Evaluation of decontamination procedures used in primary care

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This study examined decontamination and infection control procedures in general practice. Four primary care trusts participated with a response rate of 80 per cent.

The study showed evidence of poor compliance with national standards and examples of unsafe practice.

The pattern of health care provision has changed over the past decade from a hospital-centred model to one that is increasingly community based. This has resulted in GPs offering an extended range of services (Health Service Guidance, 1993) including more minor operations.

But Allen et al (1997) found the concept of sterilisation was not fully understood in general practice, which raises the question of safety for patients receiving care.

This study was undertaken while I was working as a public health nurse specialist in communicable disease and infection control. The impetus to undertake the survey arose following discussion with other staff, which indicated that guidance such as Controls Assurance in Infection Control (Health Service Circular, 1999) and Decontamination of Medical Devices (HSC, 2000) were unknown, not understood or not implemented.

**Literature review**

**Decontamination**

Steralisation and disinfection procedures were investigated by Morgan et al (1990) using a survey of 10 questions, sent to 600 GPs by post (response rate was 65 per cent). Almost half the respondents had autoclaves while one-third used hot water disinfectors or chemical agents. Evidence indicated that 22 per cent of instruments used in high-risk procedures were inadequately decontaminated.

There was a paucity of other relevant studies until White and Smith (1995) carried out a postal survey of 117 general practices, with a response rate of 74 per cent. Autoclaves were found to be present in 80 per cent of practices, a marked increase on the earlier study, but only 44 per cent had a policy for their maintenance and operation.

More recent studies have shown an increase in the use of autoclaves; 94 per cent in a study by Allen et al (1997) and 76 per cent in a study by Smythe et al (1999). However, maintenance schedules were poor in the former study, with 35 per cent of respondents reporting checks weekly or less frequently and only 25 per cent keeping a log of each cycle. Of concern was that 13 per cent of respondents believed that immersion in glutaraldehyde for 10 minutes constituted sterilisation.

In a survey of 700 doctors across England and Wales (just over half of whom responded), Coulter et al (2001) noted that 82 per cent had autoclaves. However, 39 practices did not autoclave instruments after every patient even though 84 per cent perceived that the lifestyles of their patients put them at risk of HIV or hepatitis B virus (HBV).

Sneddon et al (1997) noted that only one practice out of the 71 per cent with autoclaves carried out daily user checks. They also identified inadequate decontamination for seven types of instrument, two per cent of which were used in high-risk procedures (British Medical Association, 1989).

In a survey of higher education services, McNally (2001) noted that 84 per cent had a benchtop steriliser, but only 33 per cent maintained a log book, and some staff considered that soaking items in glutaraldehyde or chlorhexidine constituted sterilisation. Smythe et al (1999) observed that only 25 per cent of respondents correctly defined sterilisation, while just 34 per cent correctly defined disinfection, indicating a need for education.

**Personal protective equipment**

The use of personal protective equipment is recommended because it protects both staff and patients from micro-organisms and the skin and mucous membranes from exposure to blood and body fluids (Health and
Minor surgery:
- Minor surgery was carried out in 98 per cent of practices and 64 per cent had a dedicated area for this;
- Elbow-operated taps were available in 71 per cent of practices and antiseptic agents in 91 per cent;
- Gloves and aprons were provided in 88 per cent of practices, but masks/visors were available in 42 per cent;
- Although 90 per cent kept a formal record of procedures, only 16 per cent looked at infection rates (Table 4).

Discussion
The findings demonstrate deficits in knowledge and practice – and poor compliance with national policies – and were similar to findings in earlier studies (HSC, 2000).

Only just over one-third of practices had a decontamination policy and only 34 per cent had a disinfectant policy, which may explain why nearly one-quarter of respondents believed that using glutaraldehyde or chlorhexidine would ‘sterilise’ items in 10 minutes. This undoubtedly has major implications in practice for patients undergoing invasive procedures and puts staff at risk of disciplinary procedures and litigation.

Most practices had autoclaves even though reprocessing through a sterile services department is the recommended practice (Table 2, p35); 93 per cent of surgeries used a benchtop autoclave, and 68 per cent of these had a user policy, with 90 per cent reporting a documented maintenance programme;

- 63 per cent received training in using autoclaves;
- 18 per cent kept a log of each cycle.

Personal protective equipment:
- 84 per cent of surgeries provided staff with aprons;
- 98 per cent had access to gloves;
- 41 per cent had access to a mask/visor.

Hand hygiene
All practices had hand basins in clinical areas – 98 per cent and 96 per cent respectively had liquid cleanser and paper towels. Availability of alcohol handrub was 63 per cent. Just over half used nailbrushes – of these, 18 per cent used towels. Availability of alcohol handrub was 63 per cent.

and 96 per cent respectively had liquid cleanser and paper towels available in most practices. Availability of alcohol handrub was 63 per cent. Just over half used nailbrushes – of these, 18 per cent used towels. Availability of alcohol handrub was 63 per cent.

Waste and sharps:
- There was a policy on waste management in 43 per cent of practices and 81 per cent had a sharps handling policy;
- Clinical waste was segregated in 98 per cent of practices and 87 per cent used pedal-operated bins;
- All used yellow waste sacks appropriately, but only 25 per cent tagged them with the origin (Table 3, p35);
- 98 per cent used registered waste carriers.

Minor surgery:
- Minor surgery was carried out in 98 per cent of practices and 64 per cent had a dedicated area for this;
- Elbow-operated taps were available in 71 per cent of practices and antiseptic agents in 91 per cent;
- Gloves and aprons were provided in 88 per cent of practices, but masks/visors were available in 42 per cent;
- Although 90 per cent kept a formal record of procedures, only 16 per cent looked at infection rates (Table 4).

Conclusion
The findings of this study have considerable implications for practice, and while the study was in progress it was recognised that a policy was required on infection control for primary care. This study found that staff received little training in decontamination, and plans were made to provide updates and arrange more study days to help develop knowledge and understanding of infection control practice.

Table 2: Breakdown of decontamination methods used in general practices

<table>
<thead>
<tr>
<th>Method</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical disinfectants</td>
<td>36 (64.29%)</td>
<td>20 (35.71%)</td>
<td></td>
</tr>
<tr>
<td>CSSD</td>
<td>13 (23.64%)</td>
<td>42 (76.36%)</td>
<td></td>
</tr>
<tr>
<td>Benchtop autoclave</td>
<td>52 (92.86%)</td>
<td>4 (7.14%)</td>
<td></td>
</tr>
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</table>

Table 3: Methods of waste management used in general practices

<table>
<thead>
<tr>
<th>Method</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot operated bins</td>
<td>49 (87.50%)</td>
<td>7 (12.50%)</td>
<td></td>
</tr>
<tr>
<td>Yellow clinical waste bags</td>
<td>56 (100%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
<tr>
<td>Bags are labelled</td>
<td>12 (25.53%)</td>
<td>35 (74.47%)</td>
<td></td>
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</tbody>
</table>

References


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**Table 4. Procedures used in minor surgery**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Undertaken in practice</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>55</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Formal records maintained</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Infection rates assessed</td>
<td>9</td>
<td>44</td>
</tr>
</tbody>
</table>

Safety Executive, 1992). However, in a study by Sneddon et al (1997) only 26 out of 42 practices (62 per cent) had access to aprons. Finn and Crook (1998) noted that the staff at nine out of eleven practices (82 per cent) did not use gloves, aprons or face protection appropriately.

White and Smith (1999) noted that gloves were routinely worn for venepuncture by only 25 per cent of staff even though the Department of Health (1998) and the Public Health Laboratory Service Aids and STD Centre (1998) recommended their use as health care workers had acquired blood-borne viruses during this procedure.

**Hand hygiene**

Hand decontamination is known to reduce infection rates (Thompson et al, 1987). Gorman et al (1993) and Ansari et al (1991) note that health care workers’ hands are the most common vehicle by which micro-organisms are transmitted. Stone et al (2001) found nine studies that demonstrate major reductions in infection-related outcomes and suggest that if ‘hand hygiene’ were a new drug it would be accepted without question.

The availability of bars of soap and communal towels and nailbrushes was recorded in some studies (Finn and Crook, 1998; Sneddon et al, 1997). Recommendations have included the use of liquid soap, paper towels, and single-use or autoclavable brushes, as these have become contaminated (Infection Control Nurses Association, 2001; Ayliffe and Geddes, 1992).

**Waste and sharps**

The need for safe management of waste and sharps is well documented (Health Services Advisory Committee, 1999). A report by the National Audit Office (1997) showed that needlestick injuries were the most common type of accident in the NHS, and Becker et al (1990) noted that resheathing was the cause of 33 per cent of injuries.

A number of authors (Sneddon et al, 1997; White and Smith, 1995) highlight the lack of guidelines for staff on what to do in the event of a needlestick injury. Overfilling of sharps bins occurred in 40 per cent of practices (Finn and Crook, 1998), exposing staff to the risk of accidental inoculation.

**Minor surgery**

Minor surgery in primary care is now commonplace (Coulter et al, 2001; Smythe et al, 1999) and it is suggested that preparation for these procedures should be as thorough as that undertaken in day surgery units, with meticulous attention to hand hygiene, appropriate use of personal protective equipment, a clean environment, and the use of sterile instruments (Finn and Crook, 1998).

Evidence from these studies shows little room for complacency and in the light of these findings it was considered important to find out what practices were commonly used locally, so that risk to staff and patients could be reduced.

**Methods**

A postal questionnaire was used to collect information from the six PCTs in the locality. Initially the survey was to be anonymous, but it was considered necessary to code the questionnaires so that non-responders could be followed up. The findings from individual practices remained confidential.

As a result of being involved with staff in general practice and from the findings in the earlier studies (Coulter et al, 2001; Finn and McCulloch, 1996) the decision was made to target practice nurses because decontamination procedures and infection control issues are part of their remit.

A pilot study using the questionnaire was undertaken in three GP practices outside the locality to ensure that the questions were clear and unambiguous.

The local research ethics committee was approached with regard to the planned study and requested a copy of the proposal. The response indicated that the work seemed to fit more accurately under audit.

The clinical governance lead in each PCT was contacted and an explanation given about the proposed study. A form was enclosed for their signature on behalf of the PCT giving consent to approach the practices. This was included with the questionnaire to indicate to respondents that the PCT supported the study.

**Results**

Four PCTs agreed to staff being surveyed – this covered 70 general practices. The response rate was 80 per cent. However, not all respondents answered all the questions.

**Decontamination:**

- There was a policy on decontamination in 36 per cent of practices (Table 1, p34), and 35 per cent indicated that designated staff carried it out. But only 15 per cent of these staff had received training.
- 87 per cent of practices carried out manual cleaning of instruments and 79 per cent had a dedicated sink.
- 12 surgeries had disinfectors or ultrasonic washers;
- Chemical disinfectants were used in 64 per cent of surgeries – 35 per cent of these had a policy for their use;
- Disinfectants were used to sterilise instruments in 24