

Evaluation of Housekeeping Quality Service in Egyptian Hospitals: Public vs Private

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Abstract

Housekeeping services in a hospital is entrusted with maintaining a hygienic and clean hospital environment conducive to patient care. Housekeeping services have a direct effect on the health, comfort and morale of the patient, staff and visitors, hence is also an important public relations variable. The study was conducted on a sample of sixteen hospitals in Egypt. The chosen of hospitals was due to Public Vs private hospitals accordance to variety of the locations in Cairo, Luxor and Aswan, 500 questionnaires collected from the patients and their families through the period of May to August 2018. 421 of them were valid with rate 84.2% in the investigated hospitals. The aim of the questionnaire is to assess the level of housekeeping services and personal hygiene habits as well as their effects on patients' satisfaction. Most of the governmental hospitals being surveyed highlighted that room cleaning producers employees do and room cleaning bathroom producers employees do are still below the desired standard. Besides, housekeeping managerial skills in governmental hospitals are poor. On the other side, results obtained from the private hospitals highlighted that the applicable housekeeping procedures are more positive than proactive. Specific recommendations were suggested concerning the issue being researched.

Keywords: Good housekeeping, Environmental cleaning, patient and hospital.

Introduction

One of the most important in the hospital environment and considered as basic measures for the maintenance of hygiene, is particularly is cleaning (Russell, 1992). Environmental cleaning is a very important part of infection prevention and control in a health facility. If housekeeping is not done systematically and regularly the health care setting can become a reservoir for infectious agents (Gauthier, 2004). Patients may spread microorganisms into the health care environment, particularly if they are coughing, sneezing or having vomiting or diarrhea. Bacteria and viruses may survive for weeks or months on surfaces in the environment of the patient. The purpose of environmental cleaning is to reduce the number and amount of microorganisms and therefore reduce the risk of infection to patients and staff. Emphasizing the role of housekeeping (Johnson, 2004) pointed that "employees working in housekeeping undertake an important task in building up hospital's image and reputation. Therefore, of the problem study is to evaluate and compare between the housekeeping quality services in Egyptian hospitals: Public Vs private in order to improve the skills and minimize the gap of quality between the public and private hospitals.

Research objectives

The objectives of the current research are to: Evaluate the housekeeping quality system implemented in investigated hospitals. Assess the procedures of housekeeping's process in the selected sample. Evaluate housekeeping cleanliness, safety, and general atmosphere of rooms in the investigated hospitals

Research Problem

The research problem is the low quality of housekeeping services in the hospitals sector. The role of housekeeping practices in the success of hospitals businesses cannot be denied. It is vital for the hospital managers to have a good understanding on what exactly need to improve the level of the service and assuring their satisfaction.

Research Hypotheses

H1: There is a correlation between all the proposed relations (the basic procedures; personal hygiene habits; room cleaning producers; isolation room cleaning producers).

H2: There is a significant difference between the housekeeping quality level in the governmental and private hospitals.

Research importance

Firstly: Evaluate housekeeping quality service in Egyptian hospitals: Public Vs private in order to find out the weak points and try to find reconditions to improve housekeeping programs in the sector of hospital industry could result in.

Secondly: Housekeeping effective helps in prevention and control of hospital infection, reduces cost of medical care and reduce suffering of patients.

Review of literature

An overview of hospital acquired infections

According to the World Health Organization a Hospital Acquired Infection is, “an infection acquired in hospital by a patient who was admitted for a reason other than that infection. This includes infections acquired in the hospital but appearing after discharge and also occupational infections among staff of the facility” (Prevention of hospital, 2002). In other words nosocomial infections are those infections acquired in hospital or healthcare service unit that first appear 48 hours or more after hospital admission or within 30 days after discharge following in-patient care (Nosocomial infection, 2009).

The hospital hygiene and cleaning service

Cleaning is a common activity performed to maintain a healthy, safe, and aesthetically pleasing environment. Various cleaning products have become ubiquitous parts of our everyday lives. There is increasing evidence that cleaning is related to asthma and other respiratory illnesses among those who perform cleaning tasks or spend time in recently cleaned indoor environments. While cleaning is common in nearly all industry sectors and in homes, it is particularly important in healthcare which requires intensive and frequent cleaning and uses a wide range of cleaning and disinfecting products (Branson, 2016). Cleaning in healthcare serves the dual functions of providing surface cleanliness and infection prevention and control. Both the importance and complexity of infection prevention and control are increasing due to rapidly developing strains of multidrug-resistant organisms that can result in serious worker and patient illness and even death. The recent decision of the Center for Medicare and Medicaid Services (CMS) that it will no longer provide additional reimbursement to hospitals for specific hospital-acquired infections may add a strong economic incentive for infection prevention and control measures, including the use of more cleaners and disinfectants. More importantly the media attention to certain antibiotic-resistant organisms such as Methicillin-resistant *Staphylococcus aureus* (MRSA) or infectious agents that form spores has intensified interest in cleaning and disinfection in healthcare facilities (Pia, 2009)

Quality and hospital housekeeping

Housekeeping services in a hospital is entrusted with maintaining a hygienic and clean hospital environment conductive activity which is performed in every department of the hospital. Housekeeping services has a direct effect on the health, comfort and morale of the patient, staff and visitors, hence is also an important public relations variable (Madhav, 2016).

Biomedical waste management

From point of (Navreet. 2016) handling and Segregation of bio-medical waste is done at the point of generation/source and is put into a different color bags in same color bins. The “Bio Medical Waste Management and Handling Rules, 1998” are followed for the proper handling and final disposal of Bio Medical Waste. Biomedical waste is the leading cause for spreading of nosocomial infections in the hospital. Improper maintenance of Biomedical Waste may lead to increased risk of blood born; air born and needle prick injuries in the staff as well as the patients and their attendants. For Proper treatment and Disposal of Biomedical Waste in the facility following steps should be:

1. Segregate waste as soon as it is generated into different categories of waste.
2. Collect the waste in properly labeled specific color coded covered bins.
3. Keep same color bags in the bins.
4. Clean regularly with soap and water and disinfect the bins.
5. Collect the domestic waste (eatables, wrappers, fruit peels, papers etc., in green bin).
6. Use dedicated waste collection bins/trolleys/ wheel barrows for transporting waste.
7. Transport waste through a pre- defined route and time within the hospital.
8. Mutilate and disinfect the needle soon after administration of injection.
9. Mutilate and disinfect solid waste (plastic waste) as soon as it is generated.
10. Always disinfect the sharps and the solid waste with either hypochlorite solution or Bleaching powder before disposing.
11. Disinfect needle and solid waste (plastic) after mutilation.
12. Dispose body parts in yellow bin.
13. Dispose waste within 48 hours.
14. Always use protective gears while handling the waste. (Satter & Hall, 2007).
15. Never mix infectious and non- infectious waste
16. Never mix plastic wastes with the waste which goes for incineration.
17. Never overfill the bins.
18. Never store waste beyond 48 hours.
19. There should not be any spillage of waste on the way of transport.
20. Avoid transport of waste through crowded areas.
21. Do not put infectious waste into general waste.
22. Don't dispose waste sharps with other wastes.
23. Don't dispose the solid waste and sharp waste without mutilation and disinfection.
24. Overloading of the Bags and the bins should be avoided. Color coded bags to be replaced when half full.
25. Never drag filled waste liners (Satter & Hall, 2007).

Personnel Safety and Universal Precautions in hospital

In a hospital setting personnel protection should be considered as the utmost priority (Paraschivescu, 2011). The principle of universal precautions is to provide a barrier between the HCW and the patient's body substance when they have to come in close

proximity. Blood, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, salival in dental procedures, semen, vaginal secretions, any body fluid that is visibly contaminated with blood; any unfixed tissue or organ from a human ; HIV containing culture medium or other solutions; blood or other tissues infected with HIV or hepatitis B, C or non A non B are considered as the source of potential infection ,for which following Precautions and instructions should be followed:

Table 1: Precautions and instructions of potential infection

Barrier	User of Barrier
Hand washing	Before and after patient contact after using gloves, immediately after contact with blood and care workers who have exudative lesions or weeping dermatitis should refrain from all patient care activities that involve direct contact and from handling patient care equipment (Kayakalp, 2015).
Masks and other protective equipment such as face shields and goggles	When one is likely to be splashed in the face with infective material, which may lead to contamination of the eyes, nose or mouth (Carling, 2013).
Gloves	When direct contact with blood and body fluids, mucous membranes non-intact skin surfaces or infectious material is anticipated when performing vascular access or other invasive procedures and when handling specimens, cultures, or tissues that are visibly contaminated with blood or other infectious material (Hoes, 2013). Hands must be washed each time gloves are removed. Those with non-intact skin must wear gloves when indirect handling of infectious material is a possibility.
Protective clothing Gowns, lab coats, caps, hoods, shoe covers, boots, or other such paraphernalia	When the HCW is likely to be soiled by the splattering of infectious material. These must be removed and discarded properly immediately after use.
Handling Needles and small sharps	Never recap or bend the needles unless by using an instrument or by no touch technique. Dispose of used needles and disposable small sharps in puncture proof containers that are located as close to the area of use as possible (Moore, 2013).

Source: WHO Guidelines on Hand Hygiene in Health Care (Advanced draft), at: http://www.who.int/patientsafety/information_centre/ghhad_download/en/index.html. (Accessed 25/7/2018).

Protocols for Gloves

1. Use of disposable gloves to be ensured
2. In high risk cases; double gloving should be done; routine cases single
3. Gloves should be changed if duration of procedure/operation is > 3 hours
4. Any pair of gloves can be used for total time of 3 hours
5. Between patients; gloved hands should be disinfected for at least 30 seconds
6. Surgical hygienic hand (w) should be done before and after use of gloves

7. Check gloves for gross defects before putting on cover cuts with waterproof dressing before gloving
8. Discard gloves immediately on suspicion of puncture (Rutala, 2013).

Protocols for Masks

1. Masks are mandatory for infections patients' esp. airborne infection
2. Ideally masks should be disposable; if not cotton masks can be used
3. Masks should fit properly and cover both mouth and nose.
4. Masks should be changed after every proc/surgery lasting > 20 minutes.
5. Cotton masks should be disinfected with liquid bleach before washing and reuse (Elizabeth, 2014).

Safe handling of sharps

1. Pass syringes and needles in a tray cut it with electric /manual needle cutlers after use
2. Put needle and syringes in a puncture proof white container, containing 2% hypochlorite solution
3. Remove cap of needle near the site of use
4. Pick up open needle from tray/drum with forceps
5. Destroy syringes by burning their tips/cutters not available
6. Never pass syringe and needle on directly to next person
7. Do not bent/or break used needle with hands
8. Never test the fineness of the needle's tip before use with bare or gloved hand
9. Never pick up open needle by hand
10. Never dispose it off by breaking it with hammer/stone
11. Always dispose of your own sharps, into a sharp pit
12. During exposure-prone procedure, the risk of injury should be minimized by ensuring that the operator has the best possible visibility for example by positioning the patient, adjusting good light source and controlling bleeding (Vintila,2009).

Protocols for Mercury Spillage

1. Remove everyone from the area that has been contaminated with mercury.
2. Keep the heat below 200 C and ventilate the area.
3. Put on face mask in order to prevent breathing of mercury vapor.
4. Remove all jewelry from hands and wrists.
5. Use Personal Protective Equipment while handling mercury.
6. Cardboard sheets should be used to locate and push the spilled beads of mercury together.
7. Mercury should be placed carefully in a container with some water.
8. . Never us a broom or vacuum cleaner.
9. It should be disposed of at hazardous waste facility or given to a mercury-based equipment manufacturer (Rennie, 2016)

Protocols for cleaning Spillage of Blood

1. Wear gloves
2. Pour, without splashing, a disinfectant appropriate for the size and surface contaminated, e.g. Isopropyl alcohol, Dakin's or house hold bleach 1: 100 dil or 1: 10 dilution.
3. Place absorbent paper (e.g. news / tissue paper over the spill. Allow a contact time of 20 minutes.
4. Wipe up the spill. Put absorbent paper in the yellow bag. Wash hands (with gloves on).
5. Remove gloves.

6. Wash hands. (Anderson, 2013).

Cleaning Practices for all health care setting

<p>Before Cleaning</p>	<ul style="list-style-type: none"> ▪ Check for Additional Precautions signs. ▪ Follow precautions as indicated. ▪ Remove clutter before cleaning. ▪ Follow the manufacturer’s instructions for proper mixing and required contact time for disinfectant solutions. ▪ Gather materials required for cleaning before entering the room. ▪ Clean hands on entering the room.
<p>During Cleaning</p>	<ul style="list-style-type: none"> ▪ Progress from the least soiled areas (low-touch) to the most soiled areas (high-touch) and from high surfaces to low surfaces. ▪ Remove gross soil prior to cleaning and disinfection. ▪ Dry mopping is done before damp mopping. ▪ Minimize turbulence to prevent the mobilization of dust that may contain microorganisms ▪ Never shake mops inside to minimize dust/dirt in air. Ideally remove large pieces of dust and dirt with gloved hands then remove mop head to be laundered (Munoz-Price, 2013). ▪ .Do not “double-dip” cloths. ▪ Change cloths/mop heads frequently. ▪ Change cleaning solutions as per manufacturer’s instructions. Change more frequently in heavily contaminated areas, when visibly soiled and immediately after cleaning a blood and body fluid spill. (Otter , Yezli & French, 2015). ▪ Containers for liquid soap and cleaners/disinfectants are disposable. The practice of ‘topping up’ is not acceptable as it can result in contamination of the container and solution. ▪ Vacuum carpets using vacuums fitted with a HEPA filter. ▪ Maintain the filter according to the manufacturer’s instructions. ▪ Be alert for needles and other sharp items. Pick up sharps using a mechanical device (if possible) such as tongs and place into sharps container. ▪ Report such incidents to the supervisor ▪ .Collect plastic waste bags handling them from the top and do not compress. ▪ Perform hand hygiene before putting on a clean pair of disposable gloves ▪ Change gloves frequently including when leaving a room or area. ▪ Avoid spraying cleaning solutions onto a surface to reduce exposure to aerosolized cleaning chemical. Spray directly onto cleaning cloth instead.
<p>After Cleaning</p>	<ul style="list-style-type: none"> ▪ Do not overstock rooms with supplies such as toilet paper and paper towels. ▪ Equipment used for cleaning/disinfecting must be cleaned and dried between uses. ▪ Launder mop heads daily with all washed mops heads being dried thoroughly in dryer before re-using. ▪ Clean the housekeeping cart as well as the carts used to transport waste daily. (Centers for Disease Control and Prevention., 2014)

Materials and methodology

Regarding the research methods this research uses the descriptive approach. Research design was quantitative study in order to evaluate housekeeping quality in Egyptian hospitals. Moreover, About Population of the study this study geographical limit was the Egyptian hospitals in Cairo and Luxor and Aswan, through the period of May to August 2018. The field of study was accomplished through self-administered questionnaires, which includes some attributes that may influence Patient' choice as well as their evaluation for housekeeping quality in Egyptian hospitals.

The questionnaire design was prepared for this study is based on a comprehensive literature review. It is translated from English into Arabic. The Five-level Likert scale ranging from 1 " was compliant "to 5 " was excellent" was used to design the questionnaire form. The questionnaire was divided into seven main sections: the first section: includes some of basic procedures. The second section: personal hygiene habits. The third section: focus on the patient room cleaning producers. The fourth section: patient room cleaning bathroom producers. The fifth section: isolation room cleaning producers. The sixth section: use only one-time cleaning pieces. The seventh section: wear single-use protective clothing (PPE) such as gloves, headgear, shoes, etc. contaminated with medicine.

The self-administrated questionnaire adopted based on (Satter and Hall, 2007; Vintila, 2009; Kayakalp, 2015) was established in order to investigate the Patients and their families in the investigated hospitals in regard to evaluate of housekeeping quality in Egyptian hospitals. Pilot study was conducted in this study during May to June 2018. The aim of the pilot study was to ensure that the survey was well designed and easily understood by potential respondents, to examine the reliability and validity of the research tools as well as to develop and refine measure of the questions. Questionnaire was reviewed by some academic scholars to establish their appropriateness, clarity and to ease the understanding. Some amendments were suggested and then were implemented. Questionnaire was then pre-tested in order to investigate the respondent's understanding of scale items and to identify also any issues that was complex or confusing in order to develop appropriate scale items to ensure the validity and reliability of the research. For this purpose, a self-administered questionnaire was distributed to a sample of supervisors and managers. A number of 30 forms were distributed to respondents who were asked to complete them. Only, 21 completed forms were valid which represents 70 % rate of response.

500 questionnaires collected through the period of June to August 2018 from the Patients and their families in the investigated hospitals; only 421 of them were valid by average 84.2% in the investigated hospitals. The aim of the questionnaire is to examine the level of housekeeping services and personal hygiene habits as well as their effects on satisfaction. The main purpose of this questionnaire was to evaluate housekeeping quality in Egyptian hospitals to meet the international standard level. The results obtained from the valid forms which statistically analyzed by using SPSS version 20.

The Sample Population

The study was conducted on a sample of sixteen hospitals in Egypt. The chosen of hospitals was due to variety of the locations in Luxor and Aswan. The hospitals samples are as follows in table (2).

Table 2: The Sample Population

No.	name of the hospital	Type of hospital	Location
1.	Nagaa Hammadi General Hospital	Governmental	Luxor
2.	Naqada Fever Hospital	Governmental	Luxor
3.	Luxor General Hospital	Governmental	Luxor
4.	Aswan Health Insurance Hospital	Governmental	Aswan
5.	Al Qurna Central Hospital	Governmental	Luxor
6.	Aswan Teaching Hospital	Governmental	Aswan
7.	El Matareya Teaching Hospital	Governmental	Cairo
8.	Nile Hospital	Private	Luxor
9.	Esna Central Hospital	Governmental	Luxor
10.	Luxor International Hospital	Private	Luxor
11.	Nile Badrawi	Private	Cairo
12.	Cairo University Hospitals	Governmental	Cairo
13.	Ain Shams University Private Hospitals	Private	Cairo
14.	Nasr City General Hospital for Health Insurance	Governmental	Cairo
15.	Manial National Hospital	Governmental	Cairo
16.	Al Qasr Al Aini Hospitals	Governmental	Cairo

1.1- Instrument Reliability

For all scales, Cranach alpha correlation coefficient was calculated to determine the internal consistency of the scale. The Cranach Alpha reliability was computed and the tests showed that the reliability coefficients for all the instruments were 0.997, which indicates that the instrument is reliable as shown in table 3:

Table3: Reliability Statistics

Cranach's Alpha	No. of Items	No. of respondents
.997	106	421

1.2- Data analysis

The Statistic Package of the Social Sciences (SPSS v 20.0) was applied in order to analyze the data obtained in this study. Simple frequencies, mean ratings, standard deviation, standard deviation error, and ranking have been computed to classify the sets and find out whether the sample is homogenous or inconsistent, with regard to all research variables.

1.3- Results and discussion

Table (3) showed the respondents' opinions toward housekeeping in the governmental and private hospitals. For the following items with from 1 to 5 Likert scale. Where (1) means Compliant "; (5) is Excellent. Concerning respondents' opinion regarding the basic procedures, the respondents' perceptions can be ranked as follows; the private hospitals collect the garbage in the bag (without compression and compression in the bag) and carry the bag from the top were considered the highest level factor with weighted average (94.30), followed by employees wears slip-resistant soles shoes to avoid injuries, slips and falls in the second position by weighted average (92.40). Moreover, Employees always knock and enter slowly, while cleaning the room realized the third position by weighted average (82.52). Employees always knock and enter slowly, while cleaning the move furniture in order to clean the space in the fourth position by weighted average (80.19). While, Employees performs hand

hygiene and done gloves before entering the room achieved the fifth position by weighted average (76.39). These results agree with opining of (Paraschivescu, 2011). On the other hand for the governmental hospitals results showed that cleaners are familiar with the safety evidence on the packaging of chemicals used for cleaning were considered the highest level factor with weighted average (51.45), followed by both cleaners are familiar with the treatment of medical waste and its seriousness in hospitals, and employees wears slip-resistant soles shoes to avoid injuries, slips and falls by weighted average (46.70) This result disagree with opining of(Paraschivescu, 2011). Moreover, Collect the garbage in the bag (without compression and compression in the bag) and carry the bag from the top realized the third position by weighted average (44.89) This result confuse with opining of(Satter and Hall, 2007).

Employees have to move furniture in order to clean the space in the fourth position by weighted average (44.80). While, general cleaning shall be carried out at least twice, in the morning before work begins and the evening after the completion of the work were achieved the fifth position by weighted average (40.52). These results disagree with opining of (Centers for Disease Control and Prevention, 2014).

Concerning respondents' opinion regarding personal hygiene habits, the respondents' perceptions can be displayed as follows: Regarding the private hospitals employees wear a special clean uniform, comes in the first rank with a percentage estimated at (97.15) of answers; followed by employees avoid smoking in work areas recorded the second rank with percentage of (92.40) of responses; While, Both Employees avoid: Eating and drinking in work areas; and using pillowcase, sheets or towels for cleaning comes on the third rank by average (84.80) of answers; Moreover, employees avoid chewing gum at work reaches the fourth rank with the ratio of (72.40) of responses; Furthermore, Employees know sanitation and hygiene rules come as the fifth rank by average (66.70) of answers.

Table 4: The respondents' opinions toward housekeeping in the governmental and private hospitals.

Governmental hospitals evaluation									Factors	Private hospitals evaluations									
Ranking	Weighted Average (%)	Mean	Std. Deviation	No. of respondents						No.	No. of respondents					Mean	Std. Deviation	Weighted Average (%)	Ranking
				5 Excellent	4 Very Good	3 Good	2 Acceptable	1 compliant			1 compliant	2 Acceptable	3 Good	4 Very Good	5 Excellent				
1-										Basic procedures									
6	38.6 2	1.93	0.8 3	0	0	13 1	13 0	16 0		Employees performs hand hygiene and done gloves before entering the room	0	0	15 8	18 1	82	3.8 2	0.7 3	76.3 9	5
8	34.3 0	1.72	0.7 7	0	0	80	14 1	20 0		Employees always knock and enter slowly, while cleaning the room	0	0	78	21 2	13 1	4.1 3	0.6 9	82.5 2	3
2*	46.7 0	2.33	0.9 9	0	60	12 1	14 0	10 0		Employees wears slip-resistant soles shoes to avoid injuries, slips and falls	0	0	0	16 0	26 1	4.6 2	0.4 9	92.4 0	2
4	44.8 0	2.24	0.7 5	0	0	18 1	16 0	80		Employees have to move furniture in order to clean the space	0	0	78	26 1	82	4.0 1	0.6 2	80.1 9	4
7	38.1 0	1.91	0.6 8	0	0	80	22 1	12 0		Do you train staff to know what cleaner to use for what surface	0	200	22 1	0	0	2.5 2	0.5 0	50.5 0	11
10	26.2 2	1.31	0.4 6	0	0	0	13 1	29 0		Waste bags shall be distributed according to the code coding policy	0	80	14 0	20 1	0	3.2 9	0.7 7	65.7 5	8
3	44.8 9	3.24	0.7 5	0	0	18 3	15 8	80		Collect the garbage in the bag (without compression and compression in the bag) and carry the bag from the top	0	0	0	12 0	30 1	4.7 2	0.4 5	94.3 0	1
2*	46.7	2.33	0.7	0	0	22	12	80		Cleaners are familiar with the	0	16	18	80	0	2.8	0.7	56.2	10

	0		8			1	0			treatment of medical waste and its seriousness in hospitals.		0	1			1	3	0	
1	51.45	2.57	0.66	0	0	281	100	40		Cleaners are familiar with the safety evidence on the packaging of chemicals used for cleaning	0	120	200	101	0	2.95	0.72	59.10	9
5	40.52	2.03	0.77	0	0	131	170	120		General cleaning shall be carried out at least twice, in the morning before work begins and the evening after the completion of the work	0	0	198	141	82	3.72	0.77	74.49	6
9	32.40	1.62	0.65	0	0	40	181	200		Provide separate buckets to clean the bathrooms and all the isolation rooms	0	40	180	201	0	3.38	0.65	67.65	7
2- Personal hygiene habits																			
4	44.70	2.24	0.75	0	0	179	162	80		1. Employees knows sanitation and hygiene rules	0	80	120	221	0	3.33	0.78	66.70	5
1*	72.40	3.62	0.49	0	261	160	0	0		2. Employees wear a special clean uniform	0	0	0	60	361	4.86	0.35	97.15	1
5	34.30	1.72	0.77	0	0	80	141	200		3. Employees changes uniform daily	0	80	261	800	0	3.00	0.62	60.00	6
Employees avoid:																			
7	28.60	1.72	0.63	0	0	40	221	40		a. Smoking in work areas	0	0	40	80	301	4.62	0.65	92.40	2
6	31.35	1.57	0.50	0	0	0	239	182		b. Eating and drinking in work areas	0	0	80	160	181	4.24	0.75	84.80	3*
3	46.70	2.33	0.78	0	0	221	120	80		c. Chewing gum at work	0	0	160	261	0	3.62	0.49	72.40	4
2	60.52	3.03	0.77	0	131	170	120	0		d. Spitting on the floor in work and back areas	0	0	80	160	181	4.24	0.75	84.80	3*
8	23.80	1.19	0.39	0		0	80	341		e. Touching their body parts	0	202	141	78		2.71	0.76	54.11	7

1*	72.4 0	3.62	0.4 9	0	26 1	16 0	0	0		f. Using pillowcase, sheets or towels for cleaning	0	0	12 0	80	22 1	4.2 4	0.8 7	84.8 0	3*
3. Patient room cleaning producers Employees Do:																			
1	66.7 0	3.33	0.6 4	0	18 1	20 0	40	0		1. Review the room, change the furnishings and collect the remains of the medicine preparation boxes and the tools used to give the patient such as injections, needles and preparation utensils	0	0	0	12 0	30 1	4.7 2	0.4 5	94.3 0	2
5*	38.6 2	1.93	0.8 3	0	0	13 1	13 0	16 0		2. Cleaning walls, windows and doors: including door handles	0	40	12 0	26 1		3.5 2	0.6 6	70.5 0	7
6	36.3 9	1.82	0.7 3	0	0	82	18 1	15 8		3. Cleaning and cleaning horizontal surfaces: including tables, beds, chairs, edges, lighting and wall fixtures.	0	0	16 0	26 1	0	3.6 2	0.4 9	72.4 0	6
4	42.9 0	2.14	0.8 3	0	0	18 1	12 0	12 0		4. Cleaning and disinfection of the surface of the type Frequent touch: such as edges and bedspreads - Door handles - Table adjacent to the patient - Telephone - Nurse call buttons - TV remote - Lighting switches must be cleaned and purified	0	0	0	14 0	28 1	4.6 7	0.4 7	93.3 5	3
3	44.8 0	2.24	0.7 5	0	0	18 1	16 0	80		5. Garbage containers with holes or openings that allow fluid and waste to enter	0	0	0	16 0	26 1	4.6 2	0.4 9	92.4 0	4
5*	38.6 2	1.93	0.8 3	0	0	13 1	13 0	16 0		6. Garbage containers with tight cover	0	0	0	20 0	22 1	4.5 2	0.5 0	90.5 0	5
2	50.5 0	2.52	0.5 0	0	0	22 1	20 0	0		7. Remove the gloves, and make the hands clean after	0	0	0	80	34 1	4.8 1	0.3 9	96.2 0	1

work																		
4- Patient room cleaning bathroom producers Employees Do:																		
5	26.3 7	1.32	0.4 7	0	0	0	13 4	28 7	Clean the mirror using a blue Microfiber glass cloth	0	80	12 0	22 1	0	3.3 3	0.7 8	66.7 0	4
3	31.5 4	1.58	0.4 9	0	0	0	24 3	17 8	Clean the sink area, including the counter, faucet and handles, and sink basin with a clean yellow Microfiber cloth	0	120	17 0	13 1	0	3.0 3	0.7 7	60.5 2	5
2	43.8 5	2.19	0.8 5	0	0	20 1	10 0	12 0	Disinfect toilet	0	0	0	14 0	28 1	4.6 7	0.4 7	93.3 5	1
1	46.7 0	2.33	0.7 8	0	0	22 1	12 0	80	Restock consumable supplies	0	0	0	16 2	25 9	4.6 2	0.4 9	92.3 0	2
4	31.4 5	1.57	0.5 0	0	0	0	24 1	18 0	If the patient is using the clinical shortness next to his bed, they are cleaned and cleared at least daily and when they are contaminated	0	0	80	12 0	22 1	4.3 3	0.7 8	86.7 0	3
5- Isolation room cleaning producers																		
4	64.8 9	3.24	0.7 5	0	18 1	16 2	78	0	Wear personal protective equipment during work	0	0	0	18 2	23 9	4.5 7	0.5 0	91.3 5	8*
7*	58.1 0	2.91	0.6 8	0	80	22 1	12 0	0	Application of health safety measures	0		80	16 0	18 1	4.2 4	0.7 5	84.8 0	13
1	72.4 0	3.62	0.4 9	0	26 1	16 0	0	0	Empty t garbage containers and keep them washed and disinfected.	0	0	0	80	34 1	4.8 1	0.3 9	96.2 0	2
2	70.5 9	3.53	0.5 0	0	22 3	19 8	0	0	Removal of infectious waste if necessary	0	0	0	16 0	26 1	4.6 2	0.4 9	92.4 0	6
5	40.5 2	2.03	0.7 7	0	0	13 1	17 0	12 0	Collect linens and gown for patients isolated in red bags in red and put a card in red ink	0	118	16 9	13 4	0	3.0 4	0.7 7	60.7 6	5
Use only one-time cleaning pieces																		
17	31.4	1.57	0.5	0	0	0	24	18	Clean the spot of the walls	0	0	76	12	22	4.3	0.7	87.0	12

	5		0				1	0					0	5	5	7	8		
6	58.6 2	2.93	0.8 3	0	13 1	13 0	16 0	0		Scan the door frame, furniture bumpers and chairs	0	0	58	80	28 3	4.5 3	0.7 2	90.6 9	
14	42.7 6	2.14	0.7 7	0	0	15 8	16 3	10 0		Wipe the window sill and any spots with a gap	0	0	15 2	18 1	88	3.8 5	0.7 4	76.9 6	15
10	53.3 5	2.67	0.4 7	0		28 1	14 0	0		Survey all vertical surfaces, counters, edges and door sills	0	0	15 2	80	18 9	4.0 9	0.9 0	81.7 6	14
16	40.0 0	2.00	0.6 2	0	0	80	26 1	80		Clear all surfaces of the front panel, fence, and remote controls	0	0	11 8	30 3	0	3.7 2	0.4 5	74.3 9	16
5	62.6 1	3.13	0.6 9	0	13 1	21 4	76	0		Change of bed linen	0	0	0	16 2	25 9	4.6 2	0.4 9	92.3 0	7
3	67.6 5	3.38	0.4 9	0	16 1	26 0	0	0		Disinfect phone arm and light switches, knobs and other high-touch areas	0	0	0	12 0	30 1	4.7 2	0.4 5	94.3 0	5*
		Wear single-use protective clothing (PPE) such as gloves, headgear, shoes, etc. contaminated with medicine. When dealing with																	
7*	58.1 0	2.91	0.6 8	0	80	22 1	12 0	0		Contaminants from the preparation of the medicine and the tools used in giving it to the patient such as syringes, needles and preparation utensils	0	0	0	10 0	32 1	4.7 6	0.4 3	95.2 5	3
3	52.4 0	2.62	0.4 9	0	0	26 1	16 0	0		Expired medicines, excess quantities when preparing the medicine, and excess medicines and return from the treatment departments	0	0	0	18 2	23 9	4.5 7	0.5 0	91.3 5	8*
12 *	48.6 0	2.43	0.5 0	0	0	18 1	24 0	0		Urine and stool and vomiting patient, which contains dangerous amounts of these drugs for 48 hours and sometimes may be up to a	0	0	0	12 0	30 1	4.7 2	0.4 5	94.3 0	5*

									week of giving the patient medicine.									
15	42.6 6	2.13	0.7 0	0		13 4	20 9	78	Remnants of medicine cans and bottles	0	0	76	11 8	22 7	4.3 6	0.7 7	87.1 7	11
9	57.2 4	2.86	0.6 4	0	62	23 9	12 0	0	Some air fresheners used in the medicine preparation compartment.	0	0	0	76	34 5	4.8 2	0.3 9	96.3 9	1
11	48.7 9	2.44	0.7 9	0	0	26 5	76	80	Remnants of plastic bags and tubes used for intravenous feeding through which the drug is injected into the patient's body.	0	0	0	11 4	30 7	4.7 3	0.4 4	94.5 8	4
13	47.5 5	2.38	0.7 9	0	0	23 9	10 2	80	Cotton cloths used to clean up spilled chemical medicines.	0	0	56	76	28 9	4.5 5	0.7 2	91.0 7	6
12 *	48.5 0	2.43	0.7 4	0	0	24 1	11 8	62	gauze and patient's contaminated ligament	0	0	66	66	28 9	4.5 3	0.7 5	90.5 9	10

On the other hand for the governmental hospitals results showed that Both employees wear a special clean uniform, and employees avoid using pillowcase, sheets or towels for cleaning, comes in the first rank with a percentage estimated at (72.40) of answers; followed by employees avoid Spitting on the floor in work and back areas recorded the second rank with percentage of (60.52) of responses; While, Employees avoid chewing gum at work comes on the third rank by average (46.70) of answers; Moreover, employees knows sanitation and hygiene rules the fourth rank with the ratio of (44.70) of responses; Furthermore, employees changes uniform daily come as the fifth rank by average (34.30) of answers. These results disagree with opining of (kayakalp 2015).

Regarding respondents' opinion regarding patient room cleaning producers employees do, the respondents' perceptions came and ranked as follows; the private hospitals remove the gloves, and make the hands clean after work were considered the highest level factor with weighted average (96.20), followed by Review the room, change the furnishings and collect the remains of the medicine preparation boxes and the tools used to give the patient such as injections, needles and preparation utensils in the second position by weighted average (94.30) This result agree with opining of (Elizabeth, 2014)..Moreover, Cleaning and disinfection of the surface of the type frequent touch: such as edges and bedspreads - door handles - table adjacent to the patient - telephone - nurse call buttons - TV remote - lighting switches must be cleaned and purified realized the third position by weighted average (93.35). Garbage containers with holes or openings that allow fluid and waste to enter in the fourth position by weighted average (92.40). While, garbage containers covered with tight cover achieved the fifth position by weighted average (90.50).

On the other hand for the governmental hospitals results showed that review the room, change the furnishings and collect the remains of the medicine preparation boxes and the tools used to give the patient such as injections, needles and preparation utensils were considered the highest level factor with weighted average (66.70), followed by Remove the gloves, and make the hands clean after work by weighted average (50.50). Moreover, cleaning and cleaning horizontal surfaces: including tables, beds, chairs, edges, lighting and wall fixtures realized the third position by weighted average (44.80). Cleaning and disinfection of the surface of the type frequent touch: such as edges and bedspreads - door handles - table adjacent to the patient - telephone - nurse call buttons - TV remote - lighting switches must be cleaned and purified in the fourth position by weighted average (42.90). While, Both cleaning walls, windows and doors: including door handles, and garbage containers with tight cover were achieved the fifth position by weighted average (38.62).

Concerning respondents' opinion regarding patient room cleaning bathroom producers' employees do, the respondents' perceptions can be ranked as follows; the private hospitals Disinfect toilet, comes in the first rank with a percentage estimated at (93.35) of answers; followed by restock consumable supplies recorded the second rank with percentage of (92.30) of responses; While, If the patient is using the clinical shortness next to his bed, they are cleaned and cleared at least daily and when they are contaminated comes on the third rank by average (86.70) of answers; Moreover, Clean the mirror using a blue Microfiber glass cloth the fourth rank with the ratio of (66.70) of responses; Furthermore, Clean the sink area, including the counter, faucet and handles, and sink basin with a clean yellow Microfiber cloth come as the fifth rank by average (60.52) of answers.

On the other hand for the governmental hospitals results showed that restock consumable supplies , comes in the first rank with a percentage estimated at (46.70) of answers; followed by disinfect toilet recorded the second rank with percentage of (43.85) of responses; While, clean the sink area, including the counter, faucet and handles, and sink basin with a clean yellow Microfiber cloth disinfect toilet comes on the third rank by average (31.54) of answers; Moreover, the patient is using the clinical shortness next to his bed, they are cleaned and cleared at least daily and when they are contaminated the fourth rank with the ratio of (31.45) of responses; Furthermore, Clean the mirror using a blue Microfiber glass cloth come as the fifth rank by average (26.37) of answers. These results disagree with (Otter, Yezli & French, 2015).

Concerning respondents' opinion regarding Isolation room cleaning producers, the respondents' perceptions came and ranked as follows; the private hospitals wear single-use protective clothing (PPE) such as gloves, headgear, shoes, etc. contaminated with medicine when dealing with some air fresheners used in the medicine preparation compartment were considered the highest level factor with weighted average (96.39), followed by Empty t garbage containers and keep them washed and disinfected in the second position by weighted average (96.20).Moreover, Wear single-use protective clothing (PPE) when dealing with Contaminants from the preparation of the medicine and the tools used in giving it to the patient such as syringes, needles and preparation utensils realized the third position by weighted average (95.25). Remnants of plastic bags and tubes used for intravenous feeding through which the drug is injected into the patient's body were in the fourth position by weighted average (94.58). While, Both disinfect phone arm and light switches, knobs and other high-touch areas and Urine and stool and vomiting patient, which contains dangerous amounts of these drugs for 48 hours and sometimes may be up to a week of giving the patient medicine achieved the fifth position by weighted average (94.30).

On the other hand for the governmental hospitals results showed that empty the garbage containers and keep them washed and disinfected were considered the highest level factor with weighted average (72.40), followed by removal of infectious waste if necessary by weighted average (70.59). Moreover, disinfect phone arm and light switches, knobs and other high-touch areas realized the third position by weighted average (67.65). Wear personal protective equipment during work were in the fourth position by weighted average (64.89). While, Use only one-time cleaning pieces for change of bed linen were achieved the fifth position by weighted average (62.61) this result agree with opining of (Rutala, 2013).

Towards ranking the main group factors averages of the level of housekeeping in the governmental and private hospitals from the patients and their families' point of view as shown in table (4), the results showed that:

The private hospitals have the top ranking levels from the respondents' points of view as follows:

- 1.Wear single-use protective clothing was the 1st Excellency weighted average with a mean (4.62) and std. deviation (.51).
- 2.Patient room cleaning producers that employees do were the 2nd Excellency weighted average with a mean (4.35) and std. deviation (.44).
- 3.Regarding 3rd level weighted average were use only one-time cleaning pieces with a mean (4.26) and std. deviation (.59).

4. In the 4th position was Isolation room cleaning producers, with a mean (4.25) and std. deviation (.55).
5. Concerning the 5th level weighted average was regarding agree with that Patient room cleaning bathroom producers employees do, with mean (3.99) and std. deviation (.61).
6. In accordance to the 6th weighted average level were personal hygiene habits with mean (3.87) and std. deviation (.60).
7. Basic procedures coming in the 7th level to the respondents with mean was (3.63) and std. deviation (.58).

Table 5: Descriptive statistics for the main group factors averages

Governmental hospitals evaluation					Private hospitals evaluations					
Ranking	Mean		Std. Deviation	Code	Average	Code	Mean		Std. Deviation	Ranking
	Statistic	Std. Error					Statistic	Std. Error		
6	2.1123	.03277	.67247	ahany	1- Basic procedures	hanya	3.6340	.02859	.58669	7
4	2.3360	.02694	.55284	bhany	2- Personal hygiene habits	hanyb	3.8731	.02938	.60274	6
5	2.2752	.03344	.68621	chany	3. Patient room cleaning producers employees do.	hanyc	4.3546	.02189	.44912	2
7	1.7990	.02760	.56636	dhany	4- Patient room cleaning bathroom producers employees do	hanyd	3.9957	.03008	.61728	5
1	3.0651	.02855	.58574	ehany	5- Isolation room cleaning producers	hanye	4.2551	.02559	.52500	4
2	2.5460	.02745	.56328	fhany	6 - Use only one-time cleaning pieces	hanyf	4.2677	.02898	.59469	3
3	2.5240	.02943	.60379	Ghany	7- Wear single-use protective clothing.	hanyg	4.6295	.02508	.51468	1

On the other hand, the 2nd ranking level by the governmental hospitals in accordance to the respondents' points of view as follows:

1. Isolation room cleaning producers was the 1st Excellency weighted average with a mean (3.06) and std. deviation (.58).
2. Patient room cleaning producers that employees do were the 2nd Excellency weighted average with a mean (2.54) and std. deviation (.56).
3. Regarding 3rd level weighted average were wear single-use protective clothing with a mean (2.52) and std. deviation (.60).
4. In the 4th position were personal hygiene habits, with a mean (2.33) and std. deviation (.55).
5. Concerning the 5th level weighted average was regarding agree with that Patient room cleaning producers employees do, with mean (2.27) and std. deviation (.68).
6. In accordance to the 6th weighted average level were basic procedures with mean (2.11) and std. deviation (.67).

Patient room cleaning bathroom producers those employees do coming in the 7th level to the respondents with mean was (1.79) and std. deviation (.56).

Prior to research reliability and testing the hypotheses, it is important to establish the reliability of each of the items used in this study. Reliability judges are the degree to which measures are free from error, yielding consistent results. Descriptive Statistics Means, and Standard deviation, Std. Error Mean was shown in tables (4 and 5). Moreover, Regarding H1 Research correlations were tested using Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of assumptions' of normality and linearity. Table (6) shows that there are strong correlations between all the proposed relations in the conceptual model with (r) values ranging from (.854 to .988), (P< .005) and the obtained correlation value are in the expected positive direction. Based on the results of Pearson correlation analysis which represent proposed liner relationships, the research hypotheses were fully supported.

Table 6: Summary of correlation analysis accordance to Pearson correlation (N. 421).

	ahany	bhany	chany	dhany	ehany	fhany	Ghany	hanya	hanyb	hanyc	hanyd	hanye	hanyf	hanyg
ahany	1													
bhany	.986*	1												
chany	.988*	.985*	1											
dhany	.967*	.979*	.972*	1										
ehany	.991*	.989*	.986*	.975*	1									
fhany	.987*	.976*	.981*	.958*	.982**	1								
Ghany	.974*	.979*	.961*	.966*	.984**	.971**	1							
hanya	.989*	.990*	.979*	.964*	.988**	.978**	.978**	1						
hanyb	.975*	.970*	.958*	.963*	.978**	.959**	.988**	.974**	1					
hanyc	.906*	.939*	.914*	.940*	.938**	.903**	.961**	.922**	.948**	1				
hanyd	.962*	.972*	.956*	.978*	.978**	.956**	.984**	.963**	.982**	.976**	1			
hanye	.972*	.974*	.970*	.976*	.983**	.973**	.991**	.967**	.984**	.958**	.988**	1		
hanyf	.947*	.963*	.945*	.959*	.971**	.941**	.982**	.957**	.970**	.985**	.986**	.977**	1	
hanyg	.878*	.883*	.854*	.894*	.907**	.875**	.949**	.885**	.946**	.956**	.951**	.941**	.958**	1

** . Correlation is significant at the 0.01 level (1-tailed).

Table 7: Independent Samples Test (N = 421)

		Group Statistics			Independent Samples Test						
					Levene's Test for Equality of Variances		t-test for Equality of Means				
		Mean	Std. Deviation	Std. Error Mean	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Basic procedures	Governmental	2.1123	.67247	.03277	13.880	.000	-34.986	840	.000	-1.52170	.04349
	Private	3.6340	.58669	.02859			-34.986	824.830	.000	-1.52170	.04349
Personal hygiene habits	Governmental	2.3360	.55284	.02694	1.630	.202	-38.561	840	.000	-1.53708	.03986
	Private	3.8731	.60274	.02938			-38.561	833.804	.000	-1.53708	.03986
Patient room cleaning producers	Governmental	2.2752	.68621	.03344	132.207	.000	-52.024	840	.000	-2.07940	.03997
	Private	4.3546	.44912	.02189			-52.024	724.034	.000	-2.07940	.03997
Patient room cleaning bathroom producers	Governmental	1.7990	.56636	.02760	1.473	.225	-53.803	840	.000	-2.19667	.04083

	Private	3.9957	.61728	.03008			- 53.803	833.850	.000	- 2.19667-	.0408 3
Isolation room cleaning producers	Governmental	3.0651	.58574	.02855	8.184	.004	- 31.042	840	.000	- 1.19002-	.0383 4
	Private	4.2551	.52500	.02559			- 31.042	830.130	.000	- 1.19002-	.0383 4
Use only one-time cleaning pieces	Governmental	2.5460	.56328	.02745	10.654	.001	- 43.129	840	.000	- 1.72175-	.0399 2
	Private	4.2677	.59469	.02898			- 43.129	837.538	.000	- 1.72175-	.0399 2
Wear single-use protective clothing (PPE) such as gloves, headgear, shoes, etc. contaminated with medicine.	Governmental	2.5382	.59268	.02889	28.240	.000	- 56.444	840	.000	- 2.10553-	.0373 0
	Private	4.6437	.48431	.02360			- 56.444	807.932	.000	- 2.10553-	.0373 0

Moreover, regarding H2 "There is a significant difference between the housekeeping level in the governmental and private hospitals regarding the housekeeping quality in Egyptian hospitals" the results shown that there is a gap between the housekeeping quality level in the governmental and private hospitals and need to improve the quality level. Independent Samples Test (N = 421) were used (T – test) as shown in table (7).

General Conclusion

Housekeeping services in a hospital is entrusted with maintaining a hygienic and clean hospital environment conducive to patient care. There are some of the problems faced by any hospital. The literature supports our research on the relevance and importance of housekeeping procedures and safety in patient healthcare and hospitality, in an effort to improve patient care and their health. About population of the study this study geographical limit was the Egyptian hospitals in Cairo and Luxor and Aswan, through the period of May to August 2018. The questionnaire was divided into seven main sections: the first section: includes some of basic procedures. The second section: personal hygiene habits. The third section: focus on the patient room cleaning producers. The fourth section: patient room cleaning bathroom producers. The fifth section: isolation room cleaning producers. The sixth section: use only one-time cleaning pieces. The seventh section: wear single-use protective clothing (PPE) such as gloves, headgear, shoes, etc. contaminated with medicine. The chosen of hospitals was due to variety of the locations in Luxor and Aswan (16 hospitals).

The results showed that there are strong correlations between all the proposed relations (the basic procedures; personal hygiene habits; room cleaning producers; isolation room cleaning producers) in the conceptual model with (r) values ranging from (.854 to .988), ($P < .005$) and the obtained correlation value are in the expected positive direction. There is a gap between the housekeeping quality level in the governmental and private hospitals and need to improve the quality level.

Basic procedures need more care about many points such as waste bags shall be distributed according to the code coding policy. Provide separate buckets to clean the bathrooms and all the isolation rooms. Employees always knock and enter slowly, while cleaning the room. Train staff to know what cleaner to use for what surface. Employees' Smoking in work areas, Eating in work areas and touching their body parts not allowed. On the subject of personal hygiene habits more care should be taken on employees changes uniform daily; Employees knowledge about sanitation and hygiene rules.

Moreover , as regards patient room cleaning producers employees need to care about cleaning and cleaning horizontal surfaces: including tables, beds, chairs, edges, lighting and wall fixtures; Cleaning walls, windows and doors: including door handles; Garbage containers with tight cover. Concerning patient room cleaning bathroom producers employees should give more care about cleaning and cleaning horizontal surfaces: including tables, beds, chairs, edges, lighting and wall fixtures; Cleaning walls, windows and doors: including door handles; Garbage containers with tight cover.

Regarding, patient room cleaning bathroom producers employees could give more care about clean the mirror using a blue microfiber glass cloth; If the patient is using the clinical shortness next to his bed, they are cleaned and cleared at least daily and when they are contaminated; Clean the sink area, including the counter, faucet and handles, and sink basin with a clean yellow Microfiber cloth. Furthermore, should use

only one-time cleaning pieces to clean the spot of the walls; Clear all surfaces of the front panel, fence, and remote controls; Wipe the window sill and any spots with a gap. Wear single-use protective clothing (PPE) such as gloves, headgear, shoes, etc. contaminated with medicine. When dealing with remnants of medicine cans and bottles; Cotton cloths used to clean up spilled chemical medicines; gauze and patient's contaminated ligament; Urine and stool and vomiting patient, which contains dangerous amounts of these drugs for 48 hours and sometimes may be up to a week of giving the patient medicine.

Recommendations

The hospital management should be organizing courses for housekeeping staff to train on:

1. Cleaning routines in the different areas of the hospital, including public areas, waiting rooms, general patient rooms, isolation rooms, bathrooms, and sluice rooms
2. The use of routine cleaning and terminal cleaning checklists
3. Cleaning methods and the appropriate use of cleaning equipment, detergents, and disinfectants
4. Waste and linen removal processes
5. Spills management
6. The importance of hand hygiene and correct hand hygiene methods
7. Correct use of PPE
8. Waste segregation and the safe handling of waste
9. Prevention of blood and body fluid exposure, including sharp safety and prompt reporting of incidents of exposure
10. Transmission risks in isolation rooms

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