Roles & Responsibilities for Reusable Patient Care Equipment and Environmental Decontamination

Version: 1.0

Date: December 2017

Contents

Background

In 2012, Health Protection Scotland (HPS) undertook a series of focus groups with Senior Charge Nurses (SCNs) to explore the barriers to compliance with decontamination of communal reusable patient care equipment.[1] One of the main findings from these focus groups was the lack of clarity with regard to the roles and responsibilities of healthcare workers in equipment and environmental decontamination, for example, while domestic staff are generally responsible for cleaning toilets, this is often referred to the nursing team or domestic supervisor when blood or body fluids are present.

There is perceived to be a historic demarcation in equipment cleaning, such as the role of nurses in cleaning beds above the bumper level, whereas domestic staff clean beds below this level. This can impact on the time required for discharge cleaning as nurses often have to wait for a domestic to complete the process, thus potentially restricting bed availability. Another area which lacks clarity is non-ward based equipment such as transfer trolleys. Whilst it is routinely the responsibility of portering staff to clean transfer trolleys, common practice is for the trolley to be left on the ward while the nurses transfer the patient, leaving the trolley outside to be collected. In these situations, the trolley may not always be cleaned and the SCNs were concerned over who should be taking ownership of this.

The aim of the HPS review was to develop an evidence base for defining roles and responsibilities of healthcare workers on decontamination of the healthcare environment and communal reusable patient care equipment nationally. This involves the completion of a targeted review of the published literature on roles and implementation of roles and responsibilities against national findings. In 2014, an A-Z Template for Decontamination of Re-usable Communal Patient Equipment was published by HPS[2], the review is not seen to replace such but to build on and support the template. The information gained will inform the development of national recommendations to define roles and responsibilities of healthcare workers for reusable patient equipment and environmental decontamination. The key output from this review is the production of a flow chart.

Introduction

In NHSScotland the National Infection Prevention and Control Manual (NIPCM)[3] recommends local decontamination protocols should state who has responsibility for the decontamination of care equipment and how frequently routine cleaning should be undertaken. According to the NICPM[3], decontamination of communal reusable patient care equipment should be undertaken at the following times:

- Between each use;
- After blood and/or body fluid contamination;
- At regular predefined intervals as part of an equipment cleaning protocol; and
- Before inspection, servicing or repair.

The NHSScotland National Cleaning Services Specification[4] states “local policy will dictate the responsibility for cleaning patient equipment” and does not provide further guidance on this issue. In contrast, the Revised Healthcare Cleaning Manual[5] of the National Patient Safety Agency (NPSA) provides an exemplar protocol that divides the responsibility of cleaning tasks between nursing and domestic staff. Despite its ostensibly prescriptive structure, it continues to acknowledge the significance of local factors in determining appropriate cleaning duties. Understandably, in practice there exists a considerable overlap in the cleaning responsibilities of nursing and domestic staff, further complicated by the competing demands on nursing staff in relation to direct patient care. In 2017, HPS reviewed the impact of alternative approaches establishing that a new healthcare support worker role can have a positive impact on equipment decontamination. In this report staff expressed benefits of scheduled decontamination of near patient equipment releasing nurses’ time to care although this was constrained by employment hours[6].

In order to judiciously distribute limited resources and maintain standards in environmental and reusable patient equipment cleanliness it is imperative to designate roles and responsibilities. This review aims to develop an evidence base for defining roles and responsibilities for clinical and non clinical categories of reusable patient equipment and environmental decontamination at national level.

Method

This involved the completion of a targeted review of the published literature on roles and responsibilities and a separate data collection method in order to identify current roles and responsibilities across NHSScotland.

Targeted Literature Review

The databases MEDLINE, CINAHL and EMBASE were searched to identify relevant published literature. A combination of Medical Subject Headings (MeSH) and free-text search terms were developed and adapted to suit each database, including the following: “housekeeping”, “disinfection”, “durable medical equipment”. In addition, the following websites NHS Evidence, NICE and National Patient Safety Agency were searched to identify academic and grey literature relevant to the subject. All literature searches were conducted in August 2017. Articles were excluded from the review on the basis of the following criteria: article was published before 2000; article was not published in the English Language; article did not concern the roles and responsibilities of healthcare workers in decontamination of the healthcare environment and communal reusable patient care equipment (i.e. off-topic).

The targeted review followed a two-stage screening process. In the first stage, the title and abstract of each article were screened for relevance by the lead reviewer. Of those articles that were deemed potentially relevant, the full text was retrieved and screened against the exclusion criteria. Critical appraisal of the studies was carried out using the Scottish Intercollegiate Guidelines Network methodology (SIGN).[7]

Health Board Survey

The data collection component of the study was to determine what staff groups in NHS boards cleaned clinical and non clinical reusable patient equipment according to the recommended times set out in the NIPCM[3]. Clinical equipment included two categories: general and specialist. Examples included some of the following:

- Clinical
    - Specialist - theatre table, anaesthetic/dialysis machine, defibrillator, bili lights (neonatal phototherapy lights).
    - General – drips stands, pumps, dressing trolleys, limb braces.

- Non clinical - bedframes, overhead lights/lamp, laminar flow cabinets, bedside chairs, fans, clinical note holders, patient transfer trolleys, mattresses.

Staff training in management of blood and body fluids influences the ability of different staff categories to perform decontamination of the contaminated environment and equipment. In order to find out if different staff roles and responsibilities were influenced by staff training, respondents were requested to provide information on staff categories trained in their board.

The survey was targeted at all boards across the following five clinical settings:

- Intensive Care Unit
- Accident and Emergency
- Theatre
- Speciality e.g. renal, maternity
- General e.g. medical/ surgical ward

For sanitary equipment, ITU and Theatre were excluded after considering the equipment relevance in terms of patient needs.

A board response was requested unless there was hospital variation in roles and responsibilities. The staff groups were defined as nurse trained or untrained, domestic, facilities (porter), medical staff, theatre orderly, estates housekeeper, allied healthcare professional (AHP) or other role not assigned.

There is an awareness that shared responsibility of environment and equipment exists although the different roles are not clearly understood nationally. To gain an understanding of these shared roles, respondents were requested to provide information across the named clinical settings within their board and the different parts of specific equipment the part they were responsible for (Appendix 3, Table 1)

To achieve the data collection, a question set was formulated (Appendix 1) and set up as an online survey. Staff completing the survey were requested to complete all sections relevant to their board/hospital. The ability for respondents to select more than one choice for staff categories with the differentials for hospital completion presented expected variation in numbers of responses. In doing so, the number of responses per clinical setting did not directly correlate to the total number of staff categories. Variables for roles were formulated specific to the clinical settings i.e. Facilities (porters) were excluded from specialist equipment cleaning as this was less relevant in an ITU setting in view of the type of management of patient care.

Testing of the survey took place over a 10 day period to establish if there were any technical issues or amendments required. Following successful testing, board Infection Control Managers (ICMs) were invited to participate in the survey over a 14 day period. A request was offered to complete the survey by whoever they felt appropriate. This measure left the onus on the ICMs for who best to provide the information for their board.

The questionnaire was provided in Word format at the request of three boards to support data collection. To maximise responses a reminder email was sent to ICMs advising the data response timeframe. Following this, the timeframe was extended to allow further board data collection completion. Responses from the questionnaire were examined to determine if there was any differentiation in staff roles for clinical and non clinical patient equipment cleaning set out at the times in the NICPM[3].

Results

Targeted Literature Review

The literature search identified 9 studies, of those 6 were SIGN level 3 evidence (4 cross-sectional studies, 2 before and after studies), 1 level 2 evidence (cross-over study) and further 2 level 4 (1 non systematic review and 1 outbreak report).

Four articles evaluated interventions to improve standards of cleanliness[8,9,10,11] of which three examined the link between designation of roles and responsibilities and association with healthcare associated infections/outbreaks, and the other was an outbreak report. A further 4 articles examined responsibilities for cleaning equipment and environmental surfaces/furnishings, of which two were audit reviews[11,12] and the remaining articles were a survey[13] and non systematic review. For summary of the included studies see Appendix 2.

The interventional studies evaluated impact of roles and responsibilities through the following different methods:

- policy implementation
- practice change
- targeted cleaning responsibility for specific areas
    - shared use medical equipment
    - "grey zones" which are described by Semret *et al.*[8] as items of general equipment or clinical materials used by multiple categories of healthcare workers that have no clearly assigned responsible person for cleaning and left to individual users.

Dumigan *et al.*[9] conducted an interventional study evaluating environmental surface cleanliness using ATP bioluminescence. A policy was implemented that allocated responsibility to nurses for routine cleaning of equipment between patient use and routine cleaning of the patient environment.

Goodman *et al.*[10] carried out a before and after intervention study that changed cleaning methods, and implemented feedback on adequacy of cleaning. The key finding in terms of roles and responsibilities was that there was substantial confusion regarding responsibilities for cleaning objects such as equipment carts and intravenous pumps.

Rampling *et al.*[11] conducted a before-and-after study in which responsibility was allocated for routine cleaning of shared equipment on a general surgical ward for a period of six months. Following introduction of the intervention, they measured the number of patients colonised with MRSA and environmental culture results from monthly surveys. The authors concluded that allocation of responsibility for cleaning shared medical equipment (e.g. drip stands, suction equipment, oxygen supplies) was partly responsible for achieving resolution of an MRSA outbreak.

Semret *et al.*[8] designed a cross-over study in which specific cleaning of 'grey zones' by an additional cleaner was implemented on two acute care wards for a period of six months each. This intervention significantly reduced transmission of vancomycin-resistant enterococci but failed to decrease transmission of MRSA and *Clostridium difficile*.

In addition, Denton *et al.*[14] report an outbreak of *Acinetobacter baumannii* colonisation and infection in a neurosurgical intensive care unit and propose that it was partly attributable to unclear designation of cleaning responsibilities between nursing and cleaning staff. Resolution of the outbreak occurred when the team introduced, amongst other environmental cleaning measures, delegated responsibility of ward cleaning staff for cleaning the environmental infrastructure, (e.g. floors, curtain rails), whereas responsibility for equipment, (e.g. monitors, bed frames, trolleys), was delegated to nursing staff. Since other infection control measures were introduced in order to bring about resolution of the outbreak, it is not possible to determine whether delegation of cleaning responsibilities contributed to the successful outcome.

In terms of examining responsibilities for cleaning equipment and environmental surfaces/furnishings Dumigan *et al.*[9] suggest nurses should be responsible for cleaning equipment allocated to a specific patient, whereas environmental services staff should be responsible for cleaning the same equipment when under shared use or not in use. Dancer[15] remarks that "responsibility for cleaning near-patient hand-touch sites does not always rest with the ward cleaners... beds, drip stands, lockers and overbed tables are more usually cleaned by nurses", in addition to which "nurses are also responsible for the decontamination of more delicate clinical equipment". Semret *et al.*[8] define "grey zones" as "equipment and clinical materials used by

numerous service providers, whose cleaning has not been clearly assigned to a specific category of healthcare worker but is left to individual users".

Most importantly, it is highlighted that "this overlapping of cleaning responsibilities has created some confusion; it has also meant that cleaning opportunities of some items are missed or abandoned". Ptak *et al.*[16] identify that "assigning responsibility for cleaning based on undefined general categories, such as 'equipment' or 'furnishings', can result in important items not being cleaned". Zoutman *et al.*[13] consider "there is a need to designate who is responsible to clean what with regard to equipment in patient care areas". Likewise, Goodman *et al.*[10] conclude that "additional improvement in assigning responsibility for cleaning of all mobile objects is still needed". Anderson *et al.*[12] found that 92% of items (11/12) on a surgical ward with no designated cleaning responsibility were considered unacceptably dirty on the basis of ATP bioluminescence.

Health Board Survey

A total of 33 responses were received. Respondents included nursing staff from clinical to management level: Senior Charge Nurses, Infection Prevention and Control Nurses, Chief Nurse, Head of Nursing, Associate Nurse Director, Infection Prevention and Control Managers, Site Operational Manager and Head of IPC Decontamination Services.

13 boards participated

- A total of 12 board level responses included 3 special and 9 territorial boards.

<u>Responses by Clinical Setting</u>

From the 5 clinical settings, the number of responses who stated the following were present in their hospital were; ITU (22), A&E (15) Theatre (16) Specialist (16) and General (22).

<u>Staff Cleaning Roles by Clinical Setting</u>

Responses were compared across the 5 clinical settings for general clinical equipment, specialist clinical equipment and non clinical equipment for the following categories of decontamination times:

- Between use contaminated and non contaminated equipment
- Scheduled e.g. daily/weekly
- Before servicing repair

Results suggest that nurses (both trained and untrained) were primarily responsible across the clinical settings and decontamination times set out in the NICPM[3]. Differences were further examined across the clinical settings by the following:

- General clinical equipment

After nurses, results suggest there were clinical setting variation for roles and responsibilities. In the general care setting, AHPs had responsibility across all category of cleans in comparison to the other four clinical settings. Roles differentiation in ITU and A&E was demonstrated through the use of the housekeeper role and in theatre, the theatre orderly role was consistent for all cleans at the different times. In the speciality setting the role of both the AHP and the housekeeper was apparent although the differentiation being the results suggested AHP did not have a role in daily/scheduled cleaning in comparison to the housekeeper who had a responsibility at all the times set out in the NICPM[3].

- Specialist Clinical Equipment

Results suggest after nurses, similar to general clinical equipment, AHPs had more responsibility for cleaning of specialist equipment in the general setting compared to other clinical settings although they had responsibility for across all the different type of cleans as well as housekeepers. Again after nurses, the results imply similarities between the A&E setting and ITU with housekeepers and other specialist role being responsible for all the different cleans. Medical staff had a lesser involvement and differed from ITU in that they were only responsible for contaminated between use in comparison to A&E where there were no response to say they had responsibility for any type of clean.

- Non Clinical Equipment

Results suggest, after nurses, domestics have more responsibility across all clinical settings for all types of cleans. Other roles included the use of housekeeper in A&E, specialty and general setting for all types of cleans. The differentiation of roles in

theatre included the theatre orderly and also estates. Other roles utilised in A&E included enhanced domestics in NHS Fife.

Graphs showing responses for staff roles involved in decontamination in each clinical area according to the time set out in the NIPCM can be found in Appendix 3.

Mattress cleaning by staff category/clinical setting

Results imply, across all 5 clinical settings nurses both trained and untrained were mainly responsible for mattress cleaning. In theatres, the theatre orderly has responsibility. Porters have a specific role in A&E and ITU although they were trained in management of blood and body fluids across the 5 clinical settings. Other roles for mattress cleaning included the use of an enhanced domestic in A&E and ITU and an operating department practitioner in theatre in NHS Fife.

Graphs showing responses for staff roles involved in mattress cleaning and those trained in management of blood and body fluids in each clinical area can be found in Appendix 3.

Shared Equipment Cleaning Responsibilities by Clinical Setting

Specialised equipment: From the examples provided, information gained on blood gas analysers, dialysis machines, ventilators, incubators results imply there were similarities for roles and responsibilities. Trained nurses were mainly responsible for decontamination with some differential responses provided:

- Blood Gas Analysers: Unqualified nurses were also responsible
- In ITU, other roles included medical staff, housekeeper and medical physics
- In A&E all staff were responsible.

- Theatres: Other roles included an operating practitioner and a theatre orderly
- Dialysis Machines: Unqualified nurses, medical staff, renal technicians and medical physics were also responsible.
- Ventilators: Other roles included unqualified nurses, medical physics
- Incubators: In speciality settings other responsible roles included domestics, and unqualified nursing staff in maternity, renal, transplant surgery and other specialty settings.

- Fridges- specimen/blood: Other responsible roles included domestics, unqualified staff and also housekeepers.
- Non clinical equipment: From the examples provided, information gained on bedframes, overbed table, patient locker/wardrobe, patient transport trolley/chair, fridges specimen/blood there were similarities for roles and responsibilities. Nurses (qualified and unqualified) and domestics were responsible for decontamination with some of the following differential responses provided:
    - Bedframe: Qualitative responses were limited. One board reported that both qualified and unqualified nurses are responsible for above the mattress base whilst the underside is domestic responsibility.
    - Overbed tables: Another role included the housekeeper with one board reporting that domestics are responsible for full daily clean and discharge cleans.
    - Patient transport/ trolley chair: Other responsible roles included unqualified nurses, domestics and porters in A&E/speciality settings and also medical physics in ITU. One board reported on the role of housekeeper in a neurosurgical speciality area if the equipment was ward based.

Dedicated Equipment and Environment Decontamination Staff by Clinical Setting

From the responses, results confirm 5 boards have dedicated equipment and environment teams. Results demonstrate more use in the general setting and ITU although this is over-represented by responses from one board. Graphs showing responses for dedicated equipment and environment decontamination staff by clinical setting can be found in Appendix 3

Discussion

This literature review outlines the evidence base regarding roles and responsibilities of healthcare workers with respect to decontamination of the healthcare environment and communal reusable patient care equipment. Evidence from the published literature shows that certain items of equipment (e.g. transfer trolleys situated outside the patient ward) or equipment under specific circumstances (e.g. blood-contaminated toilets) were often not allocated to specific staff groups for cleaning, however these reports were primarily anecdotal. Only one single-site study used observational methods to determine which items of equipment were not being cleaned, indicating that further observational studies are required.

Over recent years, Healthcare Environmental Inspectorate (HEI) reports[17] have continually raised poor standards of cleaning associated with lack of ownership of some equipment and the need for clear roles and responsibilities. In 2015, HEI reported seven of the inspections carried out in emergency departments recognised "significant shortcomings with either the cleanliness of the department, patient equipment, or both"[17].

From the health board survey, roles and responsibilities for the nursing role both untrained across the named categories of decontamination of environmental and reusable patient equipment was clear despite this being highlighted as an issue in the SCN Focus Groups and HEI[1,17].

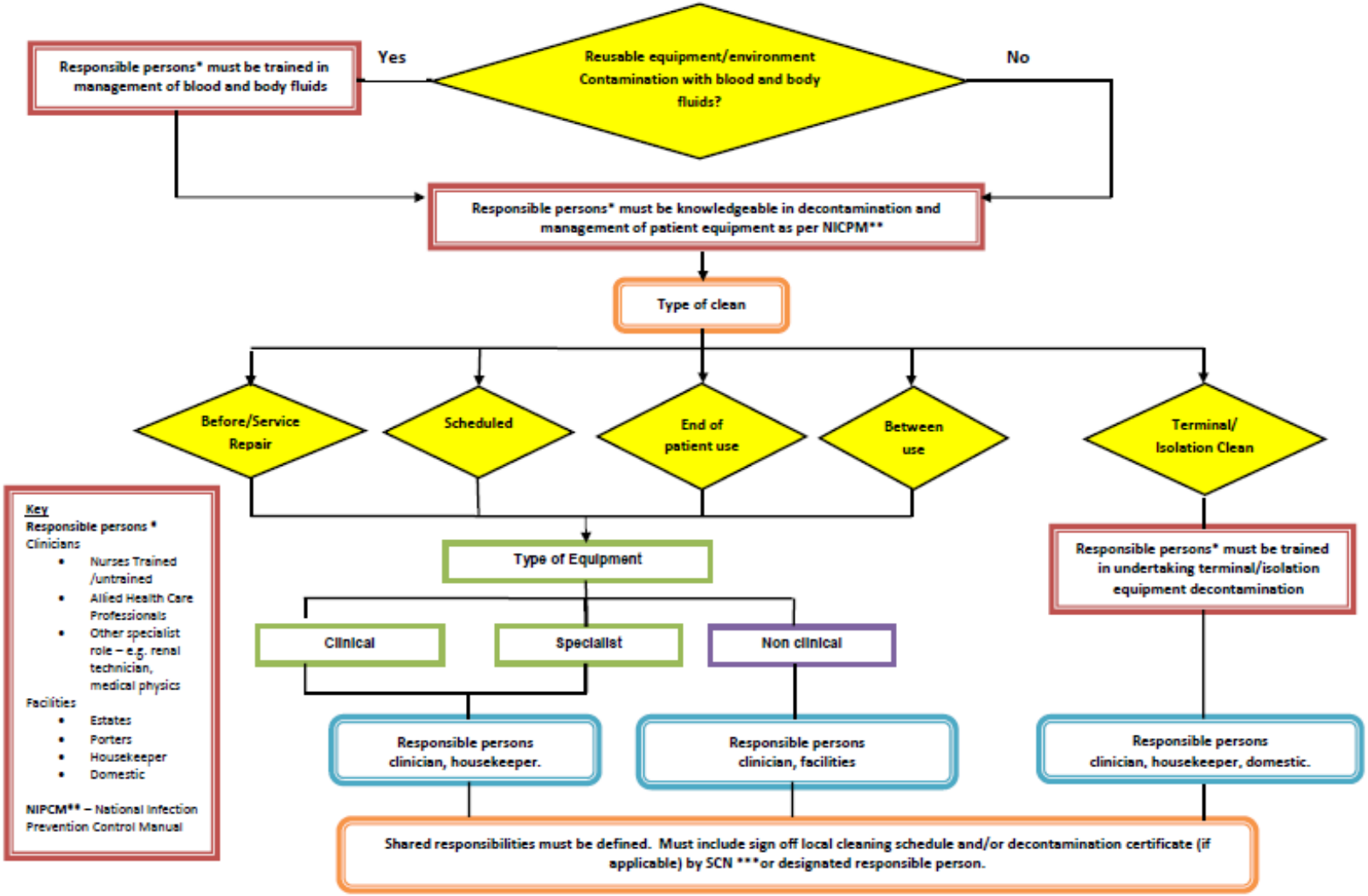
Several challenges for data analysis presented. Differing variables across the clinical settings for staff category selection prevented a statistical interpretation of responses. Results imply, after nurses, domestics and housekeepers had greater responsibility for non clinical equipment with other specialist role involvement.

Over representation from nursing responses may have introduced bias especially in the non clinical equipment category albeit the nursing representative responses varied to management level. Evidence from the literature review and the board survey are generalised sufficiently to define roles and responsibilities.

Clarity on who cleans what is required locally. This may vary from board to board or indeed across the same board. However as long as there is clear guidance on who

has responsibility for decontamination in the different times of cleans according to the NICPM[3]. Staff must also be appropriately trained and have an understanding of the item being decontaminated according to the manufacturers' instructions. In items of shared responsibility there should be clear protocols in place to ensure cohesive working with minimal delay to undertake decontamination of the item. A flow chart has been devised as a simple measure to assist boards with who clean what.

Roles and Responsibilities Reusable Patient Care Equipment and Environment Decontamination Flow Chart



Recommendations

HPS recommend:

- The patient equipment and environment flow chart is considered for use by NHS boards to:
  - build upon and support the A-Z Template for Decontamination of Re-usable Communal Patient Equipment that was published by HPS in 2014;
  - provide a guide locally for roles and responsibilities;
  - have clear guidance on who cleans what and all staff are aware of their roles and responsibilities.

- Where there are items of equipment with a joint/dual responsibility for decontamination, there should be processes in place which facilitate decontamination of the item without causing delay on its availability for re-use.

Appendix 1 - Lime Survey Question Set

Roles and responsibilities – Equipment and Environmental Decontamination

Introduction

1. Please state your Board

2. If practice differs between hospitals in your Board, please complete a questionnaire for each hospital.
   Please state Hospital name:

3. Please complete your details

Name: ……

Designation: ……

Telephone: ……

Email: ……

4. Please complete the following questions for each clinical area. There may be more than one staff group responsible for equipment in each area so complete for all staff groups in the following sections.
   - ITU
   - A&E
   - Theatre
   - Speciality
   - General

SECTION 1: ITU

5. Does your Board have an ITU department?

   Yes/No

6. If no proceed to Section 2: A&E

7. In ITU do you have dedicated equipment and environment decontamination staff such as housekeeper?

   Yes/No

8. Please complete for general clinical equipment cleaning in ITU for example drip stands, unit based imaging equipment, pumps, trolleys (line insertion/dressing)

	Nurse (Trained)	Nurse (Untrained)	Domestic	Facilities (porter)	Medical staff	Housekeeper	Other (role not assigned)
Between use: non-contaminated general equipment							
Between use: contaminated general equipment							
Scheduled e.g daily/weekly							
Before servicing or repair							

9. Please complete for specialist clinical equipment cleaning in ITU for example dialysis machines, cardiac monitors and ventilators.

	Nurse (Trained)	Nurse (Untrained)	Domestic	Medical staff	Housekeeper	Other (role not assigned)
Between use: non-contaminated general equipment						
Between use: contaminated general equipment						
Scheduled e.g daily/weekly						
Before servicing or repair						

10. Please complete for non-clinical equipment cleaning in ITU for example reclining chairs, clinical notes holders/IT, fans.

	Nurse (Trained)	Nurse (Untrained)	AHP	Domestic	Medical staff	Housekeeper	Other (role not assigned)
Between use: non-contaminated general equipment							
Between use: contaminated general equipment							
Scheduled e.g daily/weekly							
Before servicing or repair							

11. Different roles may take on a shared responsibility for decontamination of different parts/sections of the same piece of equipment for example bed frames – bed bumpers and above nursing, bed bumpers and below domestics.

For the following equipment please state the roles involved and which parts of the equipment they decontaminate in the boxes provided.

- Nurse (trained)
- Nurse (untrained)
- Domestics
- Housekeepers
- Estates
- Facilities (porter)
- Medical staff
- Another assigned not specified above.

Blood gas analysers	
Dialysis machines	
Ventilators	
Bed: bedframe	
Overbed table	
Patient wardrobes	

Patient transfer trolley

12. Who cleans mattresses in ITU?

Choose all that apply

Nurses (trained)	Yes/No
Nurses (untrained)	Yes/No
Domestics	Yes/No
Housekeeper	Yes/No
Facilities (porters)	Yes/No

Other

13. In your Board who has been trained in the management of blood and body fluid spillages in ITU?

Choose all that apply

Nurses (trained) Yes/No

Nurses (untrained) Yes/No

Domestics Yes/No

Housekeeper Yes/No

Facilities (porters) Yes/No

Other

SECTION 2: A&E

14. Does your Board have an A&E department?

    Yes/No

15. If no proceed to Section 3: Theatre

16. In A&E do you have dedicated equipment and environment decontamination staff such as housekeeper?

    Yes/No

17. Please complete for general clinical equipment cleaning in A&E for example drip stands, unit based imaging equipment, pumps, line insertion/dressing trolleys

	Nurse (Trained)	**Nurse (Untrained)**	**Domestic**	**Medical staff**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment						
Between use: contaminated general equipment						
Scheduled e.g daily/weekly						
Before servicing or repair						

18. Please complete for specialist clinical equipment cleaning in A&E for example cardiac monitors, ECG Machine

	Nurse (Trained)	**Nurse (Untrained)**	**Domestic**	**Medical staff**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment						

Between use: contaminated general equipment						
Scheduled e.g daily/weekly						
Before servicing or repair						

19. Please complete for non-clinical equipment cleaning in A&E for example bedframes, bedside chairs, patient transfer trolleys, scales, lead aprons, fans.

	Nurse (Trained)	**Nurse (Untrained)**	**Domestic**	**Medical staff**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment						
Between use: contaminated general equipment						
Scheduled e.g daily/weekly						
Before servicing or repair						

20. Please complete for sanitary equipment cleaning in A&E for example commodes

	Nurse (Trained)	**Nurse (Untrained)**	**Domestic**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment					
Between use: contaminated general equipment					
Scheduled e.g daily/weekly					
Before servicing or repair					

21. Different roles may take on a shared responsibility for decontamination of different parts/sections of the same piece of equipment for example bed frames – bed bumpers and above nursing, bed bumpers and below domestics.

For the following equipment please state the roles involved and which parts of the equipment they decontaminate in the boxes provided.

- Nurse (trained)
- Nurse (untrained)
- Domestics
- Housekeepers
- Estates

- Facilities (porter)
- Medical staff
- Another assigned not specified above.

Blood gas analysers	
Ventilators	
Overbed table	
Fridges (blood and specimen)	
Patient transfer trolley	
Patient lockers	

22. Who cleans mattresses in A&E?

Choose all that apply

Nurses (trained) Yes/No

Nurses (untrained) Yes/No

Domestics Yes/No

Housekeeper Yes/No

Facilities (porters) Yes/No

Other

23. In your Board who has been trained in the management of blood and body fluid spillages in A&E?

Choose all that apply

Nurses (trained) Yes/No

Nurses (untrained) Yes/No

Domestics Yes/No

Housekeeper Yes/No

Facilities (porters) Yes/No

Other

SECTION 3: THEATRE

24. Does your Board have a Theatre department?

Yes/No

25. If no proceed to Section 4: Speciality

26. In Theatre do you have dedicated equipment and environment decontamination staff such as housekeeper?

    Yes/No

27. Please complete for general clinical equipment cleaning in Theatre for example drip stands, imaging equipment, pumps

	Nurse (Trained)	Nurse (Untrained)	Domestic	Housekeeper	Theatre Orderly	Other (role not assigned)
Between use: non-contaminated general equipment						
Between use: contaminated general equipment						
Scheduled e.g daily/weekly						
Before servicing or repair						

28. Please complete for specialist clinical equipment cleaning in Theatre for example theatre table, anaesthetic machine, diathermy unit, defibrillator.

	Nurse (Trained)	Nurse (Untrained)	Domestic	Medical staff/anaesthetist	Housekeeper	Theatre orderly	Other (role not assigned)
Between use: non-contaminated general equipment							
Between use: contaminated general equipment							
Scheduled e.g daily/weekly							
Before servicing or repair							

29. Please complete for non-clinical equipment cleaning in Theatre for example bedframes, over-head lights/lamp, laminar flow cabinet, lead aprons. bedside chairs, patient transfer trolleys, scales, lead aprons, fans.

	Nurse (Trained)	Nurse (Untrained)	Estates	Domestic	Medical staff	Housekeeper	Theatre orderly	Other (role not assigned)
Between use: non-contaminated general equipment								

Between use: contaminated general equipment								
Scheduled e.g daily/weekly								
Before servicing or repair								

30. Different roles may take on a shared responsibility for decontamination of different parts/sections of the same piece of equipment for example bed frames – bed bumpers and above nursing, bed bumpers and below domestics.

For the following equipment please state the roles involved and which parts of the equipment they decontaminate in the boxes provided.

- Nurse (trained)
- Nurse (untrained)
- Domestics
- Housekeepers
- Estates
- Facilities (porter)
- Medical staff
- Theatre orderly
- Another assigned not specified above.
-

Blood gas analysers	
Laminar flow cabinets	
Lancer cabinets for scopes storage	
Theatre table	
Ventilators	
Patient transfer trolley	
Fridges (blood and specimen)	
Overhead lamp/light	

31. Who cleans mattresses in Theatre?

Choose all that apply

Nurses (trained) Yes/No

Nurses (untrained) Yes/No

Domestics Yes/No

Housekeeper Yes/No

Facilities (porters) Yes/No

Theatre orderly Yes/No

Other

32. In your Board who has been trained in the management of blood and body fluid spillages in Theatre?

Choose all that apply

Nurses (trained) Yes/No

Nurses (untrained) Yes/No

Domestics Yes/No

Housekeeper Yes/No

Facilities (porters) Yes/No

Theatre orderly Yes/No

Other

SECTION 4: Speciality

33. Does your Board have a Speciality department?

    Yes/No

34. If no proceed to Section 5: General ward

35. Please state the speciality and answer questions specific to this area

36. In Speciality do you have dedicated equipment and environment decontamination staff such as housekeeper?

    Yes/No

37. Please complete for general clinical equipment cleaning in Speciality for example drip stands, hoists, unit based imaging equipment, pumps.

	Nurse (Trained)	**Nurse (Untrained)**	**AHP**	**Domestic**	**Medical staff**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment							
Between use: contaminated general equipment							

Scheduled e.g daily/weekly							
Before servicing or repair							

38. Please complete for specialist clinical equipment cleaning in Speciality for example dialysis machines, cardiac monitor, ECG Machine, bililights, radiant warmer.

	Nurse (Trained)	**Nurse (Untrained)**	**Domestic**	**Medical staff**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment						
Between use: contaminated general equipment						
Scheduled e.g daily/weekly						
Before servicing or repair						

39. Please complete for non-clinical equipment cleaning in Speciality for example bedframes, bedside lockers/wardrobes, patient chairs, lead aprons, fans.

	Nurse (Trained)	**Nurse (Untrained)**	**AHP**	**Domestic**	**Medical staff**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment							
Between use: contaminated general equipment							
Scheduled e.g daily/weekly							
Before servicing or repair							

40. Please complete for sanitary equipment cleaning in Speciality for example commodes, shower stools, raised toilet seats.

	Nurse (Trained)	**Nurse (Untrained)**	**AHP**	**Domestic**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment						

Between use: contaminated general equipment						
Scheduled e.g daily/weekly						
Before servicing or repair						

41. Different roles may take on a shared responsibility for decontamination of different parts/sections of the same piece of equipment for example bed frames – bed bumpers and above nursing, bed bumpers and below domestics.

For the following equipment please state the roles involved and which parts of the equipment they decontaminate in the boxes provided.

- Nurse (trained)
- Nurse (untrained)
- Domestics
- Housekeepers
- Facilities (porter)
- Medical staff
- Another assigned not specified above.

Blood gas analysers	
Dialysis machines	
Bed: bedframe	
Overbed table	
Wardrobes – patient	
Incubators	
Fridges (specimen and blood)	
Patient transport trolley/chairs	

42. Who cleans mattresses in Speciality?

Choose all that apply

Nurses (trained) Yes/No

Nurses (untrained) Yes/No

Domestics Yes/No

Housekeeper Yes/No

Facilities (porters) Yes/No

Other

43. In your Board who has been trained in the management of blood and body fluid spillages in Speciality?

Choose all that apply

Nurses (trained) Yes/No

Nurses (untrained) Yes/No

Domestics Yes/No

Housekeeper Yes/No

Facilities (porters) Yes/No

Estates Yes/No

Other

SECTION 5: GENERAL WARD

44. In General wards do you have dedicated equipment and environment decontamination staff such as housekeeper?

    Yes/No

45. Please complete for general clinical equipment cleaning in general wards for example drip stands, hoists, ward based imaging equipment, pumps.

	Nurse (Trained)	**Nurse (Untrained)**	**AHP**	**Domestic**	**Facilities (porter)**	**Medical staff**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment								
Between use: contaminated general equipment								
Scheduled e.g daily/weekly								
Before servicing or repair								

46. Please complete for specialist clinical equipment cleaning in General wards such as vascular, orthopaedic, respiratory for example passive exercise machines, limb braces/supports, cryocuff.

	Nurse (Trained)	**Nurse (Untrained)**	**AHP**	**Domestic**	**Facilities (porter)**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment							

Between use: contaminated general equipment							
Scheduled e.g daily/weekly							
Before servicing or repair							

47. Please complete for non-clinical equipment cleaning in General wards for example bedframes, patient bedside lockers/wardrobes, patient chairs etc

	Nurse (Trained)	**Nurse (Untrained)**	**AHP**	**Domestic**	**Estates**	**Facilities (porter)**	**Medical staff**	**House keeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment									
Between use: contaminated general equipment									
Scheduled e.g daily/weekly									
Before servicing or repair									

48. Please complete for sanitary equipment cleaning in General wards for example commodes, shower stools, raised toilet seats.

	Nurse (Trained)	**Nurse (Untrained)**	**AHP**	**Domestic**	**Medical staff**	**Housekeeper**	**Other (role not assigned)**
Between use: non-contaminated general equipment							
Between use: contaminated general equipment							
Scheduled e.g daily/weekly							
Before servicing or repair							

49. Different roles may take on a shared responsibility for decontamination of different parts/sections of the same piece of equipment for example bed frames – bed bumpers and above nursing, bed bumpers and below domestics.

For the following equipment please state the roles involved and which parts of the equipment they decontaminate in the boxes provided.

- Nurse (trained)
- Nurse (untrained)
- Domestics
- Housekeepers
- Estates
- Facilities (porter)
- Medical staff
- Another assigned not specified above.

Bed: bedframe	
Overbed table	
Wardrobes - patient	
Patient chairs	

50. Who cleans mattresses in General Ward?

Choose all that apply

Nurses (trained) Yes/No

Nurses (untrained) Yes/No

Domestics Yes/No

Housekeeper Yes/No

Facilities (porters) Yes/No

Other

51. In your Board who has been trained in the management of blood and body fluid spillages in General Wards?

Choose all that apply

Nurses (trained) Yes/No

Nurses (untrained) Yes/No

Domestics Yes/No

Housekeeper Yes/No

Facilities (porters) Yes/No

Estates

Other

Appendix 2 – Characteristics of included studies

Authors (date)	Study design	Country	Setting	Intervention/description of study	Outcome/findings
Semret et al (2016)	Cross-over study	Canada	Two acute care medical wards	Routine cleaning (baseline) versus specific cleaning of "grey zones" by an additional cleaner (intervention). Six month baseline and intervention periods.	Significant reduction in transmission of vancomycin-resistant enterococci, but intervention failed to reduce transmission of methicillin-resistant *Staphylococcus aureus* and *Clostridium difficile*.
Anderson et al (2011)	Cross-sectional study	UK	General mixed surgical ward	Audit of designated responsibilities for cleaning 44 selected items/surfaces in the ward environment.	12 items (27%) had no designated cleaning responsibility. Clinical support workers were responsible for 21 items (48%).Domestic staff were responsible for 5 items. Staff nurses were responsible for 3 items. Medics were responsible for 3 items.
Ptak et al (2009)	Cross-sectional study	USA	Adult intensive care unit and an intensive care nursery	Audit of designated responsibilities (nurses and housekeepers) for cleaning equipment, furniture and environmental surfaces.	Four items had no designated cleaning responsibility: bedside monitors, thermometers, pumps and rocking chairs.
Dumigan et al (2010)	Cross-sectional study	USA	In-patient nursing care units	Evaluation of environmental surface cleanliness using ATP bioluminescence. A policy was implemented that allocated responsibility to nurses for routine cleaning of equipment between patient use and routine cleaning of the patient environment. The policy was later changed to allocate nurses the responsibility for cleaning equipment allocated to a specific patient, with environmental services staff responsible for cleaning	No measurements were taken before introduction of the policy, so it cannot be determined whether strict allocation of designated cleaning responsibilities improved the standards of environmental cleanliness.

				equipment under shared use or not in use.	
Zoutman et al (2014)	Cross-sectional study	Canada	Acute care hospitals	Survey to determine designated responsibility of nurses and environmental services (EVS) staff for cleaning equipment in Canadian acute care hospitals.	96 completed surveys were returned by EVS managers. In 66.3% (63/95) of hospitals, intravenous poles were frequently cleaned by EVS cleaning staff, while in 22.1% (21/95) of hospitals it was reported that cleaning intravenous poles was not the responsibility of EVS. In 53.1% (51/96) and 82.1% (78/95) of hospitals respectively the cleaning of transport equipment such as wheelchairs and the cleaning of glucose meters were reported not to be EVS responsibilities. The authors highlight the existence of "grey zones".
Dancer (2009)	Non-systematic review	UK	N/A	N/A	The author notes that "responsibility for cleaning near-patient hand-touch sites does not always rest with the ward cleaners, however, since beds, drip stands, lockers and overbed tables are more usually cleaned by nurses", in addition to which "nurses are also responsible for the decontamination of more delicate clinical equipment". Most importantly, it is highlighted that "this overlapping of cleaning responsibilities has created some confusion; it has also meant that cleaning opportunities of some items are missed or abandoned".
Denton et al (2004)	Outbreak report	UK	Neurosurgical ICU	N/A	The authors conclude that an outbreak of *Acinetobacter baumannii* colonisation and

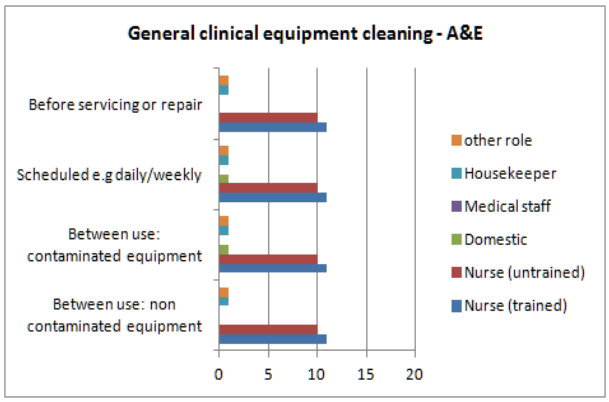
					infection was partly attributable to unclear designation of cleaning responsibilities between nursing and cleaning staff.
Rampling et al (2001)	Before-and-after study	UK	General surgical ward	Intervention: Allocation of responsibility for routine cleaning of shared equipment on a general surgical ward for a period of six months.	The authors concluded that allocation of responsibility for cleaning shared medical equipment, e.g. drip stands, suction equipment, oxygen supplies, was partly responsible for achieving resolution of an MRSA outbreak.
Goodman et al (2008)	Before-and-after study	USA	Intensive care unit	Intervention: a change from the use of pour bottles to bucket immersion for applying disinfectant to cleaning cloths; an educational campaign; and feedback regarding adequacy of discharge cleaning.	Removal of fluorescent marker and cultures for environmental contamination with MRSA and VRE. The authors noted that there was “substantial confusion regarding whether Environmental Services staff were responsible for cleaning mobile objects, such as equipment carts and intravenous pumps”.

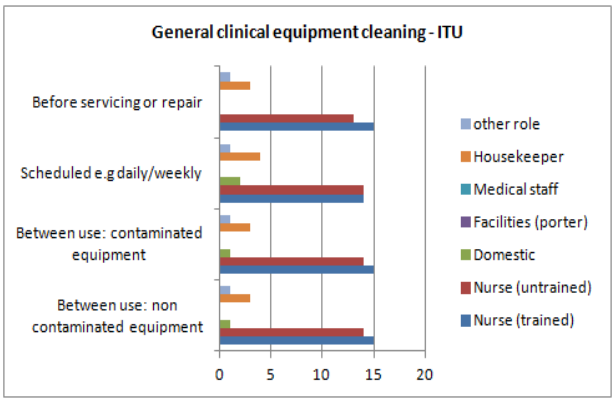
Appendix 3 – Board Survey Responses Information

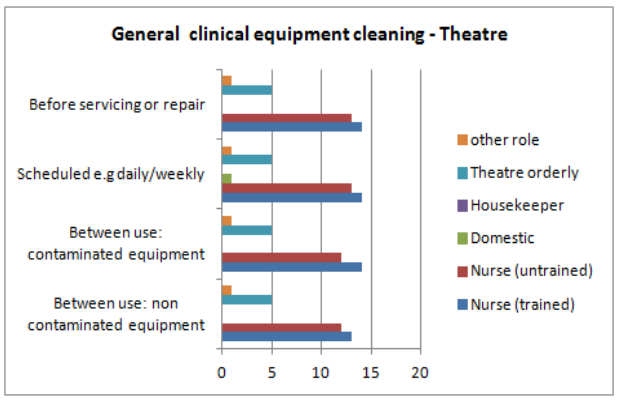
Table 1: Shared responsibility responses by clinical setting:

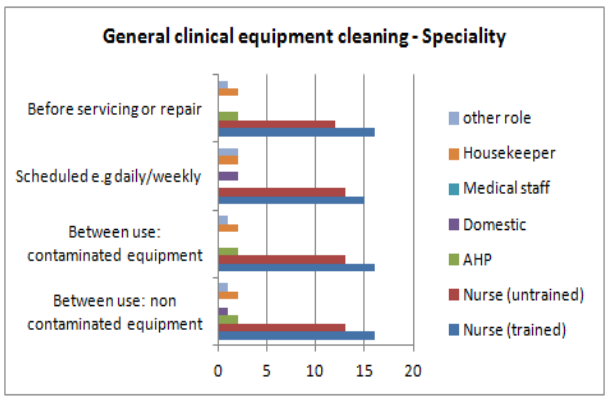
Shared Responsibility Equipment	Clinical Settings				
	ITU	A&E	Theatre	Specialty	General
Blood gas analysers	√	√	√	√	-
Dialysis machines	√	-	-	√	-
Ventilators	√	√	√	-	-
Bed:bedframe	√	-	-	√	√
Overbed table	√	-	-	√	√
Patient wardrobes	√	-	-	√	√
Fridges (blood and Specimen)	-	√	√	√	-
Patient transfer trolley/+- chair	-	√	√	√	-
Patient locker	-	√	-	-	-
Laminar flow cabinets	-	-	√	-	-
Lancer cabinets for scopes storage	-	-	√	-	-
Theatre table	-	-	√	-	-
Overhead lamp/light	-	-	√	-	-
Incubators	-	-	-	√	√
Patient chairs	-	-	-	-	-

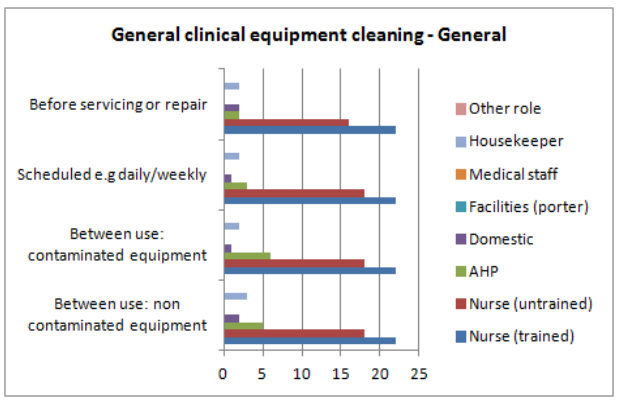
General clinical equipment cleaning by clinical setting



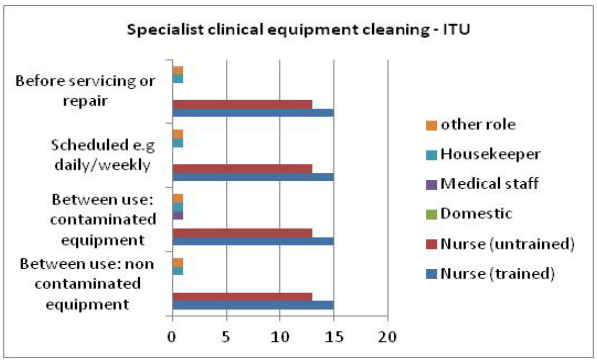


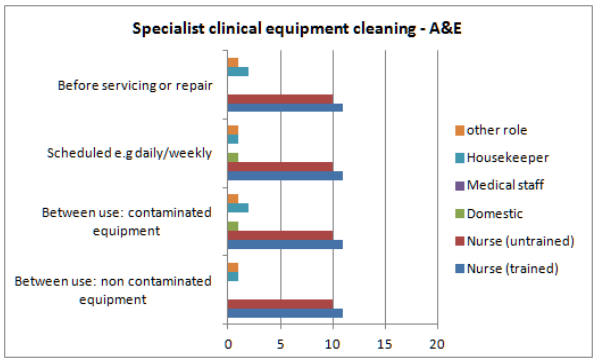


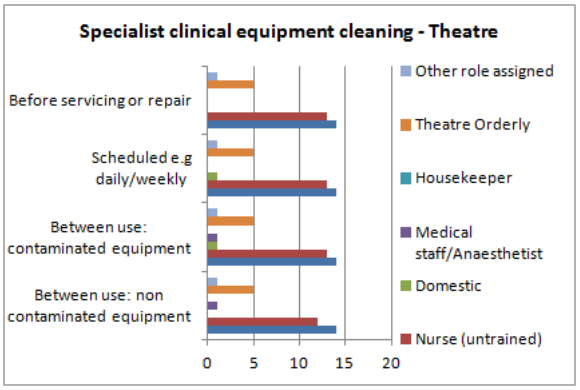


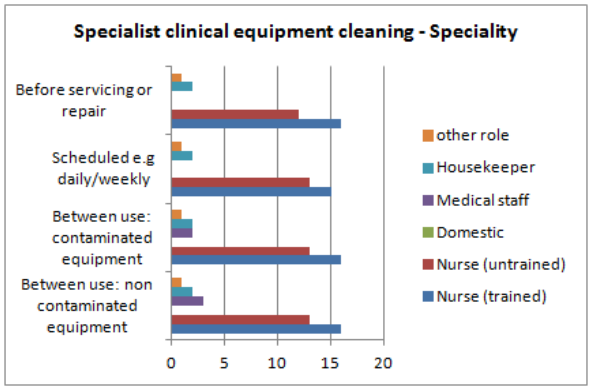


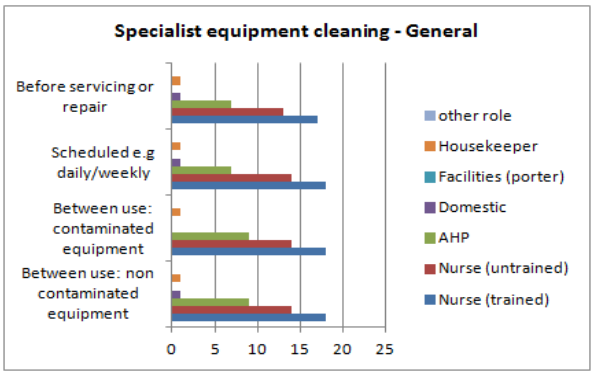
Specialist clinical equipment cleaning by clinical setting



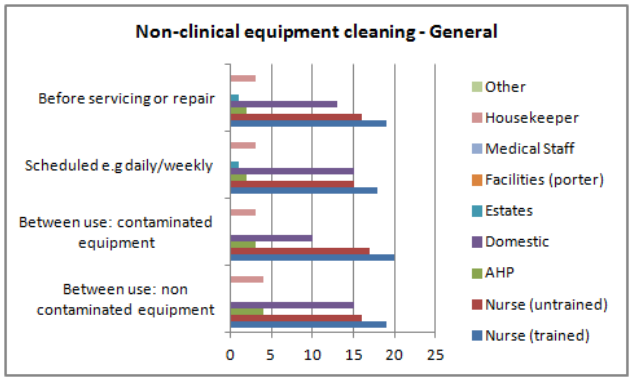


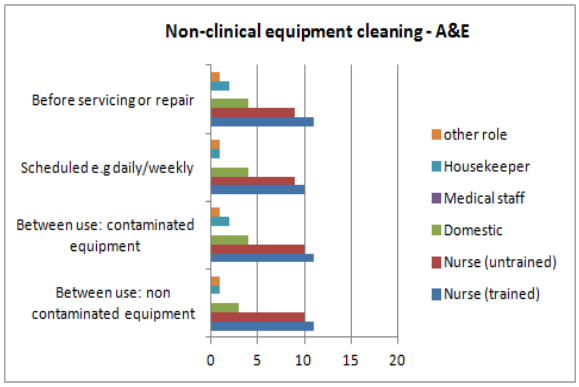


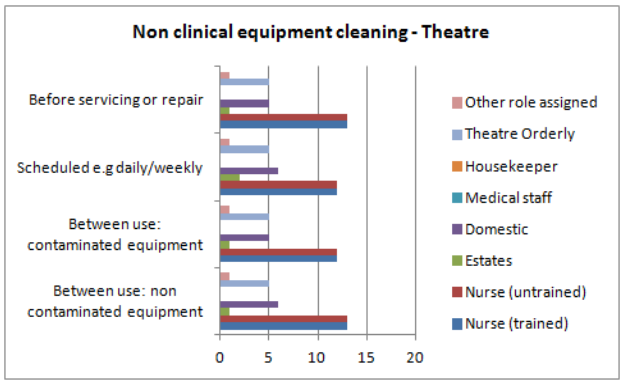


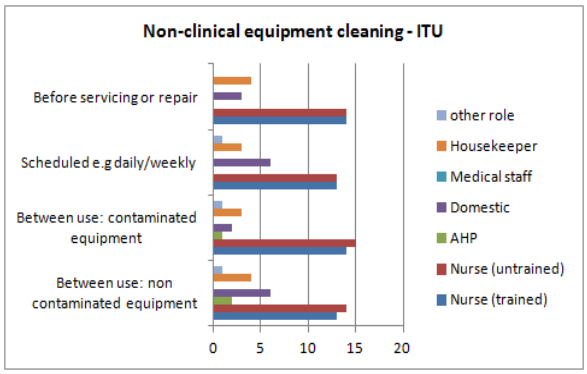


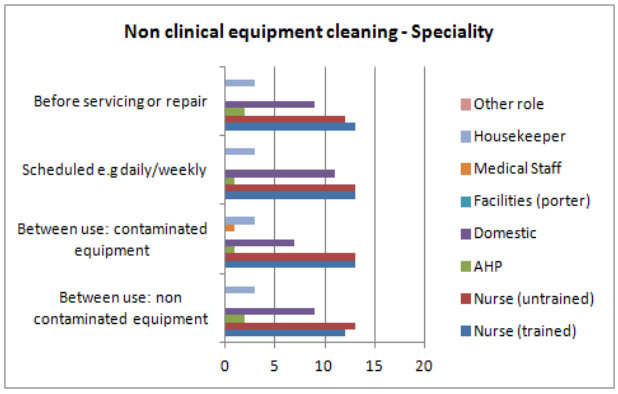
Non clinical equipment cleaning by clinical setting



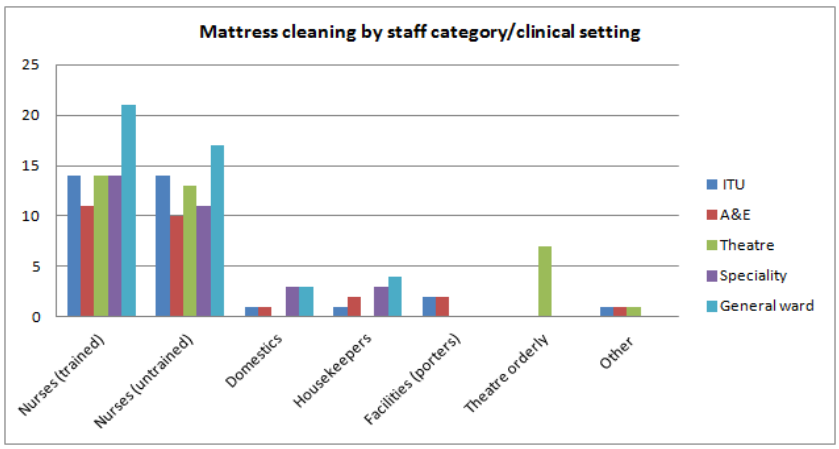




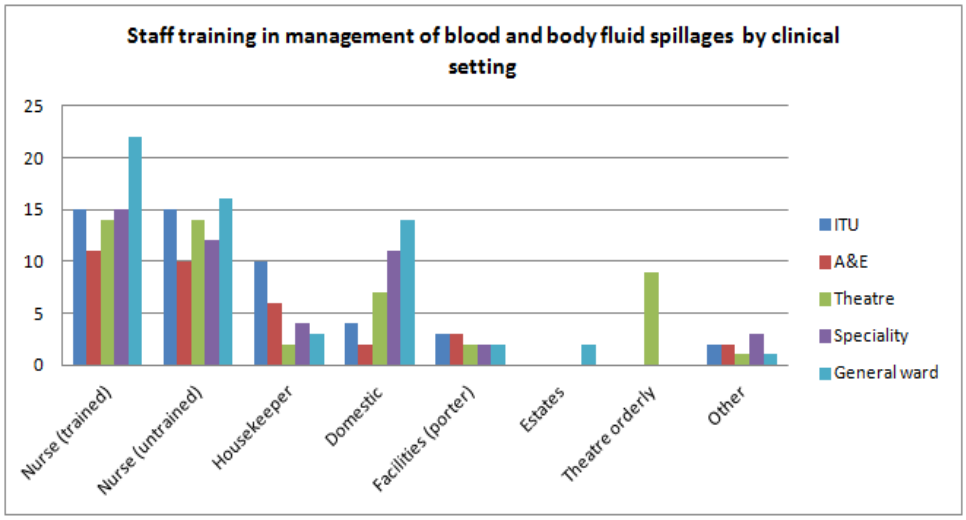




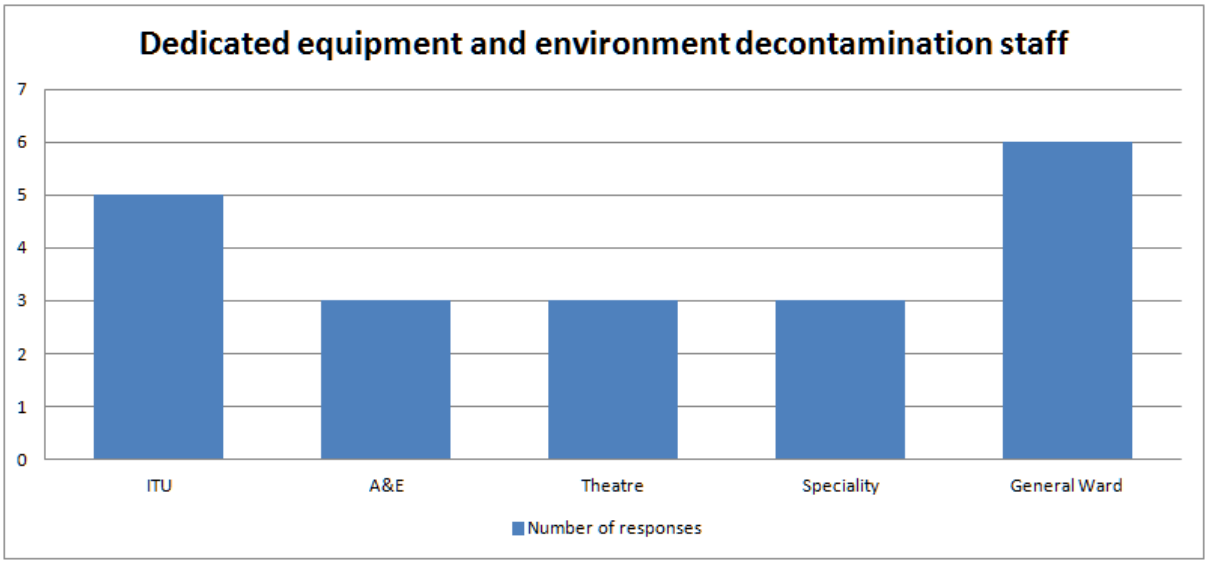
Mattress cleaning



Staff training in management of blood and body fluids



Dedicated equipment and environment decontamination staff by clinical setting



References

(1) Health Protection Scotland. Challenges to decontamination of non-invasive communal patient care equipment: Understanding barriers to compliance of frontline staff - a summary report of Senior Charge Nurse focus groups. 2013

(2) Health Protection Scotland. A-Z Template for Decontamination of Re-usable Communal Patient Equipment. 2014 http://www.hps.scot.nhs.uk/haiic/decontamination/resourcedetail.aspx?id=1731 Accessed:5-12-2017

(3) Health Protection Scotland. NHSScotland National Infection Prevention and Control Manual. 2017 http://www.nipcm.hps.scot.nhs.uk/ Accessed:7-9-2017

(4) Health Facilities Scotland. The NHSScotland National Cleaning Services Specification. 2016 http://www.hfs.scot.nhs.uk/publications/1470212661-The%20NHSScotland%20National%20Cleaning%20Services%20Specification%20%20-%20June%202016.pdf Accessed:7-9-2017

(5) National Patient Safety Agency. The Revised Healthcare Cleaning Manual. 2009 http://nrls.npsa.nhs.uk/EasySiteWeb/getresource.axd?AssetID=61814 Accessed:5-9-2016

(6) Health Protection Scotland. UK and International Review of Alternative Approaches to Environmental and Equipment Decontamination, 2017 http://www.hps.scot.nhs.uk/haiic/decontamination/resourcedetail.aspx?id=3396

(7) Scottish Intercollegiate Guidelines Network. SIGN 50 A guideline developer's handbook. 2015 http://www.sign.ac.uk/assets/sign50_2015.pdf Accessed:5-9-2016

(8) Semret M, Dyachenko A, Ramman-Haddad L, Belzile E, McCusker J. Cleaning the grey zones of hospitals: a prospective, crossover, interventional study. American Journal of Infection Control 2016;44:1582-8.

(9) Dumigan DG, Boyce JM, Havill NL, Golebiewski M, Balogun O, Rizvani R. Who is really caring for your environment of care? Developing standardized cleaning procedures and effective monitoring techniques. American Journal of Infection Control 2010;38:387-92.

(10) Goodman ER, Platt R, Bass R, Onderdonk AB, Yokoe DS, Huang SS. Impact of an environmental cleaning intervention on the presence of methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant enterococci on surfaces in intensive care unit rooms. Infection Control & Hospital Epidemiology 2008;29:593-9. Dancer SJ. The role of environmental cleaning in the control of hospital-acquired infection. Journal of Hospital Infection 2009;73:378-85.

(11) Rampling A, Wiseman S, Davis L, Hyett AP, Walbridge AN, Payne GC, et al. Evidence that hospital hygiene is important in the control of methicillin-resistant *Staphylococcus aureus*. Journal of Hospital Infection 2001;49:109-16

(12) Anderson RE, Young V, Stewart M, Robertson C, Dancer SJ. Cleanliness audit of clinical surfaces and equipment: who cleans what? Journal of Hospital Infection 2011;78:178-81

(13) Zoutman DE, Ford BD, Sopha K. Environmental cleaning resources and activities in Canadian acute care hospitals. American Journal of Infection Control 2014;42:490-4.

(14) Denton M, Wilcox MH, Parnell P, Green D, Keer V, Hawkey PM, et al. Role of environmental cleaning in controlling an outbreak of *Acinetobacter baumannii* on a neurosurgical intensive care unit. Journal of Hospital Infection 2004;56:106-10.

(15) Dancer SJ. The role of environmental cleaning in the control of hospital-acquired infection. Journal of Hospital Infection 2009;73:378-85.

(16) Ptak J, Tostenson L, Kirkland K, Taylor E. Who is responsible for cleaning that? Presentation Number: 13-168. American Journal of Infection Control 2009;37:e133-e134.Goodman ER, Platt R, Bass R, Onderdonk AB, Yokoe DS, Huang SS. Impact of an environmental cleaning intervention on the presence of methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant enterococci on surfaces in intensive care unit rooms. Infection Control & Hospital Epidemiology 2008;29:593-9.

(17) Healthcare Improvement Scotland. Ensuring Your Hospital is Safe and Clean: HEI Annual Report 2013-2014. 2015 http://healthcareimprovementscotland.org/his/idoc.ashx?docid=3b2c0699-bbbc-4c6c-bf1b-b6bad1159b9c&version=-1
Accessed:12-12-2017