

Universal Safe Precaution Practices by Nurses in General Medicine Ward of Tripura Medical College

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Abstract: The health care related infections which are considered as major burden for patients and may cause life-threatening infections. An infection control programme may restrict the spread of infections in the hospital and health care setting this may be achieved by precautions and preventive measures. Health Care Workers (HCWs), including nurses are directly involved in patient care and are, therefore, more prone to acquiring these infections from patients directly or indirectly. The Universal Precautions (UPCs) can protect health care workers from various kinds of occupational blood exposure (OBE), hospital acquired infections (HAP). So, the present study was aimed to evaluate nurses' knowledge on Universal Precautions (UPCs) and to evaluate the practices on Universal Precautions (UPCs) by the nurses of general medicine ward of Tripura Medical College & Dr. B.R.A.M. Teaching Hospital, Agartala, West Tripura. Knowledge and practice of hand hygiene was observed among 96.6% of the nurses. 63.4% of the nurses always used personal protective equipments. Among the personal protective equipments, majority of the nurses were practicing wearing of gowns & aprons and gloves (83.3% and 76.6% respectively). 73.3% of the nurses had not experienced of any needle stick/sharp injury in last 6 months which suggested a good UPCs practices in the ward. It was concluded that, the nurses in the general medicine ward had optimum knowledge on UPCs and they were practicing the Standard UPCs practices in the ward to improve the quality care of the patients and thus to improve the outcome of diseases in the ward.

Keywords: Health Care Workers (HCWs), Hospital acquired infections (HAP), Occupational blood exposure (OBE), Universal Precautions (UPCs).

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Introduction

Health care related infections are major burdens for the patients, society and health care management. The emergence of life-threatening infections and re-emergence infectious diseases had highlighted the need for efficient infection control programmes in all health care settings and capacity building for health care workers for implementation by the health care workers.[1]

An infection control programme is considered efficient which, when used appropriately, restricts the spread of infection among patients and staff in hospital. Good infection control programme reduces patients' morbidity and mortality, length of hospital stay. This can be achieved by the prevention and by managing the infections through practice. This is based on the application of research-based knowledge.[1]

Universal precautions are a set of guidelines designed to protect the health care worker from

exposure to infections such as HIV, Hepatitis B and Hepatitis C which are transmitted by blood and certain body fluids of the patient. Universal precautions explained, 'all patients should be assumed to be infectious for blood borne infections such as HIV, Hepatitis B, Hepatitis C and other blood borne pathogens while being provided health care'.[1]

Treating all patients in the health care facility with the same basic level of standard precautions involves work practices. That is essential to provide a high level of protection to patients, health care workers and visitors. The standard precautions include hand hygiene, use of personal protective equipments, appropriate handling of patient care equipment and soiled linen, prevention of needle stick and sharp injuries, clean environment and biomedical and hospital waste management.[1]

Health Care Workers (HCWs), including nurses are directly involved in patient care and are, therefore, more prone to acquire these infections from patients directly or indirectly.[2] The Universal Precautions (UPCs) can protect health care workers from various kinds of occupational blood exposure (OBE), hospital acquired infections (HAP).[3] Evidence suggests that the nurses do not consistently adopt protective barriers and thus they become more prone to contact with blood related diseases.[4] Nurses need to protect themselves against such blood and other infectious related, contagious diseases and this is possible only when they comply with the set guidelines of Universal Precautions.

So, the present study was aimed to evaluate nurses' knowledge on Universal Precautions (UPCs) and to evaluate the practices on Universal Precautions (UPCs) by the nurses of general medicine ward of Tripura Medical College.

Materials and Methods

The study was a cross-sectional Study, conducted in Tripura Medical College & Dr. B.R.A.M. Teaching Hospital, Agartala, West Tripura for a period of 2 month (March, 2018 to April, 2018) with prior approval of Institutional Ethics Committee of Tripura Medical College. 36 nurses of General Medicine Ward of Tripura Medical College & Dr. B.R.A.M. Teaching Hospital who are voluntarily willing to participate were included in this study with their consent. The study variables were: a) For Socio-Demographic profile – Age, sex, religion, professional qualification, experience; b) Components included in Standard Universal Precautions (UPCs): -i) Hand hygiene, ii) Use of personal protective equipments, iii) Handling of patient care equipment and soiled linen, iv) Prevention of needle stick/sharp injuries, v) Environmental cleaning and spills-management, vi) Appropriate handling of waste.

36 nurses in General Medicine ward of Tripura Medical College & B.R.A.M. Teaching Hospital were informed and invited on voluntary basis to participate in the study during the study period of 2 month (March, 2018 to April, 2018). Those who were not willing to participate were excluded from the study. All participants were given a briefing about objective of the study and were assured for confidentiality in collection of personal data. A pre-designed structured questionnaire in English was prepared to evaluate nurses' knowledge and practices on Universal Precautions (UPCs). The first part was collected for demographic and other relevant information about the respondents. The second part of the questionnaire was consisting of statements regarding Universal Precautions.

During interview, after obtaining informed consent from individual participants, the pre-structured, pre-tested, pre-coded questionnaires were distributed to the nurses. They were encouraged to finish their unbiased independent opinion to complete the questionnaires regarding the study.

The nurses were requested to select appropriate answer in the questionnaire. No personal identifying information was kept and full confidentiality was obtained. The data collected and verified by hand, then coded before entry to computer. Once data entry was completed, the data was analysed.

The preference of nurses for knowledge and practices of Universal Precautions were evaluated in the form of frequency and percentages. The data was analysed by using Microsoft Office Excel 2007 and Statistical Package for Social Sciences (SPSS), version 20. Results are shown with the help of tables, bar diagrams, pie charts & percentages.

Results and Observations

Out of 36 participants only 30 were given voluntarily consent for participating in this study. So, data were analysed among thirty participants.

Table 1: Showing Socio-Demographic Profile

Sl. No.	Socio-demographic characteristics	Number (n=30)	Percentage (%)	
1.	Gender	Male	15	50
		Female	15	50
2.	Religion	Hinduism	28	93.4
		Islamic	1	3.3
		Christianity	1	3.3
		Buddhism	0	0
		Other	0	0
3.	Education Level	ANM	0	0
		GNM	21	70
		Diploma in Nursing	1	3.3
		B. Sc. Nursing	7	23.4
		M. Sc. Nursing or above	1	3.3
4.	Work experience	Less than 2 years	14	46.7
		2 – 5 years	13	43.3
		More than 5 years	3	10

Age

The age of the participants ranged from 23 to 37 years of age. The mean age of the participants was 26.83 ± 2.9 years. The age of the male participants ranged from 24 to 31 years with a mean age 27.13 ± 1.99 years. The female participants' age ranged 23 to 37 years with a mean age 26.53 ± 3.62 years.

23.33% participants (07 in number) had an experience on training on Universal Precaution measures. Whereas 76.67% had no experience regarding any training on Universal Precautions.

The nurses in the General Medicine ward practices frequent hand wash work period. The washing practice of hand washing ranged from three to twenty (3 to 20) times with a mean value 7 ± 4.4 times per duty schedule.

Table 2: Practices of Standard Universal Safe Precautions

Sl. No.	Parameters of knowledge & practices		Total Number (n=30)	Percentage (%)
1.	Do you practice standard Universal Safe Precautions?	Yes	28	93.4
		No	1	3.3
		Not sure	1	3.3
2.	Do you able to recognize the importance of Universal Safe Precaution?	Completely	28	93.4
		Not important	1	3.3
		Not sure	1	3.3
3.	What are the standard precautions you practice in the ward?	Hand hygiene (hand washing and anti-sepsis)	29	96.6
		Use of personal protective equipment when handling blood, body substances, excretions and secretions	14	46.6
		Appropriate handling of patient care equipment and soiled linen	13	43.3
		Prevention of needle stick/sharp injuries	22	73.3
		Environmental cleaning and spills-management	9	30
		Appropriate handling of waste	15	50

Table 3: Practice of Hand Hygiene by the Nurses in the Ward

Sl. No.	Parameters of knowledge & practices		Total Number (n=30)	Percentage (%)
1.	How do you maintain hand hygiene/hand wash in ward?	After handling any blood, body fluids, secretions, excretions and contaminated items	23	76.6
		Between contact with different patients	13	43.3
		Between tasks and procedures on the same patient to prevent cross contamination between different body sites	15	50
		Immediately after removing gloves	14	46.6
		Using a plain soap, antimicrobial agent, such as an alcoholic hand rub or waterless antiseptic agent	24	80
2.	What key factors do you measure in effective hand hygiene practice?	The duration of hand hygiene measures	13	43.3
		The exposure of all surfaces of hands and wrists to the preparation used	18	60
		The use of rubbing to create friction	4	13.3
		Ensuring that hands are completely dry	3	10
3.	Water	Normal water	10	33.3
		Tepid running water	20	66.6
	Soap	Plain soap	17	56.6
		Liquid soap	3	10
		Antimicrobial soap	10	33.3
	Hand drying with	Normal towel	25	83.3
		Air dryer	0	0
		Sterile Papers	4	13.3
		Pat dry with single use towel	1	3.3
	Hand drying after rubbing with	Alcohol based preparation	25	83.3
Any other		5	16.6	

Among the standard precaution measures, most of the nurses had the knowledge and had practiced those. Mostly used UPCs were hand hygiene (96.6%) followed by prevention practices on needle stick injury (73.3%). Environmental cleaning and spillage management was practiced by 30% of the nurses in the ward. 50% of the nurses had knowledge and appropriately practiced of handling waste in the ward.

The practice of hand hygiene after handling of any blood, body fluids, secretions, excretions and contaminated items by the nurses were 76.6% of them. 50% and 43.3% of them also practiced hand hygiene between tasks and procedures on the same patient to prevent cross contamination between different body sites and between contact with dif-

ferent patients respectively. They (80%) used a plain soap, antimicrobial agent, such as an alcoholic hand rub or waterless antiseptic agent for hand washing but 46.6% of them wash their hands immediately after removing the gloves (Table 3)

The nurses in the general medicine ward were aware of personal protective equipments. Most of them (63.4%) used personal protective equipments. 30% of them used those often whereas 3.3% had never used of those. They used gloves, aprons and surgical masks mostly as their personal protective measures (76.6%, 73.3% and 60% respectively). After using personal protective equipments, 80% of them in appropriate disposal bags and dispose of as per the policy of the hospital (Table 4).

Table 4: Practices of Personal Protective Equipments by the Nurses

Sl. No.	Parameters of knowledge & practices	Total Number (n=30)	Percentage (%)	
1.	Do you use personal protective equipment in wards?	Always	19	63.4
		Often	9	30
		Seldom	1	3.3
		Never	1	3.3
2.	What are the personal protective equipments you used in ward?	Gloves	23	76.6
		Gowns	3	10
		Aprons	22	73.3
		Surgical masks	18	60
		Protective eye wear (goggles) and face shields	1	3.3
		Boots/shoe covers	0	0
		Cap/hair cover	0	0
3.	Do you discard personal protective equipments in appropriate disposal bags and dispose of as per the policy of the hospital?	Yes	24	80
		No	4	13.3
		Not sure	2	6.7

Table 5: Practice of Using Gloves by the Participants by Nurses.

Parameters of knowledge & practices		Total Number (n=30)	Percentage (%)	
Gloves	What type of gloves you used	Clean	4	13.3
		Non-sterile	1	3.3
		Sterile	25	83.4
		Reusable	5	16.6
		Disposable	25	83.4
	How frequently you change the gloves	Between contacts with different patients to prevent transmission of infection	25	83.4
		Between task or procedures on the same patient to prevent cross contamination	11	36.6
		If patient interaction involves touching portable computer key boards or other mobile equipment that is transported from room to room	2	6.6
	When do you remove the gloves	Immediately after use	27	90
		Later on	2	6.6
		Before attending any other patient	4	13.3
	How you practice hygiene with gloves	Before putting on gloves	17	56.6
After removal of gloves		17	56.6	

83.4% of the nurses practiced of wearing sterile, disposable gloves and changed them between contacts with different patients to prevent transmission of infection. Re-usable gloves were practiced by 16.6% of the nurses. 36.6% of them practiced

wearing the gloves between task or procedures on the same patient to prevent cross contamination. Only few of them (6.6%) practiced wearing gloves with patient interactions with portable equipments (Table 5).

Table 6: Practices of Gown and Apron, Mask, Eye Protection, Caps, Boots and Shoe Cover by the Nurses.

Sl. No.	Parameters of knowledge & practices		Total Number (n=30)	Percentage (%)	
1.	Gown and apron	Which variety of gown or apron do you use in ward?	Clean, non-sterile	22	73.3
			Sterile	4	13.3
			Fluid resistant	2	6.6
			Plastic apron	2	6.6
	What type of gown or apron you use during work?	Any other	0	0	
		Long sleeve	8	26.6	
		Short sleeve	22	73.3	
		Disposable	2	6.6	
2.	Mask	Which type of mask do you prefer to use in ward?	Reusable	28	93.3
			Surgical disposable mask	21	70
			Cotton material mask	9	30
			Gauze mask	0	0
		Any other	0	0	

73.3% of the nurses in the ward practiced wearing short-sleeve clean, non-sterile gowns and apron. Reusable gown and aprons were found to be used more (93.3%) by the nurses. Whereas wearing of plastic, disposable aprons were practiced by very few (6.6%). Surgical disposable mask wearing was

practiced more (70% of them) comparing to cotton material mask (30%). The nurses had not practiced for any eye protection in the ward by wearing eye shields or goggles. At the same time, they had not practice of using caps, boots or shoe covers of any disposable or reusable variety (Table 6).

Table 7: Appropriate Handling of Patient Care Equipment and Soiled Linen

Sl. No.	Parameters of knowledge & practices		Total Number (n=30)	Percentage (%)
1.	Do you clean and reprocess or sterilized all reusable equipments before using to another patient?	All the time	20	66.7
		Frequently	8	26.7
		Very often	0	0
		Rarely	2	6.6
2.	Do you ensure proper handling of soiled linen	All the time	19	63.4
		Frequently	8	26.7
		Very often	1	3.3
		Rarely	2	6.6

Appropriate handling of patient care equipment and soiled linen were practiced all the time by 66.7% and 63.4% of the nurses. 26.7% of them used very frequently, when only 6.6% of them rarely practiced those. 73.3% of the nurses had practiced Universal precautions for needle stick injury and they have not encountered any needle stick injury in last 6 months (Table 7).

They had the knowledge that needle stick/sharp injury might be occurring during the use of a sharp devices on a patient (opined by 63.3%) or after use and before disposal of a needle stick/sharp devices (opined by 30%). Only few of them had the knowledge that those injury might occur during or after appropriate or inappropriate disposal of a needle stick/sharp devices. The most frequent cause

of injury experienced by the nurses were during use of needle stick or sharp while putting the injector tap on (56.6%), followed by during IM/IV injections (36.6%). They had experienced the injury while preparing for IM/IV treatment (26.6%) and when cleaning used instruments (23.3%).

Less injury was experienced by them while fixing IV catheter (6.6%). The nurses in the ward practiced handling the sharps by giving verbal comments when passing sharps (by 50%) and at the same time by using instruments to grasp sharps (by 43.3%). They (16.6%) practiced avoiding hand-to-hand passage of sharp instruments by using basin or neutral zone. Practice of using round tip scalpel blades instead of pointed sharp tipped blades was practiced by 6.6% of the nurses (Table 8).

Table 8: Needle Stick/Sharp Injury Experienced by the Nurses.

Sl. No.	Parameters of knowledge	Total Number (n=30)	Percentage (%)
1.	Do you encounter needle stick injury in last 6 months?	Yes	8 26.7
		No	22 73.3
2.	Injuries most often occur during use of needle stick or sharp	During the use of a sharp device on a patient	19 63.3
		After use and before disposal of a sharp device	9 30
		During or after appropriate or inappropriate disposal of a sharp device	2 6.6
3.	The most frequent cause of injury occurred during use of needle stick or sharp	While putting the injector tap on	17 56.6
		Preparing for IM or IV treatment	8 26.6
		During IM/IV injection	11 36.6
		When cleaning used instruments	7 23.3
		Throwing sharp objects into trash	3 10
		Equipment exchange during operation	3 10
		While fixing IV catheter	2 6.6
		Bloodletting	3 10
4.	How do you practice to handle the sharps?	Any other	0 0
		Using instruments, rather than fingers, to grasp sharps	13 43.3
		Giving verbal announcements when passing sharps	15 50
		Avoiding hand-to-hand passage of sharp instruments by using basin or neutral zone	5 16.6
5.	How do you ensure needle stick injury in the ward?	Using round tip scalpel blades instead of pointed sharp tipped blades	2 6.6
		Breaking the needle tip	10 33.3
		Capping the used needle tip	14 46.6
6.	What do you practice after needle stick or sharp injury?	Disposing the needle in a puncture resistant box	12 40
		Washing the wound immediately with soap, water/antiseptic	20 66.6
		Cleaning the wound immediately with antiseptic	15 50
		Covering of cuts in the hand with water proof dressings	8 26.6
		Any prophylactic medication	5 16.6

50% of the nurses practiced cleaning of blood spills promptly with hypochloride solutions all the time. Frequent practice of using hypochloride solutions was observed among 23.3% of the nurses. 20% of them were reluctant to practice that and 6.7% practiced very often (Table 9). Appropriate practice of handling bio-medical waste through waste disposal Colour coded bags with Bio-hazards marks was observed among 76.7% of the nurses. 83.3% of the nurses practice of segregating biomedical waste in colour coded container/bags. More than and equal to 60% of the nurses had the knowledge about red, yellow, blue and black colour coded bags used for handling bio-medical waste. Only 10% of them had the knowledge of using white plastic bag. While disposing the used needle as biomedical waste, 90% of the sisters practice destroying the needle tip with needle destroyer and

disposed the needle box by putting the tap on properly when it was full (Table 9).

The nurses were aware of non-compliance on practicing Universal Safe Precautions (UPCs) in the ward. 60% of them had the knowledge on non-compliance with Universal Precautions in your ward. 23.3% of them were not sure about the non-compliance and 16.7% of them had no knowledge about that (Table 9).

The various reasons for non-compliance with universal precautions were opined by the nurses were observed to be common for most of them (ranged from 40% to 63.3%). The reasons were lack of equipment's, lack of supervision, lack of proper guidelines, non-availability or regular supply of material, heavy work load, time constrains, satisfied with available articles and ignorance with not paying enough attention (Table 10).

Table 9: Environmental Cleaning and Spills-Management, Handling of Bio-Medical Waste and Waste Disposal by the Nurses

Sl. No.	Parameters of knowledge		Total Number (n=30)	Percentage (%)
1.	Cleaning of blood spills promptly with hypochloride solutions	All the time	15	50
		Frequently	7	23.3
		Very often	2	6.7
		Rarely	6	20
2.	How do you practice appropriate handling of bio-medical waste through waste disposal	By using Normal plastic container	7	23.3
		Colour coded bags with Bio-hazards marks	23	76.7
3.	Do you segregate the biomedical waste in colour coded container/bags?	Yes	25	83.3
		No	5	16.7
4.	If yes, the what are coded container/bags you use in ward	Red	18	60
		Yellow	21	70
		Blue	22	73.3
		Black	21	70
		White	3	10
5.	How do you dispose the used needle	By simply thrown away	3	10
		By destroying the needle tip with needle destroyer	27	90
6.	How do you dispose the needle box	By simply thrown away	3	10
		By putting the tap on properly when it is full	27	90

Table 10: Knowledge on Non-Compliance with Universal Precautions in your ward (If any) by the Nurses

Sl. No.	Parameters of knowledge		Total Number (n=30)	Percentage (%)	
1.	Do you find any non-compliance with universal precautions in your ward?	Yes	18	60	
		No	5	16.7	
		Not sure	7	23.3	
2.	If yes, the reason for non-compliance with universal precautions:	Lack of equipments:	Yes	18	60
			No	1	3.3
		Lack of supervision:	Yes	15	50
			No	3	10
		Lack of proper guidelines	Yes	16	53.3
			No	3	10
		Non availability or regular supply of material	Yes	19	63.3
			No	0	0
		Heavy work load	Yes	18	60
			No	1	3.3
		Time constrains	Yes	19	63.3
			No	0	0
		Satisfied with available articles	Yes	12	40
			No	7	23.3
Ignorance, not paying enough attention	Yes	18	60		
	No	1	3.3		

Discussion

Universal precautions emphasized the need for HCWs to consider all patients as potentially infected with HIV or other blood-borne infections and to adhere rigorously to infection control precautions.[5]

A study conducted by Maja TMM et al. [6] had revealed that 95.5% of the participants were aware of education and training which was found to be very low among the nurses (23.33%) in our study who had an experience on training on Universal Precaution measures.

1. Hand Hygiene:

The key factors in effective hand hygiene and maintaining skin integrity included the duration of hand hygiene measures, the exposure of all surfaces of hands and wrists to the preparation used, the use of rubbing with alcohol-based preparations to create friction and ensuring that hands are completely dry.[1] In the present study, 96.6% of the nurses had the knowledge of hand hygiene and they practiced those in the general medicine ward. 76.6% of them practiced those after handling any blood, body fluids, secretions, excretions and contaminated items.

Using of tepid running water was recommended with a use of soap (including antimicrobial soap).[1] in the present study, the majority of the nurses (66.6%) practiced of tepid running water while using plain soap (by 56.6%) as well as antimicrobial soap (by 33.3%). 83.3% of the nurses in the present study rubbed the hands with alcohol-based preparations.

2. Use of personal protective equipment:

Personal protective equipment reduced but not completely eliminated the risk of acquiring an infection. It was important that personal protective measures were to be chosen according to the risk of exposure and to be used effectively, correctly, and at all times where contact with blood and body fluids of patients might occur. Gloves as a personal protective equipment could protect both patients as well as health care workers from exposures to infectious agents that might be carried in hands.[1] In our study, 63.4% of the nurses were found to practice of personal protective equipment in wards. 76.6% of the nurses practiced wearing gloves as a personal protective equipments. 83.4% of them practiced of using sterile, disposable gloves for personal protection.

Gowns and aprons were used to protect arms and exposed body areas and prevent contamination of clothing with blood, body fluids and any other potentially infectious materials. The need and type of the gown were based on the nature of the patients' interaction and degree of contact with infectious material penetrating the barrier. A clean non sterile gown and apron was adequate to protect skin and to prevent soiling of clothing.[1] In this study, 83.3% of the nurses practiced of gowns and aprons. 73.3% of the nurses in the ward practiced wearing short-sleeve clean, non-sterile gowns and apron. Single-use plastic aprons were recommended for general use when there is the possibility of sprays or spills, to protect clothes that could not be taken off. In our study, very few (6.6%) of the nurses were using disposable-plastic apron.

Single-use surgical masks, caps and boots were used as a part of standard precautions to keep splashes or sprays from reaching the mouth and nose of the person wearing them. Disposable or reusable protective eye wear (goggles or eye shield) protected the mucous membranes of the eyes during any procedures where chances of splashes of blood, body fluids, secretions or excretions.[1] In our study, the use of surgical disposable mask was practiced among nurses were 70%. The nurses had not practiced for any eye protection in the ward by wearing eye shields or goggles. At the same time, they had not practice of using caps, boots or shoe covers of any disposable or reusable variety.

In a study on standard Precautions Practice among Health Care Workers had shown that 86.7% and 89.9% of the participants always wore gloves and plastic gowns [7] which was found to be less in our study 76.6% and 83.3%. Wearing gown/apron might be comparable with the present study. It was observed that 48.9% of the participants were using mask and goggles [7] which was found to be higher in our study (63.3%). With regard to the practice of hand hygiene, 58.5%, 28.1% and 63.6% always practised hand hygiene after touching patients, after touching patients' surroundings and after removing gloves, respectively. Eighty-two percent (82%) always wear gloves before venipuncture.[8]

3. Appropriate handling of patient care equipment and soiled linen:

Careful handling of patient care equipment soiled with blood, body fluids secretions or excretions to prevent exposure to skin and mucous membranes, clothing and environment was ensured by appropriate cleaning and reprocessing before using on other patients. Proper handling, transporting and processing of used linen were to ensure that there was no leaking of fluid.[1] It was observed in the present study that, the nurses practiced appropriately handling of patient care equipment and soiled linen all the time by 66.7% and 63.4% respectively.

4. Prevention of needle stick /sharp injuries:

Precautions while handling of sharp devices included using instruments, rather than fingers, to grasp needles, verbal announcement while passing the sharps, avoiding hand-to-hand passage of sharps by using basin or neutral zone and using of rounded-tipped scalpel blades instead of pointed sharp-tipped blades.[1] In the present study, 50% of the nurses practiced of handling of needles/sharps by verbal announcement while passing sharp followed by using instruments, rather than fingers, to grasp sharps (43.3%), by avoiding hand-to-hand passage of sharp instruments by using basin or neutral zone (16.6%) and by using round tip scalpel

blades instead of pointed sharp tipped blades (6.6%).

In relation to injection safety, 33.7% usually recap sharps with two hands, 7.9% sometimes bend or break sharps, while 63.6% had always disposed of sharps/needles in puncture proof containers in the prior six months.[8]

5. Environmental cleaning and spills-management:

The use of sodium hypochlorite was based on the risk assessment of the environment, the spill and risk of transmission of disease, surface area and potential hazards of using the product.[1] In our study, cleaning of blood spills promptly with hypochlorite solutions were practiced more (50%) comparing to frequent practice (23.3%). In 20% of the nurses practiced of using it rarely. So, the variation in the practice of sodium hypochlorite might be due to various risk assessment conditions.

Being knowledgeable about universal precautions, some nurses were found to be frustrated when they did not have the needed protective equipment. Nurses cited several reasons, including lack of resources, maintenance issues, lack of information, and overcrowding for not practicing universal precautions. The primary challenge to the practice of universal precautions was the inadequate supply of resources, both material and human. Several authors have reported this challenge in many low-income countries. Nurses were often caught in a vicious cycle: the lack of resources led to fatigue and despair, which in turn contributed to a growing negative attitude toward their work and their patients. This process was reported previously. [9,10,11,12]

In the present study, 60% of the nurses had knowledge of non-compliance on practiced of Universal Safe Precautions. Among the various reasons, non-availability (63.3%), lack of equipments and heavy work load (60% each) and time constrains (63.3%) were found to be major issues regarding practicing UPCs. Lack of proper guidelines (53.3%) and ignorance and not paying enough attention were observed among (60%) the nurses in the present study.

The most effective and simple way of preventing infection in the hospital is to follow standard precautions, which are a set of recommendations designed to prevent or minimise exposure to infectious agents by hospital staff, patients and their visitors. Standard precautions assume that the blood and body substances of all patients are potential sources of infection, regardless of the diagnosis, or presumed infectious status. [13,14,15]

Conclusion

Implementation of Standard Universal Precautions was closely interrelated with the knowledge and practice. So, this study was conducted with combination of knowledge and practices on Standard Universal Precautions by the nurses in general medicine ward.

The following were the conclusions of the study:

1. A higher percentage of the nurses (93.4%) had recognized and practiced Universal Safe Precautions (UPCs).
2. Knowledge and practice of hand hygiene was observed among 96.6% of the nurses.
3. Knowledge on prevention of needle stick/sharp injuries was observed among 73.3% of the nurses. They had not experienced of needle stick/sharp injury in last 6 months which suggested a good UPCs practices in the ward.
4. 63.4% of the nurses always used personal protective equipments. Among the personal protective equipments, majority of the nurses were practicing wearing of gowns & aprons and gloves (83.3% and 76.6% respectively).
5. Appropriate handling of patient care equipment and soiled linen, environmental cleaning and spills-management, bio-medical waste and waste disposal by the nurses were practiced with higher percentages.

The above findings in this present study had concluded that, the nurses in the general medicine ward of Tripura Medical College had the optimum knowledge to practice the Standard Universal Precautions. They had consistently adopted these practices based on their knowledge to reduce the disease burden and to improve the quality care of the ward and thus to improve the outcome of diseases in the ward.

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