likely to rise because of the Landfill tax and the introduction of regulations such as the Hazardous Waste Directive. This means that boards need to take action now to make sure their waste management practice minimises cost while ensuring safety.**
  - 3. Our follow-up audit of waste management was carried out in 53 hospitals. We looked at progress in key areas identified for action in our 2001 baseline report and found that:<sup>1</sup>**
    - There was a positive response at national level to the recommendations in the baseline report. Guidance about implementing our recommendations was issued to hospitals by the NHS in Scotland Property and Environment Forum (P&EF) and supported by the Scottish Executive Health Department (SEHD).
- There has been progress in developing waste management policies, appointing waste management officers and in recycling but there are still areas where improvement is needed, including:
    - Nineteen hospitals where clinical waste is not secure from public access.
    - Over a quarter of waste disposed of in the costlier clinical waste stream is domestic waste at an additional cost of about £1.3 million per year.<sup>2</sup>
    - Almost two-thirds of hospitals do not have a hospital-wide paper recycling scheme and more than half do not have one for cardboard. A quarter of hospitals have neither.
    - There are still inconsistencies in the information collected and reported at national level due to incomplete reporting by boards and a lack of consistency in the information provided to the P&EF.

<sup>1</sup> *Waste management in Scottish hospitals*, Audit Scotland, 2001.

<sup>2</sup> Results of waste audits reported by hospitals to the P&EF.

## Part 2. Introduction



### Key messages

There was a positive response at national level to the recommendations in the baseline report. The NHS in Scotland Property and Environment Forum (P&EF) issued an action plan to implement our recommendations, and the Scottish Executive Health Department (SEHD) issued clear instruction to the NHS to comply with our recommendations.

### Background

**4.** Good waste management and environmental practice matters for the whole of the NHS in Scotland. Spending on waste management at £8 million a year is low when compared to the health service as a whole. But safe handling and disposal of hospital waste reduces health and safety risks for both

patients and staff, and contributes to a better environment for the whole community.

**5.** Supported by legislation and guidance on waste management, the government's policy is to encourage the NHS to:

- reduce the amount of waste it produces
- reuse wherever possible
- maximise the benefits of recycling.<sup>3</sup>

### Categories of hospital waste

**6.** Hospital waste falls into two broad categories; clinical waste and domestic waste.<sup>4</sup>

**7.** Clinical waste is produced by clinicians from diagnosis and treatment, and from the immediate care of patients. It includes infectious and potentially infectious materials such as blood-contaminated items, human tissue, used syringes, needles or other sharp instruments, and pharmaceutical products such as drugs. NHS boards have to undertake local risk assessments and put in place policies for safe disposal of clinical waste in compliance with both health and safety legislation and environmental protection and carriage regulations.

**8.** The NHS in Scotland generates about 15,000 tonnes of clinical waste each year and its treatment and disposal cost about £6 million.<sup>5</sup> The Hazardous Waste Directive may have a significant impact on costs, and highlights the need for boards to take action now to put in place good waste management practice.

<sup>3</sup> For example, National Waste Strategy Scotland, Scottish Environment Protection Agency (SEPA) 2003, NHS HDL (2002) 77 Environmental Management Policy for NHS Scotland, The Landfill (Scotland) Regulations 2002, EC Directive on Waste Electrical and Electronic Equipment (WEEE).

<sup>4</sup> A glossary of terms is at Appendix 1, page 22.

<sup>5</sup> NHS in Scotland P&EF.

**9.** The second main category is domestic waste. This is made up of the same waste from any household, including cardboard, paper, bottles and flowers. About 20,000 tonnes of waste are disposed of as domestic waste each year by the NHS, costing about £2 million.<sup>6</sup> The vast majority of domestic waste is disposed of using landfill. The cost is continuing to rise due to the introduction of Landfill tax, which has increased over recent years to encourage waste producers to do more to prevent creating waste and to increase recycling.<sup>7</sup>

**10.** Sanpro waste may be segregated from clinical waste following risk assessment. It is made up of waste items from human hygiene eg, nappies and incontinence pads. If no risk of infection is identified, it can be disposed of in landfill or other suitable facilities. Disposing of sanpro waste in this way may reduce costs. This is discussed further in Part 5 (page 14).

**11.** Waste is generated in most parts of the health service, but hospital wards are by far the single biggest producers of both domestic and clinical waste.

### Arrangements for waste disposal

**12.** Waste management has undergone major changes. Fifteen years ago, most clinical waste was disposed of relatively inexpensively at well over 100 incinerators located on hospital sites across Scotland. Changing legislation and tighter environmental controls led to the closure of most of these as it was not practical or economical to bring incinerators up to the required standards.

**13.** With only one exception, local health bodies are grouped into four geographical consortia for dealing with clinical waste management (Greater Glasgow, North, East and West). The consortia have two contracts: one relates to the Greater Glasgow consortium; the other involves the North, East and West consortia. NHS Borders continues to operate the last remaining in-house incineration facility.<sup>8</sup>

**14.** Domestic waste that has not been separated for recycling is collected by contractors or the local council, and disposed of in landfill sites.

### Recent regulatory changes

**15.** Changes in regulation have affected clinical and domestic waste management (Appendix 2, page 24). These are designed to reduce the amount of waste produced, increase the amounts reused and recycled, and ensure the safe collection, transportation and disposal of waste.

**16.** This means that all waste producers, including the NHS, will pay more for waste disposal. The NHS therefore needs to manage its waste better to reduce the financial impact of these changes by:

- reducing the amount of waste it produces
- segregating waste appropriately
- reusing, recycling or recovering waste.

### Our study

**17.** This report follows up progress in key areas identified for action in our 2001 baseline report on waste management.<sup>9</sup> The main conclusions from the baseline report were:

- Generally safety standards were high although there were occasional examples of poor practice relating to training and staff compliance with safety standards.
- The standards of monitoring of uplift and disposal varied significantly among trusts.
- Segregation of domestic waste from clinical waste could be significantly improved.
- Only a small amount of waste recycling was taking place.
- It might be possible to segregate sanpro waste from the clinical waste stream. We recommended pilot work to establish whether sanpro waste from certain hospitals or types of patient could be segregated rather than being disposed of in the costlier clinical waste stream.
- Management information was variable with many trusts not able to demonstrate good control over environmental, financial and safety issues.

6 NHS in Scotland P&EF.

7 Landfill tax is a measure aimed at reducing the dependence on landfill for disposing waste.

8 NHS Borders' incinerator is relatively new and so it cost less to meet the emission regulations compared with the older incinerators which other boards had.

9 *Waste management in Scottish hospitals*, Audit Scotland, 2001.

## Exhibit 1

### Action taken at national level in response to the baseline report

There was a positive national response to the baseline report.

<b>April 2002</b>	The P&EF produced an action plan setting out the action required in response to all the recommendations in the baseline report. The action plan also provided an implementation timetable. <sup>10</sup>
<b>May 2002</b>	The SEHD issued guidance to accompany the P&EF's action plan. <sup>11</sup>
<b>October 2002</b>	The P&EF revised a Scottish Hospital Technical Note on the management and disposal of clinical waste. <sup>12</sup>
<b>January 2004</b>	The P&EF issued <i>The Waste Minimisation Guidance Note</i> which covers both clinical and domestic waste and the various aspects of waste minimisation. A PowerPoint presentation was also developed and can be used with the <i>Guidance Note</i> to support induction and training programmes.

Source: Audit Scotland

**18.** The baseline report made recommendations covering all these areas.

**19.** Our follow-up audit was carried out in 53 hospitals over 13 NHS board areas (Appendix 3, page 25) and involved interviews with a wide range of staff, a snapshot review of waste storage arrangements and a review of documentary evidence. We also used data collected by the P&EF. Each board has received a local audit report containing an action plan.

**20.** The NHS took action at national level in response to the recommendations in our baseline report (Exhibit 1). Specific work and improvements undertaken by the NHS since publication of our baseline report are covered in the relevant parts of this report.

**21.** At the time of our baseline audit, responsibility for waste management lay at trust level. During the course of our follow-up review during 2003/04, the structure of NHSScotland began to move from health boards and NHS trusts towards a single system of NHS boards with operating divisions. Overall responsibility for waste management now lies with NHS boards, although day-to-day management is likely to lie at operating division level. The recommendations for local action in this report are therefore directed at the new NHS boards.

**22.** This report focuses on hospital waste but many of the messages may apply to other healthcare settings, such as health centres and care homes.

<sup>10</sup> Action plan: Waste management in NHSScotland trusts, NHS in Scotland P&EF, April 2002.

<sup>11</sup> HDL[2002]43 Action plan: Waste management in NHSScotland trusts: a response to Audit Scotland's report, Waste management in Scottish hospitals, Scottish Executive, May 2002.

<sup>12</sup> Scottish Health Technical Note No. 3, Version 4, P&EF, October 2002.

# Part 3. Ensuring patient and staff safety



## Key messages

All NHS bodies visited have a senior member, or members, of staff designated as having responsibility for waste management.

There is good sharing of information and expertise among the different groups in NHS boards involved in infection control, health and safety, and waste management.

All boards have initiatives to raise the profile of waste management but spot checks highlighted instances where clinical waste was not secure from public access at 19 hospitals.

All boards regularly review and update their waste management induction training, although ten need to review refresher training for existing staff.

## Waste should be safely managed

**23.** Waste management is not a major activity in terms of expenditure but, managed badly, infection and other safety issues can affect the health of both patients and staff. New regulations and the natural turnover of staff also mean that waste management needs regular review.

**24.** Good waste management practice means ensuring that all staff involved in producing, storing, moving and disposing of waste are aware of safety issues and trained in dealing with waste. Monitoring of compliance with safety standards is also needed.

## Responsibility for safe waste disposal

**25.** All staff and contractors involved in the chain of production, transport, treatment and disposal of waste have a duty of care to take reasonable measures to ensure

it is managed and disposed of properly. The waste producer's duty of care extends to final disposal.<sup>13</sup>

**26.** The P&EF Action Plan recommends that NHS bodies appoint a senior member of staff, such as a waste management officer (WMO), as a single point of contact with responsibility for waste management. All boards in the follow-up audit have a senior member, or members, of staff with this responsibility.<sup>14</sup>

**27.** All staff should know who their WMO (or equivalent) is so that any issues arising about storing or disposing of waste are reported and dealt with efficiently.<sup>15</sup> We found that some staff at NHS Borders and NHS Lanarkshire did not know the identity of their WMO.

<sup>13</sup> SEPA is responsible for enforcing relevant legislation under the Environmental Protection Act 1990 framework.

<sup>14</sup> Examples of senior members of staff responsible for waste management include Director of Estates, Director of Facilities, General Services Manager, Head of Property and Support Services, and Senior Health, Safety and Environment Advisor.

<sup>15</sup> For the rest of this report, when we refer to WMO we are also referring to someone fulfilling the equivalent role but called by another title.

**28.** All boards demonstrate good sharing of information and expertise among the different groups involved in infection control, health and safety and waste management eg, the WMO is a member of the infection control team in some boards.

**29.** Safety and infection issues are important elements of effective waste management and should have a high priority throughout the organisation. As accountable officers, chief executives must be satisfied that the duty of care has been appropriately discharged. With the exception of NHS Dumfries & Galloway, all boards have systems in place for reporting to the chief executive.

#### Staff awareness

**30.** Staff awareness of waste management issues, including the appropriate storage of waste and segregation protocols, is needed to maintain effective waste management systems. The P&EF has assisted this by providing information and advice for staff in various leaflets.<sup>16</sup> It also recommends that these are made available to all staff, especially bank or agency staff who may be unfamiliar with local procedures.

**31.** All boards have various initiatives in place to raise the profile of waste management, including: training; policies and procedures manuals; notices or posters at ward level reminding staff to adhere to segregation policy; memos from the infection control team; and,

information booklets at ward level. But interviews with staff and observations during ward visits highlighted some examples of poor practice in storing and segregating waste. These are described at Exhibit 2 (page 10).

#### Staff training

**32.** Our baseline report recommended that trusts, working individually and collectively through the P&EF's Waste Management Steering Group, implement the following recommendations about safety and training:<sup>17</sup>

- All trusts should have robust, formal monitoring and training procedures in place to ensure that waste management continues to incorporate high safety standards.
- Training should be reviewed on a regular basis to ensure that it remains appropriate to changing legislation and continues to cater for new staff and new working arrangements.

**33.** Various national documents aimed at training and supporting staff have been produced since our baseline report.<sup>18</sup> The West Lothian Healthcare Division of NHS Lothian is also working with the P&EF to develop and pilot an e-learning training package intended for release as a national training tool.

**34.** Relevant staff at all boards are now provided with induction training on waste management, and all

boards regularly review and update this to ensure it fits with changing legislation. However, some boards need to develop their refresher training for existing staff (NHS Ayrshire & Arran, NHS Borders, NHS Dumfries & Galloway, NHS Fife, NHS Grampian, NHS Greater Glasgow, NHS Highland, NHS Lanarkshire, NHS Lothian, NHS Shetland).

#### Safety procedures

**35.** Generally, waste management policy and procedures manuals in NHS bodies cover at least the minimum requirements set out by various bodies such as the Health and Safety Commission and SEPA, with the exception of the requirement for recycling waste.<sup>19</sup>

**36.** There are many examples of good practice in addressing safety including:

- All boards have tie and tag waste bags at the point of origin. This enables waste audits to identify wards or offices that are not segregating waste properly and safely.
- There is always some risk to staff who handle sharps, such as needles, so it is important that injuries and subsequent action are recorded to prevent or minimise the risk of similar incidents. All boards keep a record of needle stick injuries and, with the exception of NHS Dumfries & Galloway, all carry out regular 'sharps' audits.<sup>20</sup>

<sup>16</sup> For example, the *Waste Minimisation – General User Information* leaflet and the *Management and disposal of clinical waste user information* leaflet.

<sup>17</sup> The P&EF's Waste Management Steering Group includes, among others, representatives from P&EF, SEPA, and the chairs of the four regional waste consortia. The four chairs represent their consortia and also act a communication link through the consortia back from the Group to the individual boards.

<sup>18</sup> Including *Scottish Health Technical Note No. 3, Version 4; Environmental management policy for NHS Scotland; Safe disposal of clinical waste*.

<sup>19</sup> Normal minimum requirements of a procedures manual would cover items such as a policy on disposals, legal and statutory framework, identification of waste, types of waste for segregation, recycling of waste, collecting and transporting waste, final disposal of waste, etc.

<sup>20</sup> NHS Dumfries & Galloway had not carried out a recent sharps audit at the time of the local follow-up review.

**37.** However, there are some areas that need improvement. During spot checks, auditors observed instances where clinical waste was not secure from public access at a number of sites (Exhibit 2, overleaf).

**38.** Auditors' spot checks also showed that locks on the 'Eurocare' clinical waste bins were often broken. The national contractor is responsible for maintenance of these bins but there should be systems in place to report broken locks. This is being addressed as part of the renegotiation with the contractor that has replaced Eurocare.

### Recommendations

**39.** Boards should produce board-wide policies with workplace-specific procedures covering waste issues in keeping with SEHD policy and P&EF guidance.

**40.** Boards should regularly review their refresher training programmes. This should include consideration of whether greater use could be made of material produced by, or in conjunction with, the P&EF.

**41.** The P&EF should finalise and release to all boards the national e-learning waste management training package.

**42.** Attendance at both induction training sessions and an annual refresher training session should be compulsory for all members of staff involved in the handling of clinical and special or hazardous waste.

**43.** Boards should ensure that their waste management policies and procedures manual is up to date and covers the minimum requirements.

**44.** Boards should ensure all clinical waste is secure from areas of public access.

## Exhibit 2

### Auditors' spot checks of waste storage arrangements

Auditors noted instances where patient and staff safety was compromised because of poor storage of clinical waste.

Observation	Hospital
Clinical waste bags/bins/carts in corridors or areas public can access	Dumfries & Galloway Royal Infirmary * Falkirk & District Royal Infirmary * Inverclyde Royal Kelso Hospital Lynebank Hospital New Craigs Hospital * Ninewells Hospital * Perth Royal Infirmary * Queen Margaret Hospital Royal Alexandra Hospital Stratheden Hospital Vale of Leven Hospital Victoria Hospital Western Infirmary
Clinical waste bins left unlocked or the locks on the bins damaged	Ashludie Hospital Cleland Hospital Dumfries & Galloway Royal Infirmary * Falkirk & District Royal Infirmary * Monklands Hospital New Craigs Hospital * Ninewells Hospital * Perth Royal Infirmary * Victoria Infirmary

Note: \* Hospital appears in both categories.

Source: Audit Scotland

# Part 4. Environmental issues



## Key messages

There is still scope to improve waste recycling. Even recycling paper and cardboard is not standard. Almost two-thirds of hospitals do not have a hospital-wide paper recycling scheme and more than half do not have one for cardboard. A quarter of hospitals have neither.

A national policy is needed which supports NHS boards and their waste contractors to work together to ensure that the disposal of surplus, redundant or used equipment complies with current and new legislation while keeping the cost of disposal to a minimum.

## Reducing the impact on the environment

**45.** The Scottish Executive has set out an environmental management policy for NHSScotland and specifies the mandatory requirements for NHSScotland bodies.<sup>21</sup> It aims to ensure that all NHS bodies, as an integral part of their commitment to the health and well-being of the community, do their utmost to ensure that their activities are sustainable. This includes adopting practices to:

- reduce the amount of waste produced
- minimise the risks and effects from pollution
- ensure the safe and economic handling of clinical waste.

**46.** The policy framework provided by the SEHD supports the Scottish Executive's broader sustainable development objectives for Scotland. NHS bodies are required to reduce environmental impacts through more effective work practices and so contribute to sustainable development to the benefit of the local community.<sup>22</sup>

## Reusing and recycling waste

**47.** Domestic waste offers the best opportunity to increase the reuse and recycling of waste materials because, unlike clinical waste, it does not normally need treatment to render it safe prior to recycling. There are fewer opportunities for recycling clinical waste as it has to be treated to make it safe which often limits the opportunities for recycling or material recovery. However, initiatives are now being developed, through the P&EF, to recover material and energy from the residue left after clinical waste is treated.

<sup>21</sup> NHS HDL (2002) 77 Environmental Management Policy for NHS Scotland.

<sup>22</sup> Practical guidelines in support of HDL (2002) 77 and reflecting the SEPA *National Waste Strategy* have been provided to boards by P&EF within *SHTN 3, Version 4* and *The Waste Minimisation Guidance Note*.

**48.** The UK Government introduced the Landfill tax regulations as part of its policy towards managing waste in more environmentally sustainable ways. The tax for 2004/05 stands at £15 per tonne of waste. The effect of this tax and increased landfill costs have led to significant increases in landfill charges. Prior to 2003, landfill management charges were typically £15-18 per tonne. The P&EF's Waste Management Steering Group informed us that some sites have increased landfill management charges to over £80 per tonne, contributing to the increased financial cost of domestic waste disposal.

**49.** The use of the Landfill tax and other measures aim to encourage waste producers to reduce dependence on landfill by considering alternative methods of waste management. Reducing the amount of waste sent to landfill can achieve cost savings for NHSScotland and can also contribute to the government's waste management agenda. This reduction can be achieved by:

- reusing waste items eg, bottles
- recycling waste items eg, recycling waste paper to produce new paper
- recovering material or energy from waste eg, producing power from waste.

**50.** Paper and cardboard accounts for 83%, by weight, of the domestic waste from hospital administration areas.<sup>23</sup> Over 50% of the weight of domestic waste from wards is also paper and cardboard. There are therefore opportunities for hospitals to reuse or recycle paper and cardboard waste which will reduce the amount of domestic waste sent for disposal.

**51.** At the time of our baseline report, there was little evidence of reusing or recycling of domestic waste. Our follow-up review found that there is still scope for improvement. Almost two-thirds of hospitals do not have a hospital-wide paper recycling scheme and more than half do not have one for cardboard. A quarter of hospitals have neither. Only 13% of hospitals recycle glass and just a third recycle other materials such as batteries and toner cartridges (Appendix 4, page 27). As disposal costs will continue to increase as more environmental regulations are introduced, this highlights the need for the NHS to recycle as much of its domestic waste as possible.

**52.** While some progress has been made in developing recycling initiatives for domestic waste, the obstacles facing some NHS boards remain similar to those reported in the baseline report. These include the availability of suitable contractors; the lack of a sustainable market; the lack of storage space for segregated waste destined for recycling; and the cost of recycling. Many NHS boards are now in discussion with councils, other public sector partners or private firms to explore recycling options.

## Implications of new regulations

**53.** Two EC Directives will come into effect during 2005:

- Waste Electrical and Electronic Equipment (WEEE) regulations will focus on managing electronic and electrical equipment waste. NHS bodies will need to segregate and treat this waste in line with these regulations.
- Restriction of Hazardous Substances (RoHS) regulations will ban or restrict the use of a range of hazardous substances in manufactured items.

**54.** There is a dual focus underlying these regulations:

- manufacturers are required to reduce the use of hazardous materials in products
- as manufacturers are required to recover or recycle electrical and electronic equipment waste, a market will develop for their management.

**55.** In line with the WEEE regulations it is likely that 'take back' schemes will emerge for new equipment supplied from January 2006. This will involve NHS boards working in partnership with suppliers to segregate and return electrical and electronic equipment waste to recycling or recovery facilities. Much of this kind of waste is similar to that produced by households, so NHS boards may consider working with councils to ensure it is dealt with locally.

**56.** Given the scale and range of electrical and electronic equipment used within the NHS in Scotland, a national policy is needed for their disposal. This should support NHS boards and their waste contractors to work together to ensure that the disposal of surplus, redundant or used equipment complies with new regulations while keeping the cost of disposal to a minimum.

### **Recommendations**

**57.** Boards should develop and implement policies for reuse, recovery and recycling of waste across all their hospital sites.

**58.** The SEHD should develop a national policy which supports NHS boards and aids partnership working among councils, other public bodies and private industry to ensure that the disposal of surplus, redundant or used equipment complies with new regulations. This should be introduced as soon as possible.

# Part 5. Costs



## Key messages

In spite of efforts to improve waste segregation, domestic waste makes up over a quarter of waste disposed of in the costlier clinical waste stream at an additional cost of about £1.3 million per year.

## Reducing costs

**59.** The total cost of disposing of hospital waste in Scotland is about £8 million. Of this, clinical waste accounts for £6 million; most of the remainder relates to domestic waste. Waste management costs are likely to increase due to changes in waste, environmental, carriage and health and safety regulations and the increasing costs associated with disposing of waste in landfill sites.

**60.** There are three potential ways to reduce the costs and environmental impact of disposing of waste:

- reusing and recycling waste
- reducing the volume of waste produced
- improving segregation, so that the quantity of waste requiring specialist treatment and disposal as clinical waste or special hazardous waste is minimised.

**61.** Reusing and recycling waste were dealt with in [Part 4 \(page 11\)](#). Reducing the volume of waste produced and improving segregation will also have significant safety and environmental benefits and may reduce costs.

## Reducing the volume of waste produced

**62.** SEPA and other environmental agencies are encouraging manufacturers to review their products and packaging with a view to reducing the amount that goes to waste. This can be achieved by reducing unnecessary packaging and ensuring the materials used can either be reused or recycled. As a major purchaser, NHSScotland should be able to influence waste production by giving greater consideration to waste matters when negotiating national contracts such as those negotiated by Scottish Healthcare Supplies.

**63.** Reducing the amount of waste produced by the NHS is at a relatively early stage. However, in some instances central contracts have been negotiated to reduce the amount of waste produced eg, a contract which reduced the thickness of bags has significantly reduced the weight of waste produced from this source.

## Improving waste segregation

**64.** It costs approximately £300 more per tonne to treat and dispose of clinical waste compared with domestic waste. This is because clinical waste has to be specially treated to ensure that it is safe on disposal. It is therefore important that segregation policies and practices are in place to ensure waste is treated and disposed of appropriately, and that domestic waste is not disposed in the costlier clinical waste stream.

**65.** Our baseline report highlighted that the level of segregation is a major factor for high waste tonnages per bed and stated that “*even those hospitals with comparatively low levels of clinical waste per bed may be able to further improve their segregation.*” Poor segregation of waste will result in a high ratio of clinical to domestic waste and therefore higher costs.

**66.** The main reasons for poor segregation in practice are:

- lack of importance given to segregation by management
- poor practical arrangements for segregation eg, poor positioning of waste bins
- no domestic waste bins in wards
- poor staff training
- poor management information and monitoring.

**67.** The volume per head of population of clinical waste is higher in Scotland (and elsewhere in the UK) than in some other European countries.<sup>24</sup>

This may indicate that domestic waste is being disposed inappropriately as clinical waste.

**68.** Our follow-up audit found that:

- All boards, with the exception of NHS Dumfries & Galloway and NHS Greater Glasgow, have segregation policies or draft segregation policies in line with those recommended in *Scottish Health Technical Note No. 3, Version 4*.
- Staff are generally aware of what should be disposed of in the clinical or domestic waste streams. But in three-fifths of boards some staff are not aware of the cost implications of poor segregation.
- Two hospitals in NHS Greater Glasgow have a policy not to segregate domestic and clinical waste at wards and other clinical areas. This means all domestic waste from these areas is treated inappropriately ([case study overleaf](#)).

**69.** We did not review the contents of clinical waste bags, but data from waste audits carried out for the P&EF indicate there is still potential to reduce the amount of domestic waste being disposed of as clinical waste.<sup>25</sup>

**70.** *The Waste Minimisation Guidance Note* issued by P&EF in early 2004 drew upon baseline data gathered through waste audits at several hospitals across Scotland. These showed that just over a quarter of waste disposed of as clinical waste was domestic waste; 27% of clinical waste in the acute sector and 29% in the primary care sector ([Exhibits 3 and 4 overleaf](#)). The P&EF estimates (based on

extrapolation from the audits) that 4,300 tonnes per annum of non-infected domestic waste was consigned for disposal as medium-low risk clinical waste at a cost of about £1.3 million.

## Segregating sanpro waste

**71.** Sanpro waste includes waste items from human hygiene. Following risk assessment it can be segregated from clinical waste and disposed of safely as domestic waste.

**72.** The Health and Safety Advisory Committee (HSAC) highlights the differences between sanpro waste and clinical waste depending on source:

- sanpro waste is waste produced by a 'healthy population' which is a population free of infection
- similar waste produced by care homes and hospitals may be clinical waste since these establishments cannot assume a healthy source population.<sup>26</sup>

**73.** Where the assumption of a healthy source population cannot be assumed then the HSAC states that a risk assessment should be carried out to assess the risk posed. Waste should be disposed of in accordance with its findings.

**74.** Effective risk assessments and robust controls to ensure strict segregation would allow boards to dispose of significant amounts of sanpro in the same way as domestic waste. Most of the sanpro waste produced in primary care and much of that produced in acute hospitals is likely to be risk-free, although adequate handling and disposal arrangements are needed.<sup>27</sup>

<sup>24</sup> *Scottish Technical Note No. 3 (SHTN3), Management and Disposal of Clinical Waste*, compiled by the NHS in Scotland P&EF Executive.

<sup>25</sup> Hospitals provide the results of waste audits to the NHS in Scotland P&EF.

<sup>26</sup> *Safe disposal of clinical/healthcare waste*, Health and Safety Advisory Committee, 1999.

<sup>27</sup> *Scottish Hospital Technical Note No. 3, Version 4*.

## Case study

### Waste segregation policy in Gartnavel General and Western Infirmary, NHS Greater Glasgow

Our baseline report highlighted that two hospitals in NHS Greater Glasgow (Gartnavel General and the Western Infirmary) had a policy that clinical and domestic waste were not segregated at wards and other clinical areas; instead, all waste was treated as clinical waste. This practice was introduced in response to concerns about the risk that clinical waste could be disposed of incorrectly as domestic waste.

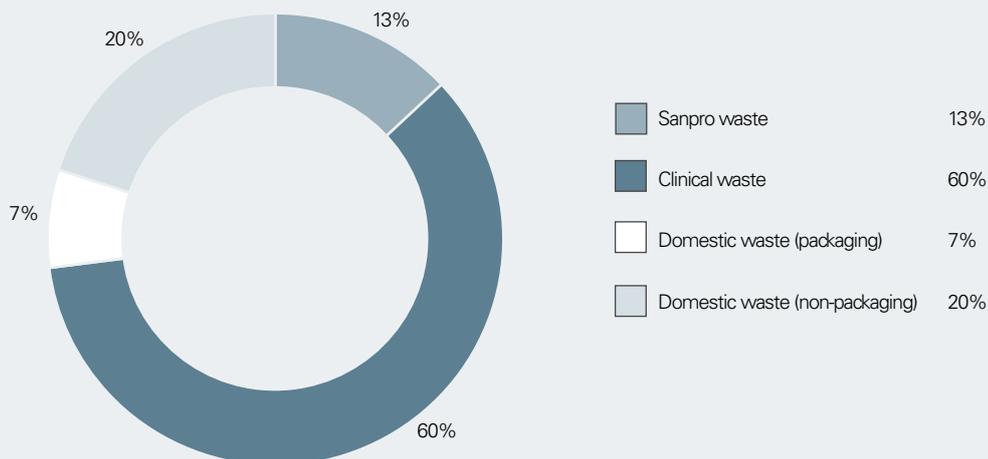
Our follow-up review found that these two hospitals still have this cautious policy in place. However, the North Division of NHS Greater Glasgow, into which these two hospitals fall, is committed to introducing waste segregation in every hospital ward. This will bring these two hospitals into line with all the other hospitals in Scotland and the general principle of the National Waste Strategy for Scotland that waste is segregated where possible. Safe segregation requires that staff are adequately trained, but given this has been achieved successfully and safely since 1994 elsewhere in Scotland, it should be achievable in all hospitals.

Source: Audit Scotland

## Exhibit 3

### Composition of clinical waste in the acute sector

Domestic waste makes up 27% of the clinical waste stream in the acute sector.

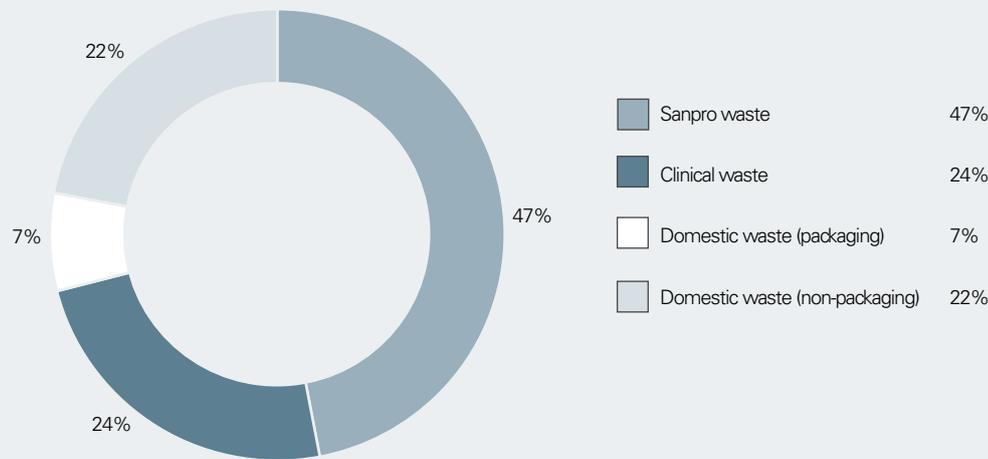


Source: *The Waste Minimisation Guidance Note*, NHS in Scotland P&EF, 2004

## Exhibit 4

### Composition of clinical waste in the primary care sector

Domestic waste makes up 29% of the clinical waste stream in the primary care sector. Sanpro makes up almost half.



Source: *The Waste Minimisation Guidance Note*, NHS in Scotland P&EF, 2004

**75.** Our baseline report recommended that pilots should be undertaken to establish the viability of segregating sanpro in a safe and cost-effective manner. Pilots subsequently undertaken at two primary care hospitals in NHS Grampian showed that sanpro can be segregated safely but the cost savings are less than the anticipated level. Also, with the introduction of the landfill regulations during 2003, NHS Grampian is not convinced that landfilling sanpro waste is appropriate given the biodegradable nature of the waste (high paper composition), and advocates further research into the potential for recovery, reuse or recycling.<sup>28</sup>

**76.** Following the results of these two pilots, the Scottish and Northern Ireland Forum for Environmental Research (SNIFFER) and the NHS in

Scotland have jointly commissioned a research project on sanpro waste.<sup>29</sup> Two aims of this work are to: *"... produce both an improved understanding of the scale of sanpro arising in Scotland and Northern Ireland, and provide guidance to significant producers on improved methodologies for classifying and managing this waste stream."* The findings and final report are planned for publication later this year.

**77.** Our baseline report recommended that hospitals establish the amount of sanpro waste they generate. Only two boards had done this at the time of our follow-up audit.<sup>30</sup>

**78.** The baseline report also stated that savings from primary care trusts were likely to be the easiest to achieve, and estimated potential

savings of between £600,000 and £1 million each year in these bodies. Using data from the waste audits reported to the P&EF, we now estimate the potential savings to be at the lower end of this range at around £600,000. But until boards establish the amount of sanpro waste they generate it is impossible to produce an accurate figure.

**79.** It is likely that the potential savings from appropriate classification and segregation of waste will rise over the coming years due to the likely increases in the cost of waste disposal. The main increase is likely to be in relation to increased regulatory requirements for the packaging, handling and treatment of clinical waste. Domestic waste costs are also likely to rise due to landfill management and tax requirements.

<sup>28</sup> According to the landfill regulations, biodegradable waste should not be sent to landfill.

<sup>29</sup> The project is called *Priority waste stream for clinical/healthcare waste and development of sanpro waste guidance*.

<sup>30</sup> NHS Argyll and Clyde provided us with an estimate (47% of primary care clinical waste and 13% of acute clinical waste is sanpro) and NHS Lothian is waiting for the results of a pilot at one of its hospitals.

## Recommendations

**80.** The P&EF and Scottish Healthcare Supplies should review how NHSScotland can best influence contractors to reduce the amount of waste built into products and packaging.

**81.** All waste should be segregated at the point it arises, for example, on wards or in offices.

**82.** All boards should carry out waste audits to:

- review and ensure that no clinical waste is getting into the domestic waste stream
- establish how much domestic waste is in the clinical waste stream and highlight where it is coming from
- ensure action is taken as appropriate to improve segregation.

**83.** Boards should ensure that staff are aware of the need to properly segregate waste for safety, environmental and cost reasons.

# Part 6. Management information and performance monitoring



## Key messages

Safe and effective waste management needs good performance information. But there are still inconsistencies in the information collected and reported at national level due to incomplete reporting by boards and a lack of consistency in the information provided to the P&EF.

## Managing performance relies on good management information

**84.** Performance management needs good management information. This information is not complex and should be readily available.

**85.** Boards should collect information on the amount of waste generated to:

- identify where waste is produced and any unusual trends in its production
- confirm that uplift and disposal charges from contractors or councils relate to the amount uplifted
- ensure costs are staying within budget.

**86.** Most NHS boards do not have weighbridges or other weighing equipment and therefore do not weigh clinical waste that is uplifted. Instead NHS boards rely on the figures supplied by the contractor in transfer or consignment notes and invoices.<sup>31</sup> This information, together with the tonnes of clinical waste per staffed bed, will provide indicators of whether and where segregation can be improved, and allow comparison with other boards.

## Comparing performance

**87.** Benchmarking performance with other hospitals is helpful, particularly if hospitals are compared with others of a similar type (eg, teaching hospitals or major acute hospitals). This is because different types of hospital produce different levels of waste. For example, acute hospitals produce more clinical waste per bed than community hospitals. About 40% of boards benchmark their waste management performance with other board areas.

**88.** The P&EF collects information and produces tables by different type of hospital (teaching, major acute, etc).<sup>32</sup> However, the groupings are not completely accurate and some hospital figures are estimates. In addition, many boards have doubts that the information is collected and reported consistently. Many WMOs are therefore reluctant to make use of the P&EF tables.

<sup>31</sup> Transfer notes are completed for domestic waste and consignment notes for special waste.

<sup>32</sup> [www.show.scot.nhs.uk/pef](http://www.show.scot.nhs.uk/pef)

**89.** An agreed method of calculating waste volumes and costs is therefore needed to enable boards to accurately benchmark performance. This will inevitably mean some estimation for domestic waste, but it should be possible to agree consistent methods of calculating and reporting clinical waste costs.

**90.** From information on the volume and cost of clinical waste produced in its consortium, the North Consortium can demonstrate the ranges of volumes and costs for 'exemplar', 'good' and 'poor' performing hospitals in primary care and acute sectors ([Appendix 5, page 30](#)). The P&EF's Waste Management Steering Group should develop this work to produce national figures and targets. However, this work will only be meaningful if all boards adopt the same methods of calculating and reporting volumes and costs of clinical waste.

### Reporting performance

**91.** Eight boards have received waste management performance reports from their WMOs. The content of these reports varies but it is encouraging that waste management issues are beginning to be considered at chief executive and board level.

**92.** These reports should identify the overall cost of disposing of clinical waste including all component costs (such as containers, handling, storage, transport and treatment).<sup>33</sup> They should also identify the annual tonnage and costs for the uplift service.

### Recommendations

**93.** Boards should ensure that data returns to the P&EF are accurate and validated by the WMO (or equivalent).

**94.** Boards should use the annual, all-Scotland performance report information provided by the P&EF to compare their hospital's performance with similar hospitals elsewhere in Scotland.

**95.** Boards, through the P&EF, should agree a uniform method of calculating waste volume and costs of the different aspects of waste disposal. If all boards used these methods then the accuracy and usefulness of national figures would be greatly improved and would also support benchmarking.

**96.** The P&EF should provide boards with reports comparing hospital performance on an annual basis.

**97.** Boards should receive a report on their waste management performance from their WMO on an annual basis, as a minimum.

# Summary of recommendations

## Ensuring patient and staff safety

Boards should produce board-wide policies with workplace-specific procedures covering waste issues in keeping with SEHD policy and P&EF guidance.

Boards should regularly review their refresher training programmes. This should include consideration of whether greater use could be made of material produced by, or in conjunction with, the P&EF.

The P&EF should finalise and release to all boards the national e-learning waste management training package.

Attendance at both induction training sessions and an annual refresher training session should be compulsory for all members of staff involved in the handling of clinical and special or hazardous waste.

Boards should ensure that their waste management policies and procedures manual is up to date and covers the minimum requirements.

Boards should ensure all clinical waste is secure from areas of public access.

## Environmental issues

Boards should develop and implement policies for reuse, recovery and recycling of waste across all their hospital sites.

The SEHD should develop a national policy which supports NHS boards and aids partnership working among councils, other public bodies and private industry to ensure that the disposal of surplus, redundant or used equipment complies with new regulations. This should be introduced as soon as possible.

## Costs

The P&EF and Scottish Healthcare Supplies should review how NHSScotland can best influence contractors to reduce the amount of waste built into products and packaging.

All waste should be segregated at the point it arises, for example, on wards or in offices.

All boards should carry out waste audits to:

- review and ensure that no clinical waste is getting into the domestic waste stream
- establish how much domestic waste is in the clinical waste stream and highlight where it is coming from
- ensure action is taken as appropriate to improve segregation.

Boards should ensure that staff are aware of the need to properly segregate waste for safety, environmental and cost reasons.

## Management information and performance monitoring

Boards should ensure that data returns to the P&EF are accurate and validated by the WMO (or equivalent).

Boards should use the annual, all-Scotland performance report information provided by the P&EF to compare their hospital's performance with similar hospitals elsewhere in Scotland.

Boards, through the P&EF, should agree a uniform method of calculating waste volume and costs of the different aspects of waste disposal. If all boards used these methods then the accuracy and usefulness of national figures would be greatly improved and would also support benchmarking.

The P&EF should provide boards with reports comparing hospital performance on an annual basis.

Boards should receive a report on their waste management performance from their WMO on an annual basis, as a minimum.

# Appendix 1. Glossary of terms

<b>Clinical waste</b>	Clinical waste is waste from diagnosis, treatment and the immediate care of patients. It is waste that is not deemed safe for disposal along with domestic waste. It includes infectious and potentially infectious materials, such as blood-contaminated items, human tissue, used syringes, needles or other sharp instruments, and pharmaceutical products such as drugs.
<b>Clinical Waste Steering Group</b>	A sub group of the NHSScotland Property and Environment Forum (P&EF). Membership includes representatives from NHS boards, the P&EF Executive and the Scottish Environment Protection Agency (SEPA). The Group's remit has evolved to cover the wider aspects of waste management, such as compliance with legislation, operational policies, sharing of guidance and good practice, the use of performance indicators, etc.
<b>Domestic waste</b>	Domestic waste is made up of the same types of items found in waste from any household. Examples are cardboard, paper, bottles and flowers.
<b>HDL</b>	Health Department Letter. Guidance issued by the Scottish Executive Health Department (SEHD) to health bodies.
<b>Landfill</b>	The placing of waste in the ground.
<b>Landfill tax</b>	The tax levied in respect of placing waste in the ground.
<b>Needle stick injuries</b>	An injury caused by a needle accidentally piercing the skin.
<b>P&amp;EF</b>	The NHS in Scotland Property and Environment Forum.
<b>Sanpro waste</b>	Sanpro waste is made up of waste items from human hygiene eg, nappies and incontinence pads.
<b>Scottish Healthcare Supplies</b>	Part of NHS National Services Scotland, it provides procurement and technical services to the NHS in Scotland.
<b>SEPA</b>	Scottish Environment Protection Agency. It is responsible for the protection of the environment in Scotland.
<b>Sharps</b>	An item of clinical waste defined as type B (discarded syringe needles, broken glass, any other contaminated disposable sharp instrument or item). The handling and disposal of sharps create safety concerns to both users and disposers.
<b>Staffed beds</b>	The number of beds within a hospital which are available for patients. The beds are not just physically there but have enough staff associated with them to provide care for the patients.

<b>Waste recycling</b>	Taking a waste material and converting it back into a new version of the same material eg, taking waste paper and using it as the basic material to produce new (recycled) paper.
<b>Waste recovery</b>	A broad term used to represent the process by which waste is converted either into a usable form or energy.
<b>Waste reuse</b>	Involves putting an item to another use after its original function has been fulfilled. It offers the prospect of added value and use before final disposal. Reuse will usually represent an environmental gain. Conventional reuse is where products are designed to be used a number of times before they are discarded.
<b>Weighbridge</b>	Weighing machine with a plate set in the road onto which vehicles can be driven to be weighed.

## Appendix 2. Recent regulatory changes

Recent regulatory changes affecting waste management in Scottish hospitals are noted below:

- The EC Directive on Waste Electrical and Electronic Equipment (WEEE).
- The withdrawal of the Health and Safety Commission's *Safe Disposal of Clinical Waste* 1999 (the 'Purple Book'). This document has been withdrawn due to legislative changes made since 2003. A new joint agencies initiative for the Safe Management of Healthcare Waste, to include the NHS, is under development and revised UK guidance is planned for publication by autumn 2005.
- The Special Waste Amendment (Scotland) Regulations 2004. These were implemented on 1 July 2004 and are central to a number of conflicting legislative strands. Proposals by the P&EF Steering Group to Scottish Executive, with SEPA present, have been made to demonstrate an assessment of the existing risk-based waste segregation regime outlined in *Scottish Health Technical Note No. 3, Version 4*. There is an understanding among the three parties that the existing regime can continue (subject to amendments to incorporate European Waste Catalogue codes and revisions to arrangements for certain medicinal products) until the revised joint agency guidance on the *Safe Disposal of Healthcare Waste* is published in autumn 2005.
- Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004 (CDGTPE).
- Carriage of Dangerous Goods 2003.
- The National Waste Strategy produced by SEPA in 2003.
- NHS HDL (2002)43 *Action plan – waste management in NHSScotland trusts*
- NHS HDL (2002)77 *Environmental management policy for NHSScotland*.
- The Landfill (Scotland) Regulations 2002.

# Appendix 3. Hospital sites

The following hospitals were included in our follow-up review during 2003/04.

NHS board	Hospital
NHS Argyll & Clyde	Dykebar Inverclyde Royal Merchiston Ravenscraig Royal Alexandra Vale of Leven
NHS Ayrshire & Arran	Ailsa Ayr Ayr Central Crosshouse Kirklandside
NHS Borders	Borders General Kelso
NHS Dumfries & Galloway	Dalrymple Dumfries & Galloway Royal Infirmary
NHS Fife	Lynebank Queen Margaret Stratheden Victoria
NHS Forth Valley	Bannockburn Falkirk & District Royal Infirmary Royal Scottish National Hospital Stirling Royal Infirmary
NHS Grampian	Aberdeen Maternity Aberdeen Royal Infirmary Glen O'Dee Woodend
NHS Greater Glasgow	Gartnavel General Glasgow Royal Infirmary Southern General Stobhill (including McKinnon House unit) Victoria Infirmary Western Infirmary Yorkhill/Queen Mother's Hospital
NHS Highland	Caithness General New Craigs Raigmore

NHS board	Hospital
NHS Lanarkshire	Cleland Hairmyres Monklands Roadmeetings Wishaw General
NHS Lothian	Astley Ainslie Royal Edinburgh Royal Infirmary of Edinburgh (Little France site) Royal Victoria St John's Western General
NHS Shetland	Gilbert Bain
NHS Tayside	Ashludie Ninewells Perth Royal Infirmary Royal Dundee Liff

# Appendix 4. Hospital recycling

There is scope for more recycling of domestic waste.

Board area	Hospital	Paper	Cardboard	Glass	Batteries/Toner
NHS Ayrshire & Arran	Ayr	✓	✓	✗	✓
	Crosshouse	✓	✓	✓	✓
	Ayr Central	✓	✓	✗	✗
	Ailsa	✗	✓	✓	✓
	Kirklandside	✗	✗	✗	✗
NHS Argyll & Clyde*	Royal Alexandra	✗	✗	✗	✗
	Inverclyde Royal	✗	✗	✗	✗
	Vale of Leven	✗	✗	✗	✗
	Ravenscraig	✗	✗	✗	✗
	Dykebar	✗	✗	✗	✗
	Merchiston	✗	✗	✗	✗
NHS Borders	Borders General	✓	✓	✓	✓
	Kelso	✗	✗	✗	✗
NHS Dumfries & Galloway	Dumfries & Galloway Royal Infirmary	✗	✗	✗	✗
	Dalrymple	✗	✗	✗	✗
NHS Fife	Queen Margaret	✓	✓	✗	✓
	Victoria	✗	✓	✗	✓
	Stratheden	✗	✗	✗	✗
	Lynebank	✗	✗	✗	✗
NHS Forth Valley**	Stirling Royal Infirmary	✗	✗	✗	✗
	Falkirk & District Royal Infirmary	✗	✗	✗	✗
	Royal Scottish National Hospital	✗	✗	✗	✗
	Bannockburn	✗	✗	✗	✗

Board area	Hospital	Paper	Cardboard	Glass	Batteries/Toner
NHS Grampian	Aberdeen Royal Infirmary	X	X	X	X
	Aberdeen Maternity	X	X	X	X
	Woodend	X	X	X	X
	Glen O' Dee	X	X	X	X
NHS Greater Glasgow	Gartnavel General	X	X	X	X
	Stobhill	X	X	X	X
	Glasgow Royal Infirmary	X	✓	X	X
	Western Infirmary	X	✓	X	X
	Southern General	✓	✓	X	X
	Victoria Infirmary	X	✓	X	X
	Yorkhill/Queen Mothers' Hospital	✓	✓	X	X
NHS Highland	Raigmore	✓	✓	X	✓
	Caithness General	✓	✓	X	✓
	New Craigs	X	✓	X	✓
NHS Shetland***	Gilbert Bain	✓	✓	X	X
NHS Lanarkshire	Hairmyres	✓	X	X	✓
	Wishaw General	✓	X	X	✓
	Monklands	✓	X	X	✓
	Cleland	✓	X	X	✓
	Roadmeetings	✓	X	X	✓

Board area	Hospital	Paper	Cardboard	Glass	Batteries/Toner
NHS Lothian	Royal Infirmary of Edinburgh (Little France site)	✓	✓	✓	✓
	Western General	✓	✓	✗	✓
	Royal Victoria	✓	✓	✗	✓
	Astley Ainslie	✗	✗	✗	✗
	Royal Edinburgh	✗	✗	✗	✗
	St John's	✓	✓	✗	✗
NHS Tayside	Ninewells	✗	✗	✗	✓
	Perth Royal Infirmary	✗	✗	✗	✓
	Royal Dundee Liff	✗	✓	✓	✗
	Ashludie	✗	✓	✓	✗

Note: \* Sporadic paper and cardboard recycling is carried but hospitals were not specified.

\*\* Sporadic paper and cardboard recycling is carried but hospitals were not specified.

\*\*\* Domestic waste is incinerated and recycled into district heating system.

# Appendix 5. Waste performance by hospitals in the North Consortium, 2003/04

There is a wide variation among hospitals in the volume of waste produced.

Hospital type	Average cost per bed (£)	Typical bags/bins per bed (no)	Weight per bed (kg)
Primary care – exemplar performer	64 or less	38 or less	100 or less
Primary care – good performer	64 - 97	38 - 58	100 - 150
Primary care – poor performer	97 - 128	58 - 94	150 - 200
Primary care – exceptionally poor performer	128 +	94 +	200 +
Acute/Secondary care – good performer	225 or less	151 or less	350 or less
Acute/Secondary care – poor performer	225 or more	151 or more	350 or more

Source: North Consortium

# Waste management in Scottish hospitals

A follow-up report



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