



ISSN: 0975-833X

Available online at <http://www.journalera.com>

International Journal of Current Research
Vol. 13, Issue, 01, pp. 15656-15661, January, 2021

DOI: <https://doi.org/10.24941/ijcr.40590.01.2021>

INTERNATIONAL JOURNAL
OF CURRENT RESEARCH

RESEARCH ARTICLE

SAFE HANDS-SAFE PATIENTS: MOMENT WISE HAND-HYGIENE COMPLIANCE OF HEALTH CARE PROVIDERS IN GENERAL WARDS OF A TEACHING HOSPITAL

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ARTICLE INFO

Article History:

Received 03rd October, 2020
Received in revised form
17th November, 2020
Accepted 20th December, 2020
Published online 30th January, 2021

Key Words:

Health care associated infections, hand hygiene, hand rub, hand wash, Hospital infection control.

ABSTRACT

Introduction: Health care-associated infection (HCAI) affects millions worldwide and is a major global issue for patient safety. A simple Hand hygiene is considered to be the primary measure necessary for reducing HCAI. Although the action of hand hygiene is simple, the lack of compliance among health-care workers continues to be a problem throughout the world. Evaluation of hand hygiene practices at a health-care facility is one vital element of the strategy to improve hand hygiene and hence play a key role in hospital infection control. **Aims and Objectives:** To determine 'Indication related compliance with hand hygiene practices' among health care providers in general wards of a tertiary care teaching hospital in South India. **Methodology:** A cross sectional study was conducted by using WHO Hand hygiene observation form by randomly observing for the hand hygiene action taken i.e., either hand wash(HW) or hand rub(HR) done for an opportunity indicated in WHO's 5 moments of hand hygiene. A total of 400 opportunities were observed in general wards among doctors, nurses, technicians and housekeeping staff i.e., 100 in each category for hand hygiene action taken and compliance was calculated. **Duration of study:** Nov 2019 to Dec 2019. **Results:** Hand hygiene compliance was found to be 41% for doctors, 35% for nurses, 21% for technicians and 16% for class IV employees. Overall hand hygiene compliance was 28%. Indication wise compliance was found to be 21% before touching the patient, 36% before doing any clean/aseptic procedure, 46% after body fluid exposure, 26.2% after touching patient and 12% after touching patient surroundings. **Conclusion:** Lowest hand hygiene compliance was found among class IV employees followed by technicians, nursing staff and doctors. Adequate training is required to all staffs regarding importance of hand hygiene and its role in preventing Health Care associated Infections.

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Citation: Krishna Reddy KV, Saba Fatima and Syed Salman Ahmed. 2021. "The Effectiveness of Supervision with Coaching Method on Returning Medical Record Documents of BPJS Patients to the Inpatient Cashier at RSUD Kota Dumai 2020". *International Journal of Current Research*, 13, (01), 15656-15661.

INTRODUCTION

"Clean Care is Safer Care" was introduced by World Health Organization (WHO) as first Global Patient Safety Challenge¹. Health care-associated infection (HCAI) affects millions worldwide and is a major global issue for patient safety¹. A simple Hand hygiene is considered to be the primary measure necessary for reducing HCAI⁵. Hand hygiene compliance is an accepted measure of quality and safety in many countries⁵. WHO's Five Moments for Hand Hygiene in Health Care added value to hand hygiene improvement strategy⁴. Although the action of hand hygiene is simple, the lack of compliance among health-care workers continues to be a problem throughout the world⁵. Evaluation of hand hygiene practices at a health-care facility is one vital element of the strategy to improve hand hygiene and patient safety⁴

Aim & Objectives

Aim: To determine 'Indication related compliance with hand hygiene practices' among health care providers in general wards of a tertiary care teaching hospital.

Objectives

-) To observe for the hand hygiene action taken when indicated according to the WHO's five moments among various health care providers viz., Doctors, Nurses, Technicians and housekeeping staffs.
-) Each of the 5 moments to be observed separately and equally to compare among the above categories of health care providers.

METHODOLOGY

Study design : A cross sectional observational study was conducted by using WHO Hand hygiene observation form by randomly observing for the hand hygiene action taken i.e.,

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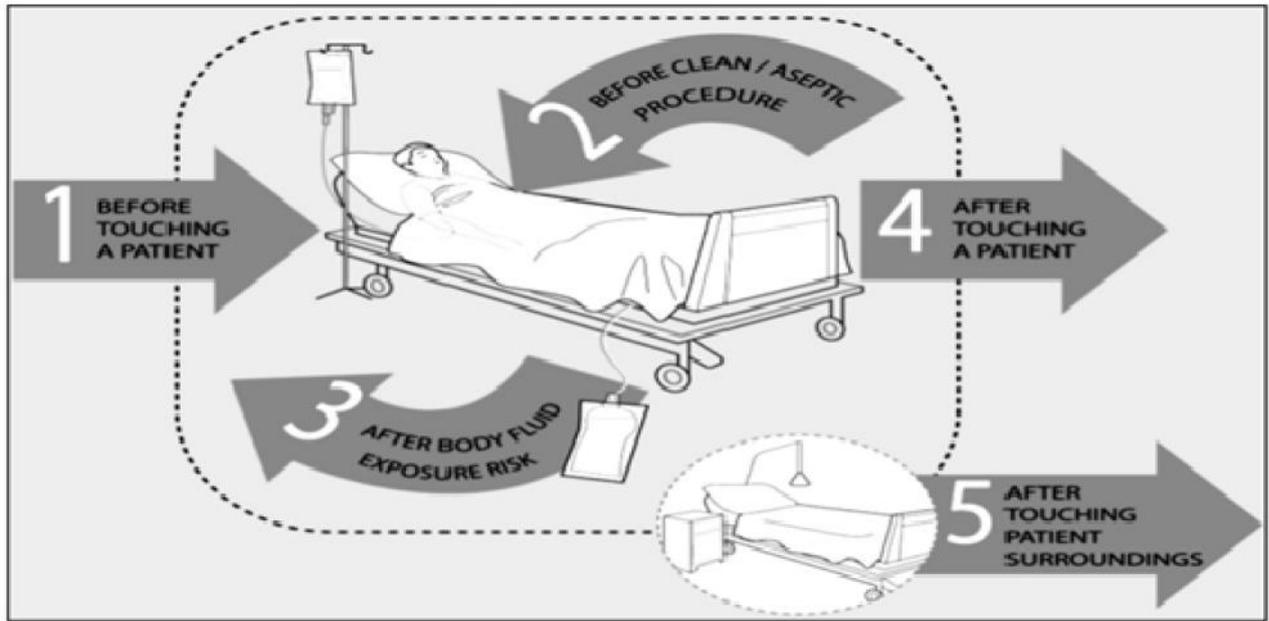


Figure 1. WHO's five moments of hand hygiene

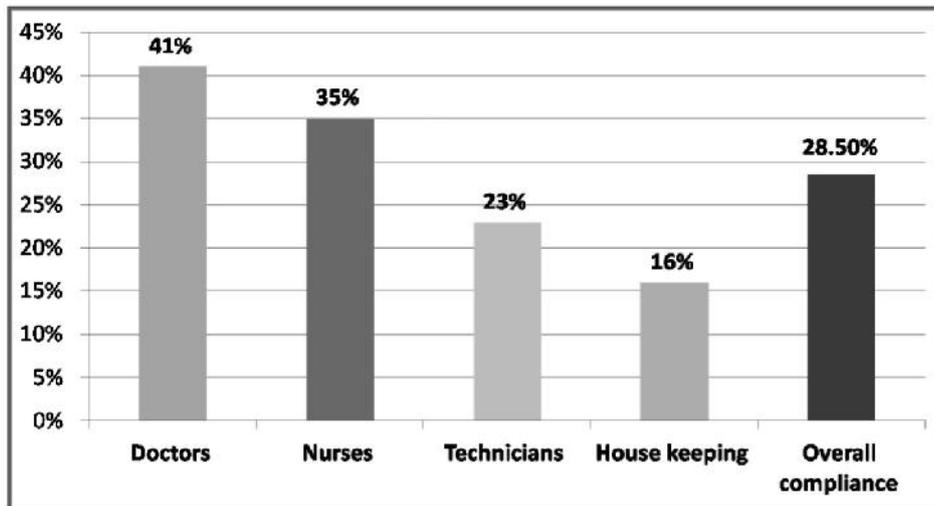


Figure 2. Compliance of various healthcare providers to hand hygiene

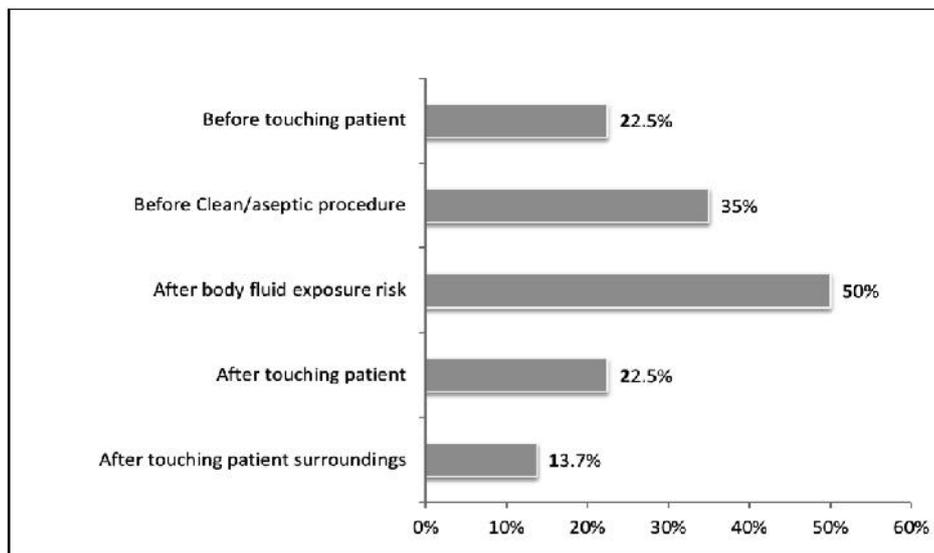


Figure 3. Moment-wise hand-hygiene compliance (Overall)

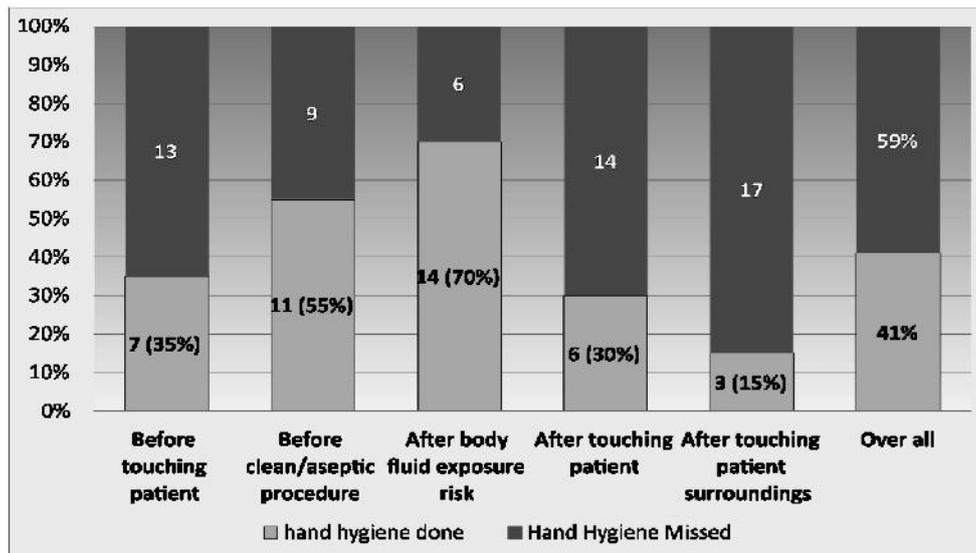


Figure 4. Hand-hygiene compliance among Doctors

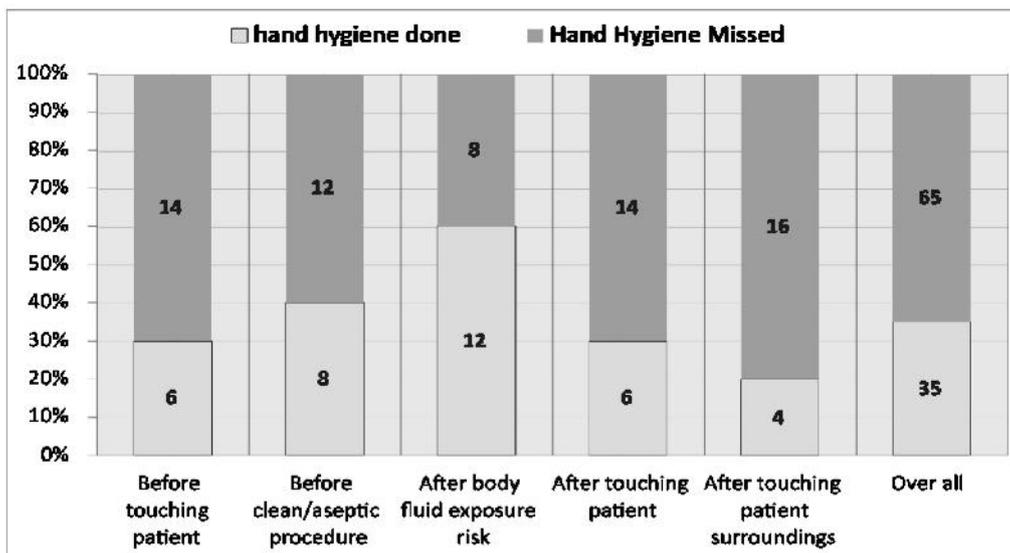


Figure 5. Hand-hygiene compliance among Nurses

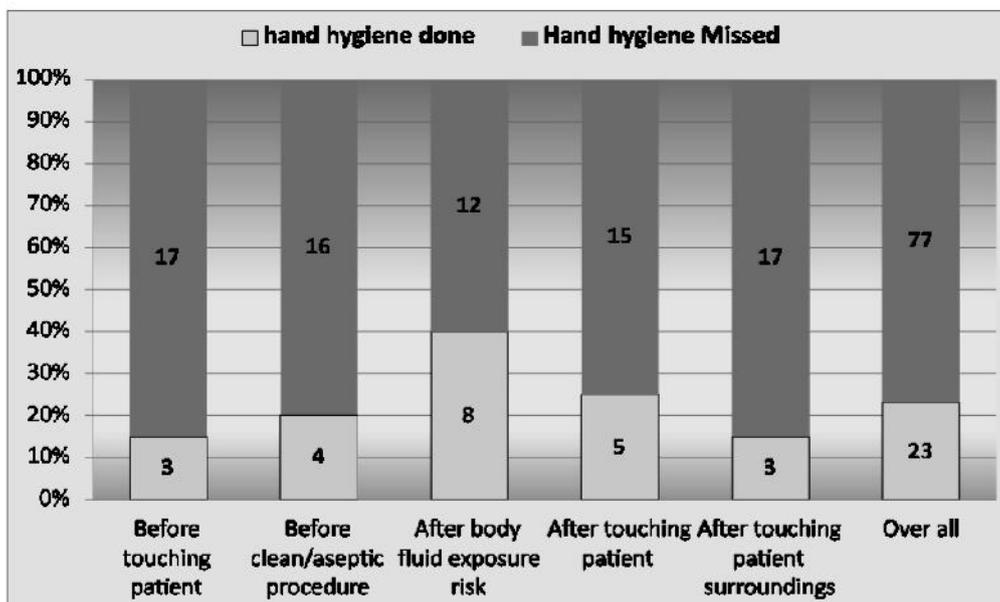


Figure 6. Hand-hygiene compliance among Technicians

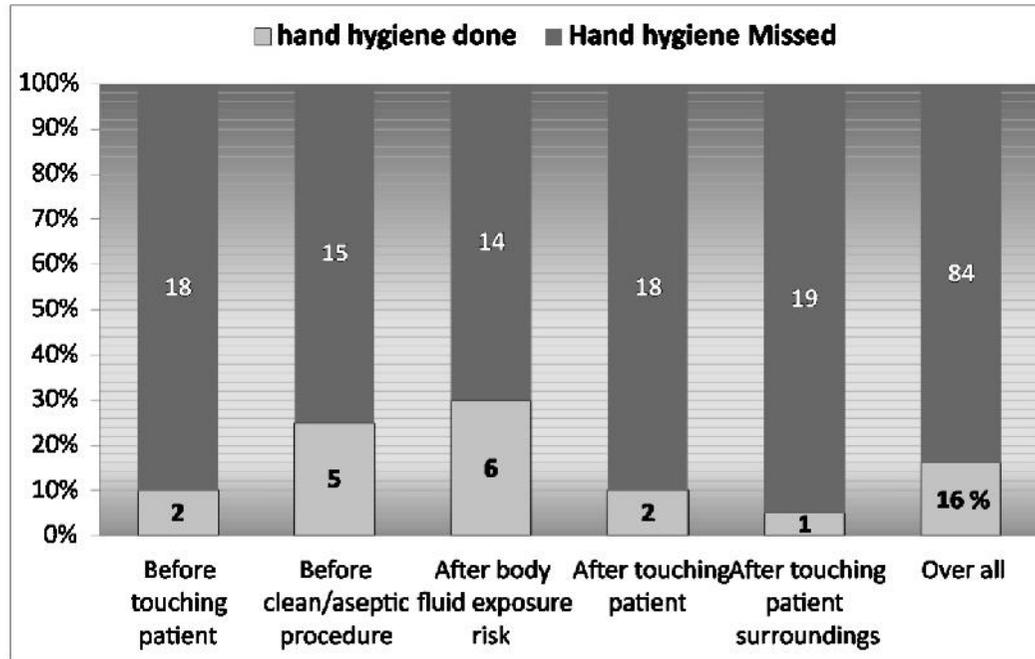


Figure 7. Hand-hygiene compliance among house-keeping staff

Table 1. Hand hygiene compliance overview

Categories	Before touching a patient			Before clean/ aseptic procedure			After body fluid exposure risk			After touching a patient			After touching patient surroundings			Total
	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)	
Doctors	20	1	6	20	4	7	20	8	6	20	2	4	20	--	3	41/100
Nurses	20	2	4	20	4	4	20	5	7	20	--	5	20	1	3	35/100
Technician	20	--	3	20	1	3	20	4	4	20	1	4	20	--	3	23/100
House keeping	20	2	--	20	--	5	20	6	--	20	--	2	20	--	1	16/100
Total	80	5	13	80	9	19	80	23	17	80	3	15	80	1	10	115/400
Calculation	Act (n) = 18 Indic1 (n) = 80			Act (n) = 28 Indic2 (n) = 80			Act (n) = 40 Indic3 (n) = 80			Act (n) = 18 Indic4 (n) = 80			Act (n) = 11 Indic5 (n) = 80			
Ratio act / indic*	18/80 x100 = 22.5 %			28/80 x100 = 35 %			40/80 x 100 = 50 %			18/80x100 = 22.5%			11/80 x 100 = 13.7 %			115/400 x100 = 28.75 %

either hand wash(HW) or hand rub(HR) done for an opportunity indicated in WHO's five moments of hand hygiene^{6,8,10}

A total of 400 opportunities were observed in general wards among doctors, nurses, technicians and housekeeping staff i.e., 100 in each class of health care providers for hand hygiene action taken and compliance was calculated Among 100 opportunities (Indications) for hand hygiene observed in each class of health care provider, 20 actions for each of the five moments i.e, using WHO's observation form¹⁰,

-) Moment-1: Before touching a patient,
-) Moment-2: Before clean/aseptic procedure
-) Moment-3: After body fluid exposure risk
-) Moment-4 : After touching a patient
-) Moment-5: After touching patient's surroundings.

Compliance calculation:

Compliance (%) = Hand Hygiene Actions/Indications x100

- **Duration of study** : 2 months : Nov to Dec 2019
- **Place of study** : Tertiary care teaching hospital in South India
- **Included:** General wards: Orthopaedics, General medicine, Nephrology, Cardio-Thoracic surgery, plastic surgery wards & Respiratory medicine wards.
- **Excluded** : Intensive Care Units, Out Patient Departments and Operation Theatres

RESULTS

-) Average Hand hygiene compliance was observed to be 28.75%
-) Doctors showed 28.75%, Nurses 35%, Technicians 23% and house-keeping staff 16% compliance to hand hygiene.
-) Moment/Indication wise hand hygiene compliance was highest(50%) for moment 3 i.e., After body fluid exposure risk and least(13.7%) for moment 5 i.e., After touching patient surroundings

DISCUSSION

-) Overall Hand hygiene compliance in the present study was 28.75%, a similar study from Apollo hospital, Hyderabad by Das et al³ in 2015 reported 41% compliance whereas Chavali et al² reported overall compliance to hand hygiene to be 78%.
-) Health care worker category wise highest compliance was seen among doctors i.e 41%, followed by Nurses 35%, Technicians 23% and lowest among house keeping staffs i.e., 16% similar to Das et al³ who reported 67% , contrary to this Chavali et al² reported that Nurses showed 63% and allied healthcare staff showed 86.5% compliance to hand hygiene and Polat et al⁷ also reported that Nurses showed 77.8% compliance.
-) Indication/Moment wise hand hygiene compliance was highest for moment-3 i.e., "After body fluid exposure risk" i.e, 50% and lowest for moment-5 i.e, "After touching patient surroundings" being 13.7%, similar findings were reported by Das et al³ and Chavali et al² as most of the healthcare providers perceived that hand

hygiene was necessary for self protection after body fluid exposure.

-) Among doctors 41% compliance was observed overall out of which, highest compliance was with moment 3 - "after body fluid exposure risk" i.e, 70% and lowest with moment 5 i.e 15%, similar findings were observed by Suresh Kumar et al⁹ and Chavali et al² where compliance was highest for moment-3
-) .Among Nurses, Technicians and house-keeping staff a similar pattern was observed.
-) Overall higher compliance was observed for WHO's moment-3 i.e., "after body fluid exposure risk" i.e 50%

Conclusion

-) Hand hygiene compliance observed in the present study was 28.5% which is lower than other similar studies in India namely Das et al³ and Suresh Kumar et al⁹ i.e 41% and 69% respectively which could be due to lack of awareness and training in infection control practices whereas few authors like Chavali et al² and Polat et al⁷ reported higher compliance rates i.e, 78% and 77% respectively which suggests that hand hygiene practices varies a lot from hospital to hospital within the same region.
-) Very low compliance i.e 16% was observed among housekeeping staff as most of them wore gloves but did not change them often and they assumed that hand hygiene may not be needed much on gloved hands contrary to this Chavali et al² reported least compliance among nurses when compared to other classes of healthcare providers.

Limitations

There could be observer bias when recording data for hand hygiene action done as it could be obvious that non medical employees like technicians and housekeeping staff will be less aware about infection control compared to doctors and nurses and they used gloves most of the times.

Strengths

-) All the observations were recorded without the knowledge of health care workers being observed to avoid performer's bias.
-) This study can act as baseline observation to improve hand hygiene after some interventions like training and motivation.

Recommendations

-) Appointment of a well trained infection control nurse (ICN) who could train & motivate nursing staff on hand hygiene practices.
-) Conducting training sessions for paramedical and house-keeping staff regarding infection control practices and risks of Healthcare associated Infections.
-) Maintaining checklists for availability of hand hygiene facility in all areas.

Conflicts of interest: There were no conflicts of interests for this research so far.

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