



ORIGINAL RESEARCH PAPER

Medical Science

EFFECTIVENESS OF MONITORING HAND HYGIENE PRACTICES BY INFECTION CONTROL NURSES (ICNS) IN A SELECTED TERTIARY CARE HOSPITAL IN BANGALORE.

KEY WORDS:Infection Control Nurses, Hand hygiene, Compliance, Audit , Hospital Acquired Infections , WHO 5 moments of hand wash

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ABSTRACT

Hand hygiene is important aspect for any health care worker who is involved in patient care directly or indirectly. Hand hygiene has to be performed at a right time, right place and right method and the hand hygiene is the important factor in reducing hospital acquired infections. Nurses play a critical role in reducing the hospital acquired infections for all category of patients. So this study aims in assessing the intervention of infection control nurses in monitoring and audit of hand hygiene.

METHODS: Observational study was conducted in all the areas of the hospital wards , Intensive care units . The participants were nurses working in the hospitals chosen based on random sampling method . A researcher prepared questionnaire that investigated that the participants were following all the steps of hand hygiene recommended by WHO . Analysis was done using simple statistical methods to find out the percentage of compliance rate .

RESULTS:Most of nursing participants before the intervention of ICNs they were following steps but not all the steps as recommended by WHO, once the intervention was done and monitored on regular basis there was an improvement and also reduction of Hospital Acquired Infection.

INTRODUCTION

Hand washing also known as hand hygiene, is the act of cleaning hands for the purpose of removing soil, dirt, and microorganisms. If water and soap is not available, hands can be cleaned with ash instead [1] . Hand hygiene (HH) constitutes the principal prevention practice for healthcare-associated infections, and the monitoring of compliance is a fundamental quality indicator in healthcare facilities[2] [3]. There are 2 types of hand washing techniques - Medical hand hygiene and surgical hand hygiene. Medical hand hygiene refers to hygiene practices related to medical procedures, Hand washing before administering medicine or medical care. Surgical hand wash refers to hygiene practices related to surgical procedures performed during the procedures. These 2 types of hand wash helps to prevent or minimize the spread of disease. The main purpose of washing hands is to cleanse the hands of pathogens (like bacteria or viruses) and chemicals which can cause harm or disease. This is especially important for people who handle food or work in the medical field, but also important practice for the general public.

The purpose of hand-washing in the health-care setting is to remove pathogenic micro-organisms ("germs") and avoid transmitting them. There are reports that a lack of hand-washing remains at unacceptable levels in most medical environments, with large numbers of doctors and nurses routinely forgetting to wash their hands before touching patients [4] .

Health-care associated infections due to poor hand hygiene have been linked to an unacceptably high level of morbidity, mortality, and health-care costs [5] [6]. In developing countries, its prevalence is found to be as high as 19% [7] . Effective hand hygiene can lower the prevalence of health-care associated infections. Unfortunately, the prevalence of these infections continue to rise and pose challenges to health-care providers. In spite of being a very simple action, compliance with hand hygiene among health-care providers is as low as <40% [8] [9] [10] .

Many studies have shown that Effective Hand Hygiene is the single most effective action to reduce Health Care Associated Infections [11]. Many people die every day around the world due to health care associated infections which are acquired while receiving the treatment from health care settings /

institutions. Microorganisms are usually transmitted through the hands. Hands are the main pathways of germ transmission during the care with in in the health care setting. Hand hygiene is therefore the most important measure to avoid the transmission of harmful germs and prevent health care-associated infections [12].

Monitoring practices is a crucial element of hand hygiene promotion. It is part of the widely used World Health Organization (WHO) multimodal implementation strategy to improve hand hygiene proven to be successful in low-/middle- and high-income countries [13] [14] [15] .

HAND WASHING HAS THE FOLLOWING HEALTH BENEFITS:

- Minimizes the spread of influenza [16] .
- Prevents infectious causes of diarrhea [17].
- Decrease respiratory infections [18] .
- Decrease infant mortality rate at home birth deliveries.

Hand hygiene when followed in all the 5 moments of hand wash helps to reduce the risk of transmitting hospital acquired infections and reduces the microbial flora for all the people involved in patient care .Many studies have shown that the noncompliance related to hand wash is associated with health care associated infections . Continues monitoring of hand wash is important in all the hospital areas . the role of infection control nurse is very important in the intervention , auditing , monitoring of hand wash

AS PER THE CENTRE FOR DISEASE AND CONTROL INDICATIONS FOR HAND HYGIENE INCLUDE THE FOLLOWING:

1. Before and after treating each patient (e.g., before glove placement and after glove removal).
2. After barehanded touching of inanimate objects likely to be contaminated by blood, saliva, or respiratory secretions.
3. Before leaving the dental operatory.
4. When hands are visibly soiled. Before regloving, after removing gloves that are torn, cut, or punctured.
5. For oral surgical procedures, perform surgical hand antisepsis before donning sterile surgical gloves [19].

Hand hygiene alone can significantly reduce the risk of cross-

transmission of infection in healthcare facilities (HCFs) [20] . According to statistics from World Health Organization (WHO), at any time, 1,400,000 people suffer from complications related to hospital acquired infections (HAI). In developing countries, the rate of preventable hospital acquired infections due to medical care is estimated to be about 40% or above [21] . Practice improvement has been documented across hospital wards and departments, healthcare professions, medical specialties, healthcare settings and systems, as well as across different cultural backgrounds and resource levels[22] .

MATERIALS AND METHODS

SETTING

The study was conducted between May 2018 and April 2019 in the Ramaiah Medical College Hospital ,This hospital is a 800-bed tertiary hospital that contains 24 Departments of speciality and super speciality services ,85 - bed adult Medical /Surgical / Paediatric / Neonatal ICU which are headed by a Specialist Consultants, Anaesthesiologist / Intensivist , 12- hybrid operation theatres and other supportive departments .

DESIGN

Prospective Observational study was conducted in 3 phases
 A. In the initial phase one month pre-intervention period was observed for the month of May 2018 , to establish the baseline Hand hygiene compliance rate.
 B. A post-intervention period was conducted to measure the improvement in the hand hygiene compliance rate. The intervention was conducted in the month June 2018 as a part of educating on Hand Hygiene Improvement Program for all the nurses.
 C. Last phase consisted of observation for all the quality parameters of hand hygiene

CHECK LIST

Opportunities	Department / ward	Staff No	Indication	Hand hygiene action
1)			(1) Before patient contact	Hand Rub
			(2) Before an aseptic task	Hand wash
			(3) After exposure to bodily fluids,	Missed
			(4) After patient contact	Gloves
			(5) After contact with patient surroundings	

RESULTS

Hand hygiene compliance rates

For the period of May -2018 no intervention was done , it was just an observational study by ICNs and from the month June-2018 all the nursing staff were oriented for hand hygiene , posters , videos were shown to all nursing staff and they were monitored and observed for all 5 moments of hand wash . July 2018 onwards monitoring was done for all the moments of hand hygiene. The wards of the hospital were divided into various categories like

- A Block
- Medicine and allied departments
- Surgery and allied departments
- ICU departments
- OT Departments
- A&E, OPD departments

These department staff based on random sampling , direct observational method was used to assess the compliance and noncompliance rate.

Pre and post intervention of data related to hand hygiene for nurses are explained in the below mentioned in the table.

Few Terminologies used in a shorter form in the table are below explained

The intervention period consisted of Direct Lectures , Videos of hand wash , Importance of hand hygiene in reducing hospital acquired infections , Workplace reminder Posters depicting the 5 moments for hand hygiene, Instructions on the techniques of hand sanitizer use and hand washing, leaflets explaining why, when and how to perform Hand Hygiene . These steps were conducted to create awareness among nurses at all levels. Dispensers for alcohol-based hand sanitizers and hand hygiene were installed at points of patient care, inside and outside each patient care room, at the bedsides of the patients in the open care area, and in other conspicuous and convenient locations. The senior nursing staff fully supported the intervention. The results of the Hand Hygiene compliance audit were regularly presented to the administrators and discussed at ward supervisors meeting for every one month.

HAND HYGIENE COMPLIANCE

Direct observation of the nurses was conducted for hand hygiene using an observation check list form. The check list was prepared as per WHO guidelines . These guidelines were used to define Hand hygiene opportunities and classify them into 5 categories:

1. Before patient contact,
2. Before an aseptic task,
3. After exposure to bodily fluids,
4. After patient contact and
5. After contact with patient surroundings.

The observations were conducted in all the patient care areas of the hospital, the surveillance was conducted by infection control nurses .

CALCULATION OF HAND HYGIENE

Hand Hygiene compliance rate = no of hand hygiene actions /no of opportunities *100

The 5 hand wash moments were observed and rated as per the scoring

- A Block
- Medicine and allied departments
- Surgery and allied departments
- ICU departments
- OT Departments
- A&E, OPD departments

1.1 "A" - BLOCKWARD RESULT ANALYSIS

A block is special ward category , the ward have been divided into A block - 2 nd nd floor , A block basement floor , A block Ground Floor .

The results have been explained in the **Table No 1 and 2**.

Analysis showed that in the A block ward, the observers were in the range of 84% before the pre intervention period , later the % was reached to 90% due to the intervention n of ICNs in monitoring and there was a slight decrease in the month of October . The observation increased the awareness among the staff .

ABBREVIATIONS USED IN "A" - BLOCKWARD

- A - 2ND –A block 2 nd floor
- A - BT – A block basement floor
- A - GF – A Block ground floor

1.2 SURGERY AND ALLIED DEPARTMENTS RESULTS :

Surgery and allied departments have been divided into D block-1st floor, OBG-1 ward, OBG-2 ward, Ortho female-1 ward, Ortho Male-1 ward, Ortho Male-2 ward, Ophthalmology ward, Surgical ward, Urology, Neuro surgery.

The results have been tabulated in the Table 3 (May 2018 to October 2018) and Table 4 (November 2018 to April 2019).

Analysis shows Initially the observers were in the range of 65% with out the intervention of the the ICNs, slowly the % of observers increased to 70%, then there was a study increase of in the rate of noncompliance.

1.3 ICU-DEPARTMENTS

Hospital intensive care unit is very critical. Role of hand hygiene plays an important role in reducing infections. The ICU category have been segregated into MICU (multi-disciplinary intensive care unit), SICU (surgical intensive care unit), MITU (ISOLATION ICU (isolation intensive care unit), EICU (emergency intensive care unit), PICU (paediatrics intensive care unit), NICU (neonatal intensive care unit), LABOUR ROOM

The results have been tabulated in the Table 5 (May 2018 to October 2018) and Table 6 (November 2018 to April 2019).

In the ICU departments, due to critical patients and continuous monitoring, before the intervention the nurses were following about 86% , but after the intervention they reached to almost 90% , which was a greater achievement due to the criticality involved in the patient care, later there is a variation in the percentage .

1.4:A&E, OPD DEPARTMENTS

The analysis of the A&E , OPD Departments have been tabulated in the Table 7 (May 2018 to October 2018) and Table 8 (November 2018 to April 2019).

Analysis showed that the Observers in the pre intervention were 83% , but after the post intervention there was a slight increase in the compliance rate , the observers were able to reach to more then 90%, later there is a drop to 84%

1.5 : OT-DEPARTMENTS-RESULTS

Operation theatre is critical area where hand hygiene is must to reduce the surgical site infections .The analysis of the OT Departments have been tabulated in the Table 9 (May 2018 to October 2018) and Table 10 (November 2018 to April 2019).

Before the intervention, the observers were following only 67% , later due the post intervention they reached to 92% , which is a bigger achievement

1.6: MEDICINE AND ALLIED WARDS

Medicine and allied departments have been divided into Acute ward, Respiratory Acute ward, Respiratory ward, Isolation ward, Medicine ward, Oncology ward, Paediatrics ward, Psychiatric ward, Nephrology ward, Endocrinology ward, Neurology ward.

The analysis of the Medicine and Allied Departments have been tabulated in the Table 11 (May 2018 to October 2018) and Table 12 (November 2018 to April 2019).

Analysis showed that Initially the post intervention period had a noncompliance rate of 69% , later there was a improvement in all the post intervention periods , they were able to reach to 89%

1.7: OVERALL %- HANDWASH- RESULTS

Overall results were compiled based on the various parameters such as A block ,Surgery allied departments , ICU (intensive care unit) , Medicine allied departments , Accident & Emergency department , OPD , Operation Theatre

The analysis of the Medicine and Allied Departments have been tabulated in the Table 13 (May 2018 to October 2018) and Table 14 (November 2018 to April 2019).

Overall percentage of all categories of the hospital were calculated , initially there was a percentage of 70% then gradual increase in the rise of compliance rate , due to Intervention, Monitoring and Evaluation

DISCUSSION

Hand hygiene is a standalone measure in reducing the hospital acquired infections in any category of health care settings. Hand hygiene is critical to prevent healthcare-associated infections and reduce the spread of antimicrobial resistance. Compliance with hand hygiene practices has improved over the past two decades, especially in hospitals and healthcare settings where multi-modal promotion has been implemented [23] [24] [25]. The study was mainly focused on the direct observational method for observing the 5 moments of hand wash as recommended by WHO guidelines. This observation was done by the team of Infection Control Nurses. The study method included pre and post interventional observation. Post interventional study included videos, training and displaying of posters near the hand wash areas. All the 5 moments of hand wash were observed and the researcher was able to find out which of the steps were commonly missed by many of the nurses.

Some difficulties associated with this method are that it is labour-intensive and costly, and there are concerns about the methods used for training the observers, the assessment of inter-rater reliability and the potential for staff members to change their behaviour when they know that they are being observed [26]. Indian culture is not to get adopted to the regulations until monitored by the superiors in all streams of work.

Kaur et al. evaluated the impact of monitoring of hand hygiene for the medical students related to the World Health Organization (WHO) 5 Moment indications, use of hand hygiene material, and rubbing technique, Students' attitude toward hand hygiene also improved after the continuous monitoring. The effect was partly maintained six months after the intervention. The author felt that there is a need for continuous monitoring and education to reduce the compliance related to hand hygiene [27].

Stahmeyer et al. conducted study by direct observation for the number of hand hygiene opportunities and actions in two intensive care units (ICUs) during 12 h day-shifts. Majority of hand hygiene opportunities were related to nurses, as their role in treating patients was very much important. Hence the sample was considered only for nurses in my study by refereeing various literature studies. The analysis showed monitoring helps in improving the practices [28].

Another study in an NICU in Thailand, sample size involving 26 nursing personnel showed that Hand Hygiene compliance improved significantly from 6.3% before implementing a hand hygiene promotion programme to 81.2% seven months after the program was instituted [29].

Several studies have provided evidence that health worker hand hygiene practices greatly improve when interventions are implemented after baseline surveys [30] [31], which shows similar finding when compared to study

Some limitations of this study includes , only the random sample was taken for the study purpose and all the category of health care personnel were not involved . Observation of practices was conducted at a single point of time.

Feedback and auditing play an important role in improving hand hygiene compliance, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) developed a Consensus Measurement in Hand Hygiene Project in conjunction with experts from a number of healthcare organizations. The goal of the project, directed by Dr. Elaine Larson, is to define the best practices currently available for monitoring hand hygiene in healthcare facilities, and to offer guidance to healthcare facilities regarding the merits of the different approaches to monitoring hand hygiene. Experts on the JCAHO panel are members of JCAHO, the Association for Professionals in Infection Control and Epidemiology, the Society for Healthcare Epidemiology of America, the Centers for Disease Control and Prevention, the World Health Organization Global Patient Safety Challenge, and the Veterans Administration Healthcare System.

CONCLUSION

Hand washing is a single most important step in reducing infections. during the induction programme for newly joined staff a through hand wash should be thought to all the employees and the various disinfectants used for hand rub and hand wash should be explained and the impotence of these chemicals in reducing the microbial flora .

Study showed that in spite of repeated orientation by various

methods of creating an awareness still there was lag in completing all the 5 moments of hand wash . The study also showed the hand wash awareness improved among the nursing staff and there was slight decrease in the rate of hospital infections . To achieve the sustainability continuous monitoring and evolution has to happen at all the patient care related areas of the hospital .

This study provides an evidence that care-related to 5 moments of Hand Hygiene compliance among the selected nursing staff in a large teaching hospital . the results showed that there a improvement after the intervention . Hence it was felt by the researcher that there is a need to design Hand Hygiene promotion intervention programmes for all category of health care workers .

In order to develop the culture and comply with certain policy and regulations, it is compulsory to have an audit of hand hygiene and share the data among the staff in a transparent manner. So that the effectives is achieved among the staff members and also the quality of patient care improves by correct moments of hand washing

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CONFLICT OF INTEREST STATEMENT

None

FUNDING SOURCES

None

Table 1: "A"-Block ward result analysis (May2018 to October 2018)

WARD	May-2018				Jun-2018				Jul-2018				Aug-2018				Sep-2018				Oct-2018			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
A - 2ND	11	10	1	91	32	28	4	88	103	93	10	90	59	58	1	98	46	43	3	93	30	28	2	93
A - BT	17	15	2	89	45	37	8	82	54	49	5	90	42	35	7	83	25	24	1	96	29	25	4	86
A - GF	11	8	3	73	35	29	6	82	92	82	10	89	77	66	11	85	26	24	2	92	26	23	3	88
TOAL	39	33	6	84	112	94	18	84	249	224	25	90	178	159	19	89	97	91	6	93	85	76	9	89

Table 2: "A"- Block ward result analysis (November 2018 to April 2019)

WARD	Nov-18				Dec-2018				Jan-2019				Feb-2019				Mar-2019				Apr-2019			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
A - 2ND	40	38	2	95	51	47	4	92	20	19	1	95	20	19	1	95	20	18	2	90	20	18	2	90
A - BT	20	20	-	100	29	24	5	82	20	18	2	90	20	17	3	85	20	19	1	95	20	19	1	95
A - GF	37	32	5	83	27	21	6	77	20	15	5	75	20	18	2	90	20	18	2	90	20	19	1	95
TOAL	97	90	7	92	107	92	15	84	60	52	8	86	60	54	6	90	60	55	5	91	60	57	4	93

Table 3 : Surgery and allied departments results (May2018 to October 2018)

Ward	May-2018				Jun-2018				Jul-2018				Aug-2018				Sep-2018				Oct-2018			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
D - 1 st floor	1	1	1	100	9	7	2	78	20	14	6	70	30	24	6	80	25	19	6	79	29	4	25	13
OBG - 1	1	1	0	100	12	10	2	83	24	15	9	62	27	18	9	66	11	9	2	81	31	26	5	83
OBG - 2	3	2	1	67	11	8	3	73	33	21	12	63	28	24	4	85	34	25	9	73	33	29	4	87
Ortho female -1	15	9	6	60	9	7	2	78	39	34	5	87	64	57	7	89	37	31	6	83	16	12	4	75
Ortho Male - 1	9	6	3	67	41	38	3	93	42	35	7	83	56	53	3	94	34	28	6	82	17	15	2	88
Ortho Male -2	15	8	7	53	33	28	5	85	20	14	6	70	58	55	3	94	38	32	6	84	17	13	4	76
Ophthal	9	6	3	67	4	1	3	25	35	31	4	88	30	27	3	90	36	33	3	91	30	28	2	93
Surgical	7	3	4	43	20	14	6	70	19	17	2	89	98	84	14	85	37	31	6	83	20	18	2	90
Uro Neuro	6	2	4	33	19	8	11	42	59	54	5	91	62	57	5	91	45	40	5	88	30	23	7	76
Total	66	38	29	65	158	121	37	70	291	235	56	78	453	399	54	86	297	248	49	82	223	168	55	76

Table 4 : Surgery and allied departments results (November 2018 to April 2019)

D - 1st floor	Nov-2018				Dec-2018				Jan-2019				Feb-2019				Mar-2019				Apr-2019			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
D - 1st floor	20	19	1	95	30	28	2	93	20	15	5	75	20	18	2	90	20	17	3	85	20	17	3	85

OBG - 1	20	20	-	100	30	28	2	93	20	17	3	85	20	17	3	85	20	17	3	85	20	17	3	85
OBG - 2	20	19	1	95	30	28	2	93	20	16	4	80	20	17	3	85	20	17	3	85	20	17	3	85
Ortho female -1	16	14	4	87	16	15	1	93	20	16	4	80	20	18	2	90	20	17	3	85	20	17	3	85
Ortho male -1	22	18	2	81	16	15	1	93	20	18	2	90	20	19	1	95	20	17	3	85	20	17	3	85
Ortho male -2	16	15	1	93	16	14	2	87	20	16	4	80	20	19	1	95	20	17	3	85	20	17	3	85
Ophthal	20	20	-	100	30	29	1	96	20	15	5	75	20	14	6	70	20	16	4	80	20	18	2	90
Surgical	40	38	2	95	30	28	2	92	20	19	1	95	20	17	3	85	20	16	4	80	20	17	3	85
Uro Neuro	40	34	6	85	30	26	4	86	20	16	4	80	20	14	6	70	20	17	3	85	20	19	1	95
Total	214	197	17	92		211		92	180	148	32	82	180	153	27	85	180	151	29	83	180	156	24	86
					228		17																	

Table:5 ICU - Departments (May2018 to October 2018)

DEPART MENT	May-2018				Jun-2018				Jul-2018				Aug-2018				Sep-2018				Oct-2018			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
MICU	9	6	3	67	36	28	8	78	57	55	2	96	79	74	5	93	53	48	5	90	30	28	2	93
SICU	2	2	0	100	21	18	3	86	42	41	1	97	61	56	5	91	46	44	2	95	30	28	2	93
MITU	1	1	0	100	22	20	2	90	42	41	1	97	61	50	11	82	46	44	2	95	30	27	3	90
ISOLATI ON ICU	1	1	0	100	8	7	1	88	50	47	3	94	44	38	6	86	49	45	4	91	30	27	3	90
EICU	9	5	4	56	18	17	1	94	12	9	3	75	10	9	1	90	22	18	4	81	16	13	3	81
PICU	1	1	0	100	9	8	1	89	38	33	5	86	45	35	10	77	46	44	2	95	30	28	2	93
NICU	1	1	0	100	13	12	1	92	42	40	2	95	55	55	Nil	100	50	49	1	98	30	29	1	96
LABOUR ROOM	8	5	3	63	21	18	3	86	26	23	3	88	87	66	21	75	53	41	12	77	35	30	5	85
TOTAL	32	22	10	86	148	128	20	88	309	289	20	91	442	383	59	87	365	333	32	90	231	210	21	90

Table:6 ICU - Departments (November 2018 to April 2019)

DEPART MENT	Nov-2018				Dec-2018				Jan-2019				Feb-2019				Mar-2019				Apr -2019			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
MICU	40	40	Nil	100	20	17	3	85	20	16	4	80	20	19	1	95	20	18	2	90	20	16	4	80
SICU	40	40	Nil	100	20	17	3	85	20	17	3	85	20	18	2	90	20	16	4	80	20	18	2	90
MITU	40	40	Nil	100	20	16	4	80	20	17	3	85	20	17	3	85	20	17	3	85	20	17	3	75
ISOLATI ON ICU	40	40	Nil	100	20	18	2	90	20	17	3	85	20	17	3	85	20	18	2	90	20	16	4	80
EICU	28	27	1	96	23	22	1	95	20	16	4	80	20	15	5	75	20	17	3	85	20	19	1	95
PICU	20	18	2	90	20	18	2	90	20	18	2	90	20	18	2	90	20	18	2	90	20	18	2	90
NICU	20	18	2	90	20	18	2	90	20	20	Nil	100	20	20	Nil	100	20	18	2	90	20	19	1	95
LABOUR ROOM	40	38	2	95	24	23	1	95	20	16	4	80	20	18	2	90	20	18	2	90	20	17	3	85
TOTAL	268	261	7	96	167	149	18	95	160	137	23	85	160	142	18	88	160	140	20	87	160	140	20	86

Table: 7 Results A&E , OPD Departments (May2018 to October 2018)

DEPT	May-2018				Jun-2018				Jul-2018				Aug-2018				Sep-2018				Oct-2018			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
A&E	12	9	3	75	21	17	4	80	16	11	5	68	30	24	6	80	22	20	2	90	21	18	3	85
OPD	11	10	1	91	24	15	9	63	70	60	10	85	80	70	10	87	60	57	3	95	78	76	2	97
TOTAL	23	19	4	83	45	32	13	71	86	71	15	77	110	94	16	83	82	77	5	93	99	94	5	91

Table: 8 Results A&E , OPD Departments (November 2018 to April 2019)

DEPT	Nov-2018				Dec-2018				Jan-2019				Feb-2019				Mar-2019				Apr-2019			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
A&E	28	24	4	85	26	23	3	88	20	13	7	65	20	15	5	75	20	15	5	75	20	17	3	85
OPD	40	40	Nil	100	40	35	5	87	40	29	11	72	40	27	13	67	80	57	23	71	147	124	23	84
TOTAL	68	64	4	92	66	58	8	88	60	42	18	68	60	42	18	71	100	72	28	73	167	141	26	84

Table : 9 OT - Departments (May2018 to October 2018)

DEPART MENT	May-2018				Jun-2018				Jul-2018				Aug-2018				Sep-2018				Oct-2018			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
OT	6	4	2	67	57	47	10	83	40	32	8	80	40	36	4	90	31	26	5	83	40	37	3	92

Table : 10 OT - Departments (November 2018 to April 2019)

DEPAR TMENT	Nov-2018				Dec-2018				Jan-2019				Feb-2019				Mar-2019				Apr-2019			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
OT	40	38	2	95	40	36	4	90	40	37	3	92	40	37	3	92	40	37	3	92	40	37	3	92

Table : 11 Medicine and allied wards (May2018 to October 2018)

Department	May-2018				Jun-2018				Jul-2018				Aug-2018				Sep-2018				Oct-2018			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
Acute ward	5	3	2	60	18	16	3	89	10	7	3	70	9	8	1	88	19	18	1	94	15	14	1	93

Respiratory	6	4	2	67	16	14	2	88	39	36	3	92	56	50	6	89	12	9	3	75	24	19	5	79
Isolation	6	5	1	83	16	14	2	88	41	38	3	92	57	52	5	91	28	24	4	85	16	14	2	87
Medicine	3	2	1	67	14	12	2	86	52	45	7	86	62	60	2	96	30	28	2	93	30	29	1	96
oncology	1	1	0	100	8	6	2	76	20	14	6	70	45	36	9	80	47	37	10	78	50	40	10	80
Paediatrics	9	6	3	67	6	4	2	67	18	10	8	55	32	27	5	84	31	26	5	83	32	28	4	87
Psychiatric	7	4	3	57	9	7	2	78	19	17	2	89	41	38	3	92	28	27	1	96	25	22	3	88
Nephro Endo,Neuro	15	8	7	53	14	8	6	58	44	38	6	86	30	27	3	90	30	27	3	90	30	29	1	96
Total	52	33	19	69	101	81	21	78	243	205	38	80	332	298	34	82	225	196	29	87	22	19	27	88

Table : 12 Medicine and allied wards (November 2018 to April 2019)

Department	Nov-2018				Dec-2018				Jan-2019				Feb-2019				Mar-2019				Apr-2019			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
Acute ward	26	26	nil	100	24	24	nil	100	20	17	3	85	20	14	6	70	20	14	6	70	20	17	3	85
Respiratory	17	15	2	88	26	21	5	80	20	18	2	90	20	18	2	90	20	16	4	80	20	19	1	95
Isolation	16	14	2	87	16	14	2	87	20	16	4	80	20	17	3	85	20	16	4	80	20	16	4	80
Medicine	30	27	3	90	30	28	2	93	20	16	4	80	20	15	5	75	20	16	4	80	20	19	1	95
Oncology	40	35	5	87	38	34	4	89	20	17	3	85	20	18	2	90	20	18	2	90	20	18	2	90
Paediatrics	20	19	1	95	30	28	2	93	20	16	4	80	20	17	3	85	20	17	3	85	20	18	2	90
Psychiatric	20	19	1	95	30	27	3	90	20	18	2	90	20	19	1	95	20	18	2	90	20	19	1	95
Nephro Endo,Neuro	30	29	1	96	20	19	1	95	20	16	4	80	20	17	3	85	20	18	2	90	20	17	3	85
Total	199	184	15	91	214	195	19	91	160	134	26	83	160	135	25	84	160	133	27	83	160	143	17	89

Table: 13 Overall % - Hand wash (May 2018 to October 2018)

	May-2018				Jun-2018				Jul-2018				Aug-2018				Sep-2018				Oct-2018			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
A block	39	33	6	84	112	94	18	84	249	224	25	90	178	159	19	89	97	91	6	94	85	76	9	89
surgery allied	66	38	29	65	158	121	37	70	291	235	56	78	453	399	54	87	297	248	49	83	223	168	55	76
ICU	32	22	10	86	148	128	20	88	309	289	20	91	442	383	59	87	365	333	32	91	231	210	21	90
Medicine allied	52	33	19	69	101	81	21	78	243	205	38	80	332	298	34	89	225	196	29	87	222	195	27	89
A & E , OPD	23	19	4	83	45	32	13	71	86	71	15	77	110	94	16	84	82	77	5	93	99	94	5	92
OT	6	4	2	67	57	47	10	83	40	32	8	80	40	36	4	90	31	26	5	84	40	37	3	93
Total	218	149	70	76	621	503	119	79	1218	1056	162	83	1555	1369	186	88	1097	971	126	89	900	780	120	88

Table: 14 Overall % - Hand wash (November 2018 to April 2019)

	Nov-2018				Dec-2018				Jan-2019				Feb-2019				Mar-2019				Apr-2019			
	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%	O	C	N	%
A block	97	90	7	92	107	92	15	84	60	52	8	86	60	54	6	90	60	55	5	91	60	57	4	93
Surgery allied	214	197	17	92	228	211	17	92	180	148	32	82	180	153	27	85	180	151	29	83	180	156	24	86
ICU	268	261	7	96	167	149	18	95	160	137	23	85	160	142	18	88	160	140	20	87	160	140	20	86
Medicine allied	199	184	15	91	214	195	19	91	160	134	26	83	160	135	25	84	160	133	27	83	160	143	17	89
A & E , OPD	68	64	4	92	66	58	8	88	60	42	18	68	60	42	18	71	100	72	28	73	167	141	26	84
OT	40	38	2	95	40	36	4	90	40	37	3	92	40	37	3	92	40	37	3	92	40	37	3	92
Total	886	834	52	93	822	741	81	90	660	550	110	83	660	563	97	85	700	588	112	85	767	673	94	88

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