

**Summer Training at
Delhi State Health Mission, National Health Mission,
NCT of Delhi**

**Study to Assess Knowledge, Attitude and Practices Regarding Hand
Hygiene Among Health Care Workers in Delhi Government Dispensaries,
East district, Delhi, to ensure Infection Control under “Swachhta
Guidelines for Public Health Facilities”**

**By
Kshemaa Garg**

**Under the guidance of
Dr. P.R. Sodani**

**MBA Hospital and Health Management
2015-2017**



**The IIHMR University, Jaipur
2016**

TO WHOMSOEVER MAY CONCERN

This is to certify that **KSHEMAA GARG** student of MBA Health Management from The IIHMR University; Jaipur has undergone internship training at **DELHI STATE HEALTH MISSION, NHM DELHI**, from **1st April 2016** to **31st May 2016**.

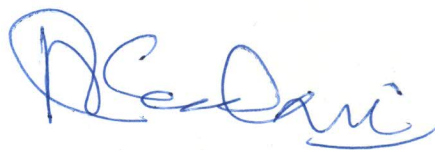
The Candidate has successfully carried out the study designated to his during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.



Col (Dr) Ashok Kaushik
Dean, Academics and Student Affairs
The IIHMR University, Jaipur



Dr P.R. Sodani
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I/2133/2016

Govt. of National Capital Territory of Delhi
Health and Family Welfare Department
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File No. F3-12/50/2014-SPM/I/2133/2016

Date: 08-06-2016

To,

The Director,
Health and Hospital Management
IIHMR University, Jaipur

Subject: - Internship Completion Certificate of Dr. Kshemaa Garg.

This is to inform that Dr. kshemaa Garg has completed her internship from 1st April to 31st May, 2016. During her internship she undertook a study on " To assess Knowledge, Attitude and Practices regarding Hand Hygiene among Health Care Workers in Delhi Government Dispensaries, East District, Delhi.

As a part of her study she visited Delhi Govt. dispensaries East District and interviewed ANM's, LT's & LA's. A copy of report prepared by her has been shared with the Delhi State Health Mission.

We wish her all the best and success in future.

Dr. Monika Rana
Addl. Sec (Monitoring) & SPO (DSHM)

Copy to:-

1. Dr. Keshmaa Garg, MBA Student of IIHMR University, Jaipur
2. PA to Mission Director, DSHM

ACKNOWLEDGEMENT

The success of any task would be incomplete without the expression of gratitude to the people who made it possible. I express my sincere gratitude towards Dr.Tarun Seem, Mission Director, NHM for allowing me to do my summer training from DELHI STATE HEALTH MISSION, NATIONAL HEALTH MISSION, DELHI.

At the very onset of my report, I would like to pay my sincere thanks to my institute, Institute of Health Management and Research, Jaipur for providing us platform to gain enough knowledge and skills in different aspects of health management.

Next I would like to pay my utmost regards to my mentors Dr.Nutan Mundeja, Regional Director and State Programme Officer, DSHM and Dr.Monica Rana, Additional Secretary Monetary, State ASHA Nodal Officer and State Programme Officer, DSHM for believing in me, tapering out time from their busy schedules and providing me with an opportunity to approach this project.

I express my gratitude and regards to my mentor Dr.Prahlad Rai Sodani (Dean Training, IIHMR Jaipur) for his able guidance and useful suggestions which helped me in completing the project work.

Special thanks to my project coordinator, Mrs.Neelam Siddique, ASHA Resource Centre Incharge and Public Health Nurse, DSHM, for the faith shown upon me and guidance given without which the assignment would not have been possible.

Also a token of thanks to Mr.Ramesh Pandey, Manager, Quality Assurance Cell , DSHM for his valuable opinions at various stages of my project.

I would also like to thank my faculty members without whom this project would have been a distant reality. My seniors and colleagues also hold a special mention here for supporting me throughout the summer training.

Finally, and most importantly, I would like to thank God for allowing me to complete my project, my beloved parents for their blessings and my friends for their help and wishes for the successful completion of this training.

Thanking You

Dr. Kshemaa Garg

IIHMR Jaipur

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LIST OF ABBREVIATIONS

ACRONYM	FULL FORM
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
DGD	Delhi Government Dispensaries
DGHS	Directorate General of Health Services
DSHM	Delhi State Health Mission
GOI	Government of India
HAI	Hospital Acquired Infections/Hospital Associated Infections
HCAI	HealthCare Associated Infections
HCW	Health Care Workers
JSY	Janani Suraksha Yojana
JSSK	Janani Shishu Suraksha Karyakram
KAP	Knowledge, Attitude and Practice
LA	Lab Assistant
LT	Lab Technician
MCH	Mother and Child
MO	Medical Officer
MOHFW	Ministry of Health and Family Welfare
NCT	National Capital Territory
NHM	National Mobile Medical Unit
NMMU	National Health Mission
NPCC	National Programme Coordination Committee
NRHM	National Rural Health Mission
NUHM	National Urban Health Mission
OPD	Out Patient Department
PUHC	Primary Urban Health Centre
PIP	Programme Implementation Plan
RBSK	Rashtriya Bal Swasthya Karyakram
SHM	State Health Mission
SHS	State Health Society
SHSRC	State Health Systems Resource Centres
SIHFW	State Institutes of Health and Family Welfare
SPMU	State Programme Management Unit
SPO	State Programme Officer
WHO	World Health Organization

OBSERVATIONAL LEARNING

➤ **About the organization**

The **National Rural Health Mission (NRHM)** is an initiative undertaken by the Government of India to cater to the health needs of under-served rural areas.

Launched in April 2005 by the then Prime Minister Dr Manmohan Singh, the NRHM was initially tasked with addressing the health needs of 18 states that had been identified as having weak public health indicators. The Union Cabinet headed by Dr Manmohan Singh with its decision dated 1 May 2013, further approved the launch of *National Urban Health Mission (NUHM)* as a sub-mission of an overarching *National Health Mission (NHM)*, with *National Rural Health mission (NRHM)* being the other sub-mission of National Health Mission.

Some of the major initiatives under **National Health Mission (NHM)** are as follows:

- Accredited Social Health Activists
- Rogi Kalyan Samiti (Patient Welfare Committee) / Hospital Management Society
- Untied Grants to Sub-Centres
- Health care contractors
- Janani Suraksha Yojana (JSY)
- National Mobile Medical Units (NMMUs)
- National Ambulance Services
- Janani Shishu Suraksha Karyakram (JSSK)
- Rashtriya Bal Swasthya Karyakram (RBSK)
- Mother and Child Health Wings (MCH Wings)
- Free Drugs and Free Diagnostic Service
- National Iron+ Initiative

At the State level, the Mission functions under the overall guidance of the State Health Mission (SHM) headed by the State Chief Minister.

The State Health Society (SHS) would carry the functions under the Mission and would be headed by the Chief Secretary.

For the seven mega cities of Delhi, Mumbai, Chennai, Kolkata, Bengaluru, Hyderabad and Ahmedabad, NHM will be implemented by the City Health Mission.

The State Program Management Unit (SPMU), State Health System Resource Centres (SHSRC) and the State Institutes of Health and Family Welfare (SIHFW) will continue to play similar roles for the state as do their national counterparts for the Centre.

The SPMU acts as the main secretariat of the SHS. The constitution and functioning of the SPMU and Executive Committee of the SHS shall be such that there is no hiatus between the Directorate of Health and Family Welfare services and the SPMU. The exact detail of how this would be achieved is left to the state.

Within the broad national parameters and priorities, states would have the flexibility to plan and implement state specific action plans. The state PIP would spell out the key strategies, activities undertaken, budgetary requirements and key health outputs and outcomes.

The State PIPs would be an aggregate of the district/city health action plans, and include activities to be carried out at the state level. The state PIP will also include all the individual district/city plans. This has several advantages: one, it will strengthen local planning at the district/city level, two, it would ensure approval of adequate resources for high priority district action plans, and three, enable communication of approvals to the districts at the same time as to the state.

The fund flow from the Central Government to the states/UTs would be as per the procedure prescribed by the GOI.

The State PIP is approved by the Union Secretary of Health & Family Welfare as Chairman of the EPC, based on appraisal by the National Programme Coordination Committee (NPCC), which is chaired by the Mission Director and includes representatives of the state, technical and programme divisions of the MoHFW, national technical assistance agencies providing support to the respective states, other departments of the MoHFW and other Ministries as appropriate

There has also been a significant improvement in the utilization and absorption capacity of the states under NRHM.

Delhi State Health Mission, Govt. of NCT of Delhi has tremendous health care responsibilities. The department caters to health needs of nearly 160 lakh population of the ever-growing metropolis and also has to share the burden of migratory as well as floating population from neighbouring states which constitute nearly 33% of total intake at major hospitals in Delhi. The department plays a significant role and is committed to provide health care facilities to the people of Delhi.

DSHM works on the following health initiatives launched by GOI:-

- **RMNCH+A** -Reproductive, Maternal, New-born, Child, and Adolescent Health
- **RNTCP** – Revised National Tuberculosis Control Programme
- **NLEP** – National Leprosy Eradication Programme
- **NPCB** – National Programme for Control of Blindness
- **NVBDCP** – National Vector Borne Disease Control Programme
- **NMHP**- National Mental Health Programme
- **NPPCD**- National Programme for Prevention and Control of Deafness
- **NOHP**- National Oral Health Programme
- **NPCDCS**- National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases and Stroke

DSHM also has a feature known as **e-office**. e-Office is a digital work place solution under the National e-Governance Plan. Initiated in 2009, developed and implemented by the National Informatics Centre. The numerous features of e-office are:-

- **e-file**- A simplified, accountable, responsive, transparent, electronic file management system.
- **KMS (Knowledge Management System)** – An enterprise document repository.
- **e-leave** – a quick and convenient mode to manage leaves.
- **e-tour** – An electronic procedure to apply and approve tours online, anytime, anywhere.
- **PIMS/e-service book** – Workflow based employee records management.
- **CAMS**- A unified collaboration and messaging system.

DSHM has also undertaken various e-initiatives:-

- *Online OPD Registration*-This application can be used for generating Online OPD registration Card for availing outpatient services in 24 Delhi Govt. Hospitals. Upto 100 Registration per facility per hospital per day can be done.
- *Current Stock Position of Hospitals*
- *ASHA*
- *PUHC*
- *MIS*
- *Free Bed Monitoring*
- *Private Hospital*
- *Equipment maintenance*
- *Nirantar*
- *School Health Schemes*
- *DGHS*
- *e-Reporting of organ transplant*
- *Daily Reporting*
- *Registration of Private Hospital for daily reporting*
- *Daily work log*

Being a part of NRHM, DSHM has made following progress with respect to the various health initiatives and other allied fields:-

- **Janani Shishu Suraksha Karyakram (JSSK)-**

Janani Shishu Suraksha Karyakram (JSSK) funds is being used by the State lately, however there are many key conditionality to be followed in utilizing the funds. The State gives the funds to the Districts and from the Districts it is distributed among the facilities. The facilities need to decide how to spend the amount and under which heads and the unutilized funds is returned to the Districts directly

- **Immunization**

The basic objective of immunization is to reduce the vaccine preventable disease load out of which Measles, diphtheria, neonatal tetanus & polio are considered as serious illnesses with potential mortality.

Immunization doses are available as a part of the system at nearly a 650 regular primary level health care units, all colony hospitals, all district level hospitals and all secondary & tertiary level hospital in the State belonging to various agencies. Immunization Days at all the primary health facilities are uniformly followed on Wednesdays and Fridays throughout the working time of the facility on these days, while all the hospitals provide vaccination on all six working days of the week. In addition to the facility based immunization service, Outreach Immunization Sessions are also being conducted with the frequencies of such sessions being one per month/per 10,000 allocated population.

- **Responsiveness, transparency & accountability**

Regular meetings are done at State level and district level with the Mission Director of the state and districts as well. Regular reviews are done at the level of the Health Minister and Health Secretary every two months. Regular review meetings of the SPO are held with the Mission Director.

- **Data and surveillance**

HMIS is an information system that is especially designed to assist in management of all health programmes. For planning, monitoring and evaluation purpose, the manager at the health facility needs data about population, disease burden, health services / infrastructure and various other kind of data.

A monthly feedback from DPMUs to units on data quality is submitted to the SPMU. A quality review meeting of State at SPMU where the data received from the districts is analysed and presented. The trends are discussed and data gaps are identified and then communicated to the Districts.

Mission Director of DSHM would include the session of M & E in their review meeting with Programme Officers and district units to discuss the reports, analysis and trends and issues in data collection.

State Surveillance Unit (SSU) and nine District Surveillance Units have been established in the year 2008-09. The data centres with the IT equipment have been established. Training centres at the State and nine districts have also been established.

PROJECT REPORT

➤ **Introduction & rationale**

The **Swachh Bharat Abhiyaan** launched by the Prime Minister, Narendra Modi on 2nd October 2014, focuses on promoting cleanliness in public spaces. **Swachhta Guidelines for Public Health Facilities** are being issued separately. Public health care facilities are a major mechanism of social protection to meet the health care needs of large segments of the population. Cleanliness and hygiene in hospitals are critical to preventing infections and also provide patients and visitors with a positive experience and encourages moulding behaviour related to clean environment. As the first principle of healthcare is “to do no harm” it is essential to have our health care facilities clean and to ensure adherence to infection control practices.

To complement this effort, the Ministry of Health & Family welfare, Government of India is launching a National Initiative to give Awards named **KAYAKALP**, to those public health facilities that demonstrate high levels of cleanliness, hygiene and infection control [1, 2]. The major objectives behind the KAYAKALP awards are:-

- To promote cleanliness, hygiene and Infection Control Practices in Public Health Care Facilities.
- To incentivize and recognize such public healthcare facilities that show exemplary performance in adhering to standard protocols of cleanliness and infection control.
- To inculcate a culture of ongoing assessment and peer review of performance related to hygiene, cleanliness and sanitation.
- To create and share sustainable practices related to improved cleanliness in public health facilities linked to positive health outcomes.

Scope Based on scoring [1, 2], using a specific standard protocol administered by an external Assessor Team, the awards would be distributed as follows:

- Best two district Hospitals in each state (Best district hospital in small states).
- Best two Community Health Centres/Sub district Hospitals (limited to one in small states).
- One Primary Health Centre in every district.

Each facility will receive a cash award with a citation. The awards would be distributed based on the performance of the facility on the following parameters.

- | | |
|-----------------------------|-------------------------------|
| I. Hospital/Facility Upkeep | II. Sanitation and hygiene |
| III. Waste Management | IV. Infection control. |
| V. Support Services | VI. Hygiene Promotion |

Further under Infection Control, following criteria shall be considered [1, 2]

1 Hand Hygiene

2 Personal Protective Equipment

3 Personal Protective Practices

4 Decontamination and Cleaning of Instruments

5 Disinfection & Sterilization of Instruments

6 Spill Management

7 Isolation and Barrier Nursing

8 Infection Control Program

9 Hospital Acquired Infection Surveillance

10 Environment Control

Gone year saw the Central Government Hospitals and District Hospitals being assessed on the basis of the aforementioned guidelines, the results of which, have been declared recently, in March 2016. Now the Primary as well as Secondary health care facilities will be subjected to assessment as per the KAYAKALP Guidelines.

Healthcare Associated Infections (HCAI), also referred to as "nosocomial" or "hospital" infection, have been defined by WHO, "as an infection occurring in a patient during the process of care in a hospital or other health care facility which was not present or incubating at the time of admission". These form a huge chunk of infections worldwide, crippling both developing and developed nations alike. HCAI represents the most frequent adverse event during care delivery and no institution\country claims to have solved the problem yet.[3]

Hospital acquired infections result in higher morbidity, mortality, and additional costs. It is well recognized that the risk of transmission of pathogens when providing medical care and the incidence of Hospital acquired infections can be kept low through appropriate standardized prevention procedures. [4]However, it has been well documented that the level of compliance with the use of proven HAI measures by healthcare workers (HCWs) has been disappointing. In order to overcome this problem it is vital to implement and practice prevention and control strategies with demonstrated value consistently and rigorously. Among the different strategies, the adherence to guidelines for disinfection is an essential ingredient for activities aimed at preventing the Hospital acquired infections.

Hand hygiene is a general term that refers to a method of removing microorganisms from the hands so the germs cannot be transmitted to anyone else. Hand hygiene is a general term that applies to routine hand washing, antiseptic hand wash, antiseptic hand rub or surgical hand antisepsis. In this report hand hygiene refers to both hand washing and hand rubbing. As per Centre for Disease Control and Prevention, Hand washing is defined as the vigorous, brief rubbing together of all surfaces of lathered hands, followed by rinsing under a stream of water. Hand washing includes both Routine Handwashing as well as Antiseptic Handwashing. Routine handwashing involves the use of water and a non-antimicrobial soap whereas an antimicrobial soap is used in the latter. Likewise Hand rubbing also ensures hand hygiene involving the use of an alcohol-based hand rub [3].

Improper hand hygiene practices are a major causal factor for these infections, thus making hand hygiene an indispensable part of infection control. To spread awareness for the same,

May 5 is celebrated as Hand Hygiene Day, world over. Facts tell that amongst the numerous steps that are taken to curb these infections, a rather cheap, essentially important, most effective method of preventing cross infection and a major contributor to infection control is optimal hand hygiene.

Hand hygiene is recognized as the leading measure to prevent cross-transmission of microorganisms and to reduce the incidence of health care associated infections. Despite the relative simplicity of this procedure, compliance with hand hygiene among health care providers is extremely low. Hand hygiene being the most convenient and easy method to ensure infection control at the health care worker's end, thus the study has been designed on it. Effective hand hygiene involves the removal of visible soiling and the reduction of microbial colonisation of the skin. Healthcare workers' hands can be contaminated by two types of pathogens: transient (contaminating) and resident (normal or colonising) microorganisms. Resident flora colonise deeper skin layers and, compared to transient flora, is difficult to remove mechanically, i.e. by hand washing. Transient flora, on the other hand, colonise the superficial skin layers for a short time. The hands of HCWs are often contaminated with transient flora by direct contact during daily patient care activities, environments or equipments. However, these micro-organisms are easily removed by mechanical methods, such as friction in hand washing. [5]

Hand hygiene should be considered before invasive procedures, after contact with contaminated devices or materials, and with high risk, infectious patients. Hand hygiene should be advocated before beginning work, at the end of work, and after visiting the rest room (toilet). However, argues that hand hygiene requirements depend on the type of procedure, the degree of contamination and the persistence of antimicrobial action on the skin. [6]

Since HCWs (which hereby include ANMs, LTs and LAs) at the dispensaries are the ones who are in maximum direct contact with the patients and are “the nucleus of the health care system”, thus it becomes vital to study their knowledge, attitude and practices regarding optimal hand hygiene. Even when nurses spend a longer time on hand hygiene, their technique is often poor compared to other HCWs in terms of leaving large areas unwashed effectively, i.e. wrists, thumbs, nail beds and between fingers.[7] Since inadequate hand washing or hand rubbing during diagnostic procedures also results in huge amount of infection spread, hence along with the ANMs, LTs and LAs have also been targeted in the study.

Despite the momentum for hand hygiene, some HCWs are still presenting with low compliance because:-[3]

- They perceive it as not their problem, that it is something to do with infection control staff and they have to deal with it
- They are busy and they feel hand hygiene takes up precious time.
- Nurses often perceive that gloves can be used as an alternative to hand hygiene. They usually tend to remove the gloves without washing their hands or use the same gloves to deliver intended care to multiple patients.

- Even when they remove their gloves, only 20% of ANMs actually clean their hands while study claim that nurses avoid hand hygiene because they are frightened that skin problems such as dermatitis could develop, especially with alcohol hand-rubs

Many factors lie behind poor hand hygiene adherence among HCWs. Primarily as has been seen in the results a lack of awareness and scientific knowledge regarding hand hygiene is considered significant claim. Misconceptions regarding hand hygiene are also believed to contribute to low compliance; for instance, when gloves are used as an alternative to hand hygiene, or the notion that skin irritation arises from frequent hand hygiene practice. In addition, increased workloads, understaffing, limited time, lack of role models among colleagues or seniors, lack of organisational pledge to good hand hygiene practice, disagreement with guidelines and protocols and lack of motivation have all contributed to poor compliance with hand hygiene and infection control measures [5].

Lack of hand hygiene products and facilities, such as running water, sinks, antiseptic or non-antiseptic soaps, alcohol hand-rubs and hand paper towels, can also play a major role in poor hand hygiene practice

To improve HCWs compliance with hand hygiene, it is then necessary to consider the hindering factors mentioned above and attempt to turn them to enhancer factors. For example, staff education and proper follow up training in hand hygiene practice is important to identify situations where hand hygiene is reasonable; the infection control team can be involved in attaining this. Equally important is to clarify nurses' misconceptions in terms of glove usage and skin problems in order to achieve a better adherence to hand hygiene practice.

Promotional material, such as posters, can be placed in noticeable areas of the hospital to remind HCWs about the importance of hand hygiene practice. Placing proper hand hygiene technique illustrations above sinks or near to alcohol hand-rub dispensers can be helpful as well. Nurses with good hand hygiene could gain recognition. In terms of improved practice, there is also much evidence for recommending alcohol hand-rub, because of its clinical benefits and cost effectiveness.

Thus this study is an effort to throw light on the knowledge, attitude and practice of a basic measure of infection control, i.e. **hand hygiene**, in the primary health care facilities.

➤ **Research topic**

A Study to assess Knowledge, Attitude and Practices regarding Hand Hygiene among Health Care Workers in Delhi Government Dispensaries ,East district, Delhi , to ensure Infection Control under “Swachhta Guidelines for Public Health Facilities”.

➤ **Specific objectives**

1. To assess the knowledge regarding hand hygiene among HCWs.
2. To assess the attitude, values and beliefs regarding hand hygiene among HCWs.
3. To determine the professional and organisational barriers faced by the HCWs in the health care facilities that lead to low compliance for hand hygiene.
4. To develop suitable and applicable recommendations to encourage the healthcare workers compliance with infection prevention and control protocol

➤ **Mode of data collection**

- Study type- Descriptive Study
- Study area – Delhi Government Dispensaries, East district, Delhi
- Sample size – For the study, HCWs that includes ANMs, LTs and LAs have been considered.

The entire population of ANMs, LTs and LAs has been taken for the study.

Total number of DGDs covered – 18

Total number of ANMs, LTs and LAs covered – 75

Sampling technique – Convenient Sampling Method

Data collection method – Self-administered anonymous questionnaires

Study duration – April 1 to May 31st 2016

Data analysis – Univariate analysis using Ms Excel

- Survey tool-

Self- administered survey questionnaires were designed using “WHO HAND HYGIENE KNOWLEDGE QUESTIONNAIRE” and “WHO QUESTIONNAIRE “*PERCEPTION SURVEY FOR HEALTH CARE WORKERS*”” as references. [\[12\]](#)

Entire questionnaire had a total of 17 questions.

Questionnaire was broadly divided into 2 components:-

- i) Assessment of knowledge of the health care workers regarding hand hygiene. The questions in this section were designed upon extensive literature review and also using “WHO HAND HYGIENE KNOWLEDGE QUESTIONNAIRE” as reference basis.
- ii) Assessment of attitude and practice of health care workers towards hand hygiene. The questions in this section were designed upon extensive literature review and also

using “WHO QUESTIONNAIRE “*PERCEPTION SURVEY FOR HEALTH CARE WORKERS*”” as reference basis.

For the study purpose 19 Delhi Government Dispensaries in the East district of National Capital Territory of Delhi were selected by using convenient sampling technique. The target population chosen for the study are health care workers at DGDs. Among the health care workers specifically the ANM, LT & LA. The target population has been standardized on the basis of educational qualification.

A self-administered anonymous questionnaire was given to each ANM, LT and LA, and they were asked to mark their responses.

To avoid response bias the respondents were not informed regarding hand hygiene prior to the handing over of questionnaire.

- **Scoring pattern**

i) For questions 1,2,5a-5d,6a-6d,7,8,9a-9d,12,13[Section I]; questions 15a-15k[Section II],and questions 16a-16k[Section II], the responses have been given a “score of 1 for yes” and “score of 0 for no”

ii) For question 4, 5&6 [General Information]; questions 3, 4, 10, 11a-11h [Section I]; question 14[Section II], the responses have been given a score of 1 to 4 wrt to the alphabetical count of response marked.

iii) For question 17a-17h [Section II] the responses have been scored using a Likert Scale The scale has been used to measure the effectiveness of the response.
Scoring range: - 1 to 5

The responses have been entered using Microsoft Excel.

Following is a copy of the survey questionnaire. [\[12\]](#)

TOOL TO ASSESS THE KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING HAND HYGIENE AMONG HEALTH CARE WORKERS IN DELHI GOVERNMENT DISPENSARIES

You are in direct contact with patients on a daily basis and this is why we are interested in your **opinion** on health care-associated infections and hand hygiene.

- It should take you about 20 minutes to complete this questionnaire.
- Each question has **one answer only**.
- Please read the questions carefully and then respond spontaneously. Your answers are anonymous and will be kept confidential.

■ **Short glossary:**

Alcohol-based hand rub formulation: an alcohol-containing preparation (liquid, gel or foam) designed for application to the hands to kill germs.

Facility: health-care setting where the survey is being carried out (e.g., government dispensary, hospital, etc.).

Hand rubbing: treatment of hands with an antiseptic hand rub (alcohol-based formulation).

Handwashing: washing hands with plain or antimicrobial soap and water

1. Facility name _____
2. District _____
3. Date / /
D D M M Y Y
4. Gender ☐ male ☐ female
5. Age group ☐ 19-25 years ☐ 26-35 years ☐ 36-45 years ☐ 46-65 years
6. Profession ☐ ANM ☐ LT/LA

(I) **ASSESSMENT OF KNOWLEDGE (USING WHO HAND HYGIENE KNOWLEDGE QUESTIONNAIRE)**

1. Is hand hygiene important for infection control? ☐ Yes ☐ No
2. Did you receive formal training in hand hygiene? ☐ Yes ☐ No
3. Which of the following is the main route of cross-transmission of potentially harmful germs between patients in a health-care facility? (*tick one answer only*)
 - a) Health-care worker's hands when not clean ☐
 - b) Air circulating in the dispensary ☐
 - c) Patients' exposure to, beds, chairs, tables, floors etc. ☐
 - d) Sharing non-invasive objects (i.e., stethoscopes, etc.) between patients ☐
4. What should be the minimal duration of hand washing procedure? (*tick one answer only*)
 - a) 40-60 seconds ☐
 - b) 30-40 second ☐
 - c) 20-30 seconds ☐
 - d) 40-50 seconds ☐
5. Which of the following hand hygiene actions prevents transmission of germs to the patient?
 - a) Washing hands before touching a patient ☐ yes ☐ no
 - b) Washing hands immediately after a risk of body fluid exposure ☐ yes ☐ no
 - c) Washing hands after exposure to another patient ☐ yes ☐ no
 - d) Washing hands immediately before a clean/aseptic procedure ☐ yes ☐ no
6. Which of the following should be avoided, as associated with increased likelihood of colonisation of hands with harmful germs?
 - a) Wearing jewellery ☐ yes ☐ no

- b) Damaged skin ☐ yes ☐ no
 c) Artificial fingernails ☐ yes ☐ no
 d) Regular use of a hand cream ☐ yes ☐ no

7. Do you know about the use of an alcohol based hand rub for hand hygiene?

☐ Yes ☐ No

If the answer to 7. Is "No", then skip to 11.

8. Do you routinely use an alcohol based hand rub for hand hygiene?

☐ Yes ☐ No

9. Which of the following statements on alcohol-based hand rub and handwashing with soap and water are true?

- a. Hand rubbing is more rapid for hand cleansing than handwashing ☐ true ☐ false
 b. Hand rubbing causes skin dryness more than handwashing ☐ true ☐ false
 c. Hand rubbing is more effective against germs than handwashing ☐ true ☐ false
 d. Handwashing & hand rubbing are advised to be performed in sequence ☐ true ☐ false

10. What should be the minimal duration of hand rubbing procedure? (tick one answer only)

- a) 40-60 seconds ☐ b) 30-40 seconds ☐ c) 20-30 seconds ☐ d) 40-50 seconds ☐

11. Which type of hand hygiene method is required in the following situations?

- a) Before giving an injection & medicines ☐ rubbing ☐ washing ☐ none ☐ both
 b) After removing examination gloves ☐ rubbing ☐ washing ☐ none ☐ both
 c) When you are about to treat a patient but your hands are not visibly dirty
☐ rubbing ☐ washing ☐ none ☐ both
 d) After using the toilet ☐ rubbing ☐ washing ☐ none ☐ both
 e) When hands visibly dirty with blood
 and other body fluids ☐ rubbing ☐ washing ☐ none ☐ both
 f) After Bio Medical Waste disposal ☐ rubbing ☐ washing ☐ none ☐ both
 g) Before food handling by patients suffering from food borne infections
☐ rubbing ☐ washing ☐ none ☐ both
 h) While conducting/assisting in medical examination ☐ rubbing ☐ washing ☐ none ☐ both

12. Is hand drying after hand washing equally important to be followed? ☐ Yes ☐ No

13. Does inadequate hand drying also result in microbial growth? ☐ Yes ☐ No

(II) ASSESSMENT OF ATTITUDE AND PRACTICE (USING WHO QUESTIONNAIRE “PERCEPTION SURVEY FOR HEALTH CARE WORKERS”)

14. How often do you perform hand washing or hand rubbing?

- a) After every patient ☐
- b) Not after every patient ☐
- c) After few patients ☐
- d) Very rarely ☐

15. Are the following reasons responsible for the generally found low compliance for hand hygiene among health care workers?

- | | | |
|--|------------------------------|-----------------------------|
| a) Lack of awareness and scientific knowledge | ☐ Yes | ☐ No |
| b) Culture at work | ☐ Yes | ☐ No |
| c) Increased workload | ☐ Yes | ☐ No |
| d) Understaffing | ☐ Yes | ☐ No |
| e) Limited time | ☐ Yes | ☐ No |
| f) Health care worker's attitude | ☐ Yes | ☐ No |
| g) Lack of motivation | ☐ Yes | ☐ No |
| h) Lack of role models | ☐ Yes | ☐ No |
| i) Misconceptions among health care workers | | |
| ▪ Gloves can be used as an alternative to hand hygiene | ☐ Yes | ☐ No |
| ▪ Skin irritation arises from frequent hand washing | ☐ Yes | ☐ No |
| j) Lack of hand hygiene products and facilities | ☐ yes | ☐ No |
| k) Lack of regular water supply | ☐ Yes | ☐ No |
- 16. a) I adhere to correct hygiene?** ☐ Yes ☐ No
- b) Sometimes I have more important work, thus I skip hand washing? ☐ Yes ☐ No
- c) Wearing gloves reduces the need to wash hands? ☐ Yes ☐ No
- d) I feel guilty if I omit hand hygiene? ☐ Yes ☐ No
- e) I feel reluctant to ask others to follow hand hygiene practice? ☐ Yes ☐ No
- f) I feel frustrated when others omit hand hygiene? ☐ Yes ☐ No
- g) I myself bring the soap from home, if the dispensary does not have one? ☐ Yes ☐ No
- h) Does the hand drying towel usually remain dirty and changed after days? ☐ Yes ☐ No
- i) Does the head at your dispensary practice optimal hand hygiene? ☐ Yes ☐ No
- j) Is the procedure followed by nurses poorer than doctors? ☐ Yes ☐ No
- k) Newly qualified staff has not been properly instructed in hand hygiene? ☐ Yes ☐ No

17. Following are certain suggestions to improve compliance for hand hygiene. Give your opinion regarding effectiveness of each.

- a) Senior workers at the dispensary should support and openly promote hand hygiene.

Highly ineffective ☐
 Ineffective ☐
 Not sure ☐
 Effective ☐
 Highly effective ☐

- b) The health-care facility makes alcohol-based hand rub always available for improved compliance.

Highly ineffective ☐
 Ineffective ☐
 Not sure ☐
 Effective ☐
 Highly effective ☐

- c) Hand hygiene posters are displayed at point of care as reminders.

Highly ineffective ☐
 Ineffective ☐
 Not sure ☐
 Effective ☐
 Highly effective ☐

- d) Clarification of misconceptions regarding hand hygiene held by health care workers.

Highly ineffective ☐
 Ineffective ☐
 Not sure ☐
 Effective ☐
 Highly effective ☐

- e) Clear and simple instructions for hand hygiene are made visible for every health-care worker.

Highly ineffective ☐
 Ineffective ☐
 Not sure ☐
 Effective ☐
 Highly effective ☐

- f) Health-care workers given feedback on their hand hygiene performance.

Highly ineffective ☐
 Ineffective ☐
 Not sure ☐
 Effective ☐
 Highly effective ☐

- g).Due recognition given to those who perform good hand hygiene.

Highly ineffective ☐
 Ineffective ☐
 Not sure ☐
 Effective ☐
 Highly effective ☐

- h) Advice to patients to duly wash their hands before coming to the facility for check-ups.

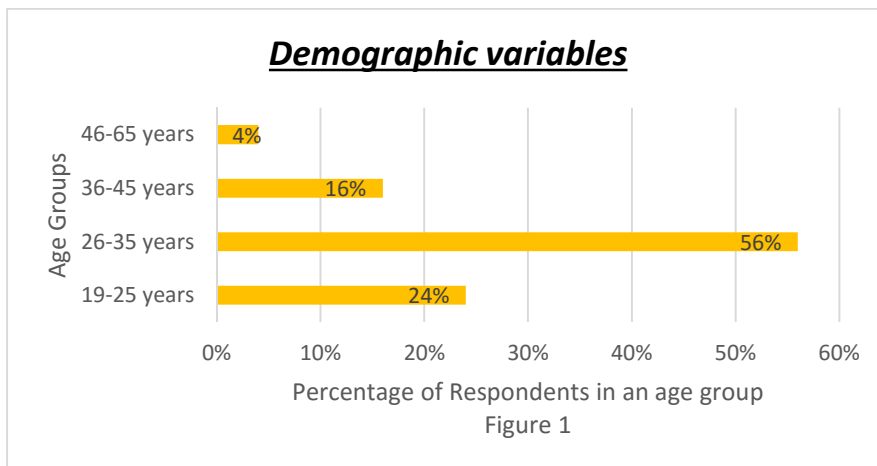
Highly ineffective ☐
 Ineffective ☐
 Not sure ☐
 Effective ☐
 Highly effective ☐

➤ **Data compilation, Analysis and Interpretation**

This section deals with the analysis and interpretation of the data collected.

Analysis is the process of organizing data in a manner that research question shall get answered. It is a critical examination of the assembled data for studying the characteristics of the topic under study and for determining the patterns of relationship among the variables relating to it. The results are as follows:-

- **Demographic variables** – Majority 56% i.e. (42/75) of the health care workers taken as respondents, fall in the age category of 26-35 years. Amongst the remaining half, HCWs belonging to age group 19-25 years take up another 24%, while 16% belong to age group 36-45 years and only 4% belong to age group 46-65 years.



- **Assessment of Knowledge on Hand Hygiene**

Data analysis brought to the forefront that nearly 48% of the health care workers which includes ANMs, LTs and LAs have agreed to have not received formal training in hand hygiene as shown in Figure 2.

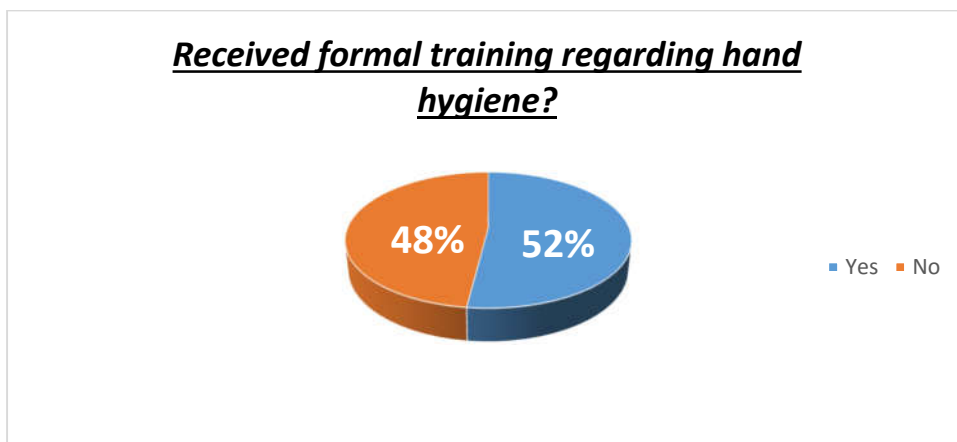
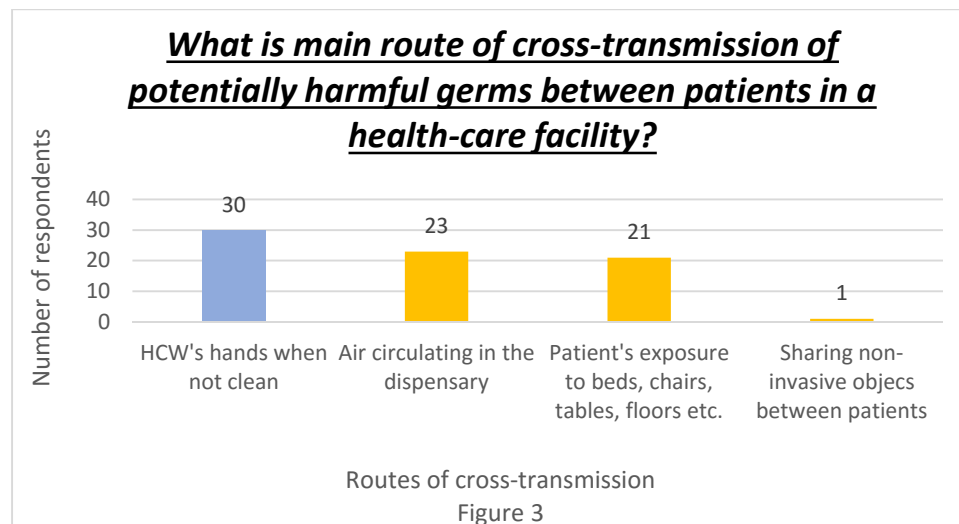
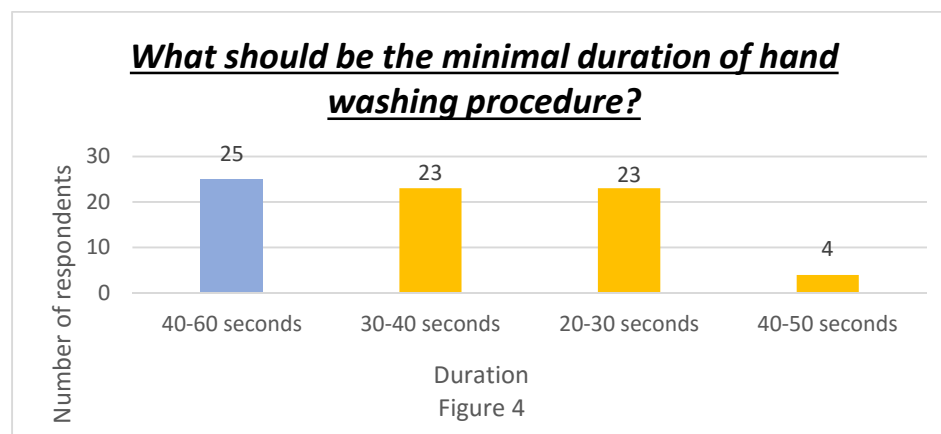


Figure 2

One thing leads to another, thus a lack in formal education and training programmes to instil improved hand hygiene practices is a major reason behind the unawareness of the HCW about the main route of cross-transmission of potentially harmful germs between patients in a health-care facility. In Figure 3 it is way evident from the results that only 30 out of 75 respondents i.e. a minimal 40%, know the correct answer to the question, i.e. Health Care Workers' hands when not clean and more than half the respondents perceive that it's not them but the circulating air and patients which are the etiology behind the transmission of germs and thus HAI.



Further questions in this section, which judges the knowledge of the health care workers regarding hand hygiene, put forth a gross fallacy i.e. an oblivion to the basic timing of hand washing. As has been clearly specified by WHO in its hand hygiene guidelines that the minimal duration of hand washing is 40-60 seconds. Although in Figure 4 the results reveal that only 25 out of 75 respondents i.e. 33% know the exact minimal duration of hand washing. As can be deduced from the results the probable factors could be lack of time, inconveniently located sinks, high patient load or may be just plain complacency towards handwashing recommendations.



Moving from hand-washing to hand-rubbing i.e. treatment of hands with an antiseptic hand rub (alcohol-based formulation). Considering the ease and timeliness of using an alcohol hand rub for maintaining hand hygiene in a public health facility, yet there are 24% of our respondents who responded to being unaware about the use of a hand rub (Figure 5). This can be attributed to the variability in knowledge on the HCWs' front or even to the inconsistency in the availability of the product among different health facility in the same district.

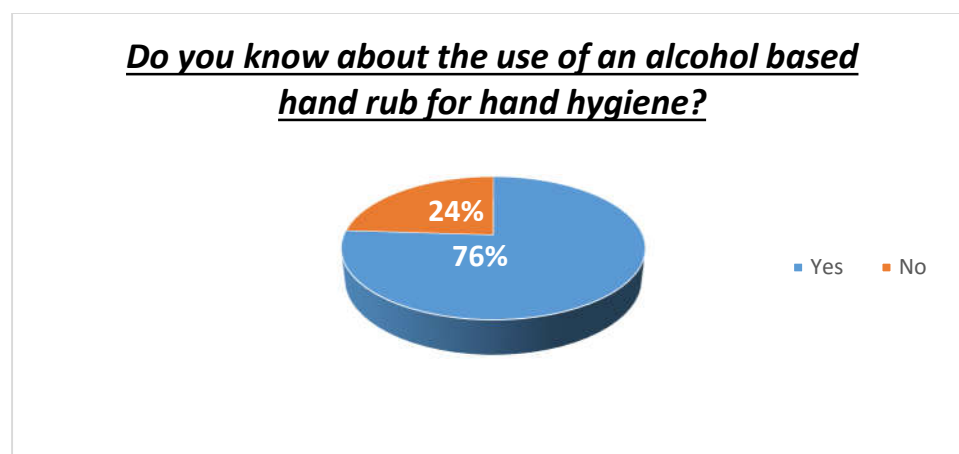


Figure 5

Out of the 76% of respondents that are aware about the use of an alcohol hand rub for hand sanitizing (as in Figure 5), merely 66%(Figure 6) are able to use it routinely in their work. Another 34% are still to bring the same to their use. Within this 66% are also those HCWs who happen to bring their own hand rubs in case there is none available at the facility.

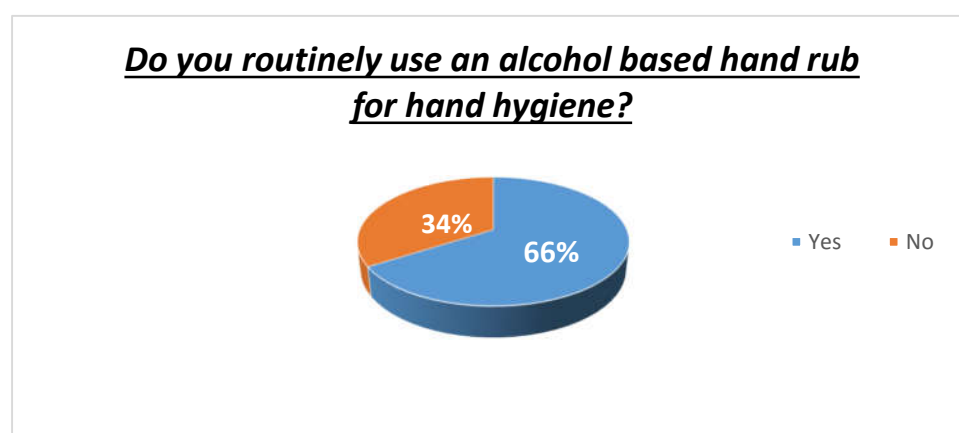
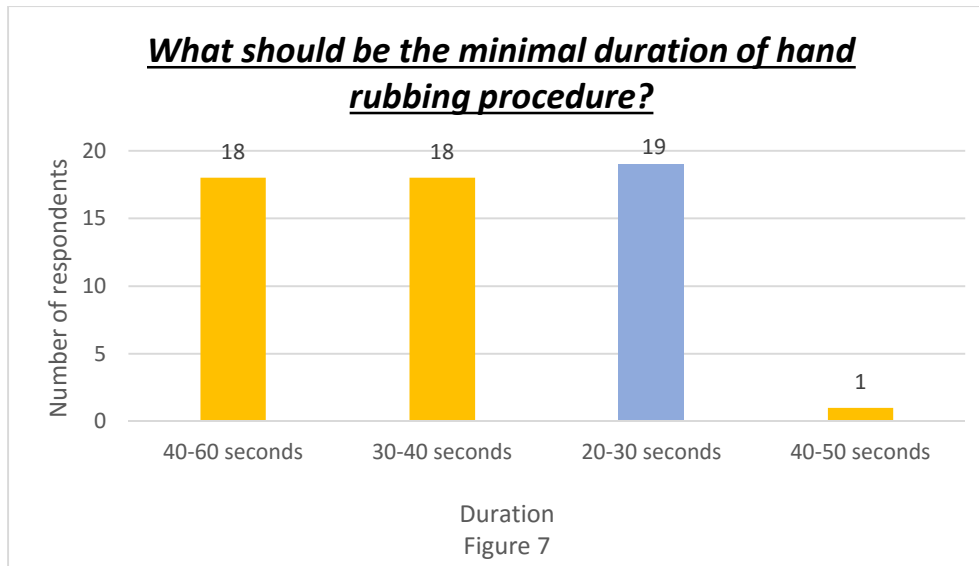
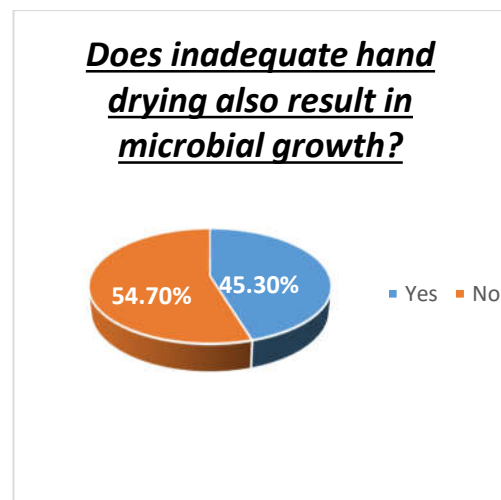
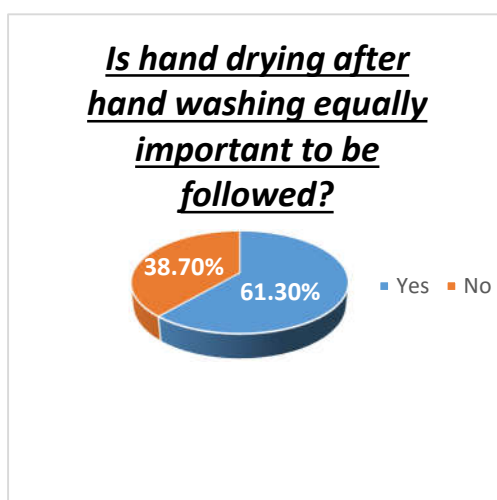


Figure 6

As is evident about the tapering number of respondents who are well in practice with the alcohol hand rub, so is the bleak count of HCWs who know the optimal duration of hand rubbing procedure. Figure 7 distinctively tells that only 19 out of 75 are confirm about the timing whereas more than 50% are still unsure about the exact duration of the hand rubbing procedure, despite the fact that these may also be the one who use hand rubs routinely. Lack of scientific knowledge is possibly the prime factor behind the ignorance as also scepticism about the value of hand hygiene and misbeliefs about low risk of acquiring infections from patients.

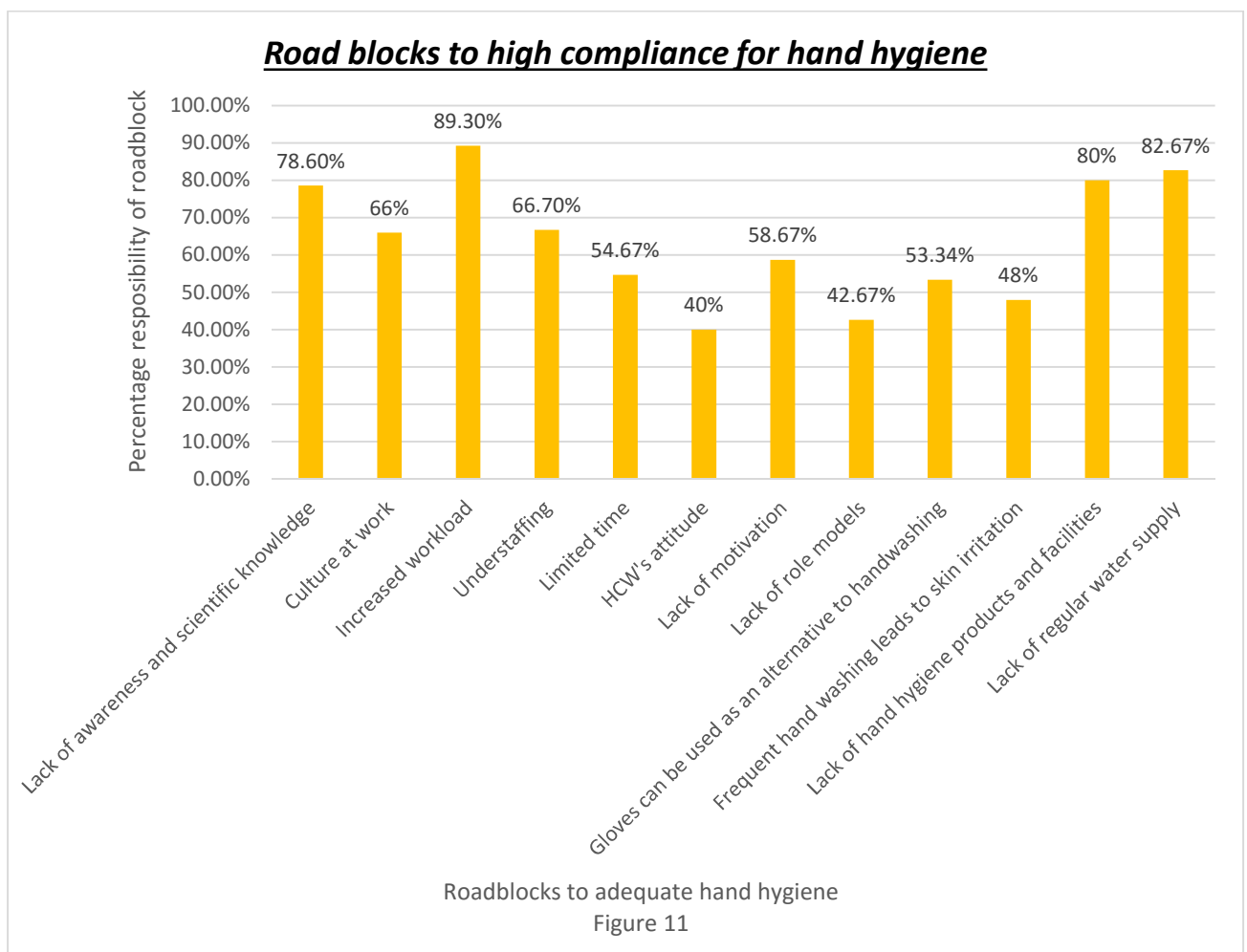
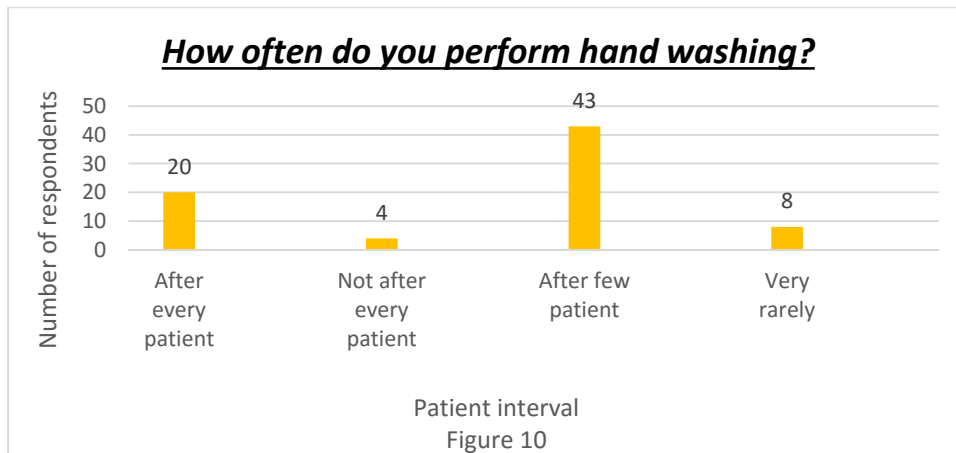


Post handwashing, equal value of hand drying is an understanding present with a disappointing 61.30% of respondents whereas the remaining 38.70% (Figure 8) do not feel the need primarily because of the misconception held by a 54.70% (Figure 9) of HCW that hand drying has no worth and that inadequate hand drying would not result in microbial re-growth. The statistics again point to an incompetency in the educational training and awareness programmes as also to a lack of behaviour change communication and appropriate IEC.



- Assessment of Attitude towards hand hygiene

Correct attitude is equally important with an adequate knowledge capacity and an assessment of the attitude of HCW towards required hand hygiene in figure 10 indicates that only a minuscule 26.67% of the respondents confirm to washing hands after every patient addressed. On the contrary a staggering 57% willingly agree to washing hands after a few patients. The factors behind the same have been shown in figure 11 mentioned as *roadblocks to high compliance for hand washing*.



Quite transparent in Figure 11 are the major factors responsible for dismally low compliance for optimal hand hygiene among the ANMS, LTs and LAs in the surveyed Delhi Government Dispensaries. Topping the charts are three major factors which are Increased workload, Lack of regular water supply and Lack of hand hygiene products estimating to 89.30%, 82.67% and 80% respectively.

Increased workload is unequivocally a major pot hole in the road to successful hand hygiene. Upon visits to the DGDs it was thus observed that in localities with high patient footfall at the dispensary, patient load per ANM is a shooting high. On Tuesdays and Fridays which are observed as immunization day across all DGDs, each ANM who is appointed for giving injections attends a nearly of about 100 patients within the dispensary working hours i.e. 8am to 2pm, limited working hours(as seen while on a prior observation visit to DGD Kalyanpuri). Likewise on Thursdays which are designated as ANC days, the patient load per head is phenomenally high for the HCW to ensure adequate hand washing i.e. after every patient.

Next in line is the perennial issue of lack of regular water supply held 82.67% responsible for the unaspiring observance of hand hygiene. Erratic water supply leads to drop in the possible consistent behaviour of the HCWs to observe hand hygiene. Coupling the lack of water supply is a similar issue of lack of hand hygiene products. Scarcity of soaps for hand washing at the facility are major black spots resulting in the HCWs washing hands with just plain water few times or not washing only at other times. More than soaps, it is the alcohol hand rubs which are a complete absence at most of the facilities. Adding to this is the paucity of clean hand towels for hand drying, substantiated by the evidence that nearly 60% of the workers at the DGDs share that the hand drying towels at their facilities remain dirty and unchanged for days together. However attributing to the constant efforts by the government to ensure optimal hand hygiene, a decent number of HCWs claim to bring hand hygiene products, at their own expenses, to the facility and during outreach services, in case the facility fails to provide the same.

Another factor that cripples the anticipated hand hygiene routine among the HCWs is Lack of awareness and scientific knowledge which accounts to 78.60% causing a huge dip in infection control at the facility.

Ironic to the widespread awareness regarding maintenance of hand hygiene at all public health facilities by the government, there are certain misconceptions that are still held by the HCWs. Nearly half the ANMs, LTs and LAs at the DGDs believe that wearing gloves while treating patients reduces the need for washing hands while another 48% believe that frequent hand washing leads to skin irritation, dermatitis etc.

One good deed leads to another, but here lack of motivation standing at a fairly high 58.7% is also another roadblock to a good hand hygiene practice. These are as per my research the major reasons thereby cutting a sorry picture of hand hygiene in the Delhi Government Dispensaries under study.

- Assessment of practice of hand hygiene

In this study an assessment of the individual's attitude towards hand hygiene has brought to picture that without an exception all the respondents under study believe that they sincerely adhere to the correct regime of hand hygiene. As put to numbers in figure 12, almost 78.60% of respondents agree to have brought the soaps and hand rubs at their own expense, for the facility fails to procure them the products. Equal percentage of respondents also affirm to the fact that the MOIC at the dispensary adhere better standards of hand hygiene which also validates one of the suggestions wherein seniors at the dispensary should promote and support effective hand hygiene (discussed in the later section).

Earlier in this study, misconceptions amongst the HCWs regarding usage of gloves as a substitute to hand washing that acts a hindrance to proper hand hygiene had a substantially high value of more than 50%, whereas when asked individually to the HCWs in context to the gloves being used a substitute, a considerably low 38.67% of the respondents under study actually carried this misbelief.

As seen in the discussion earlier, 56% of the respondents fall in the age group 26-35 years, thus complimenting the results that around 52% of the respondents believe that newly qualified staff has been properly instructed in hand hygiene.

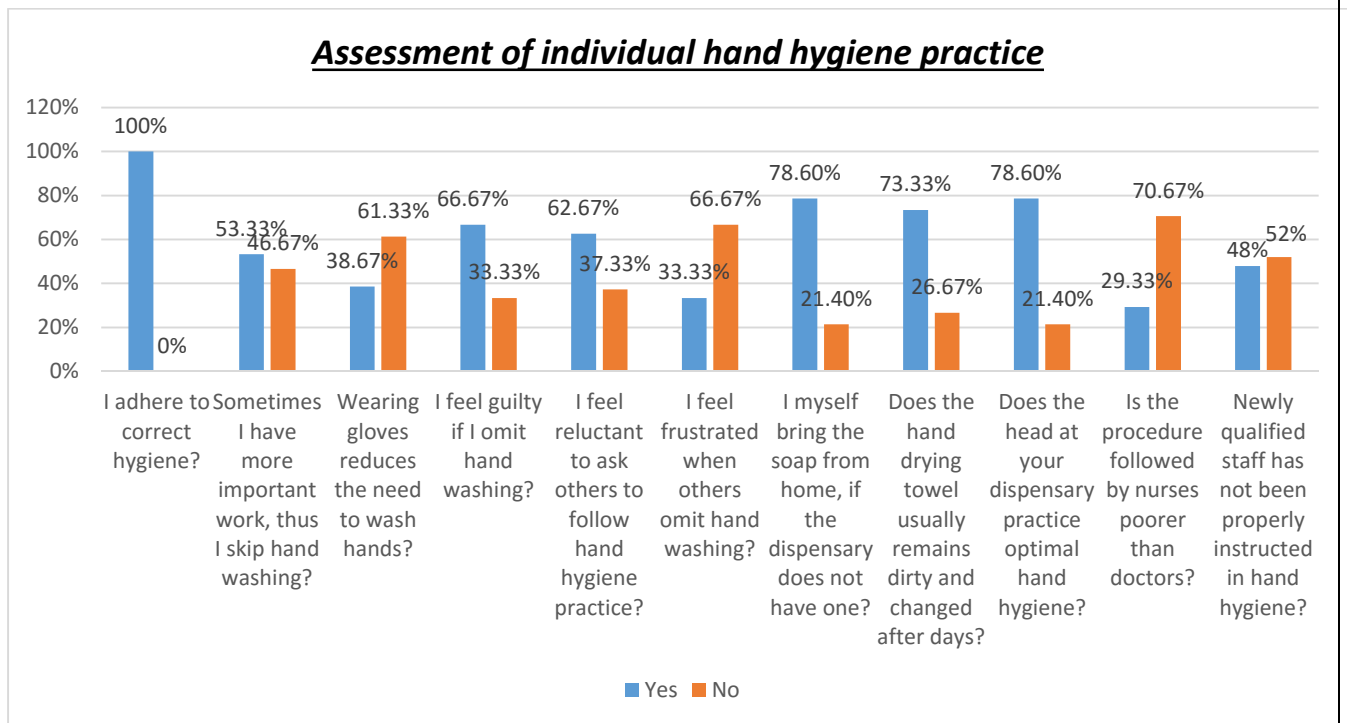


Figure 12

➤ Recommendations and Conclusions

Investigating perceptions of the effectiveness of measures for improving hand hygiene is a key factor in promoting adherence, since it can help to implement interventions that are perceived as most effective. To my best knowledge this is the first study done in Delhi Government Dispensaries where the perceptions of HCWs towards hand hygiene has been assessed at the ground level.

The availability of alcohol-based hand-rub was the most useful measure, followed by provision of clear and simple instructions for hand hygiene made available at each possible conducive location. Open promotion and support by the senior workers at the dispensary has also been perceived the respondents to be effective and that advising patients to wash their hands before coming to the facility for health check-ups was the least useful one (Figure 13).

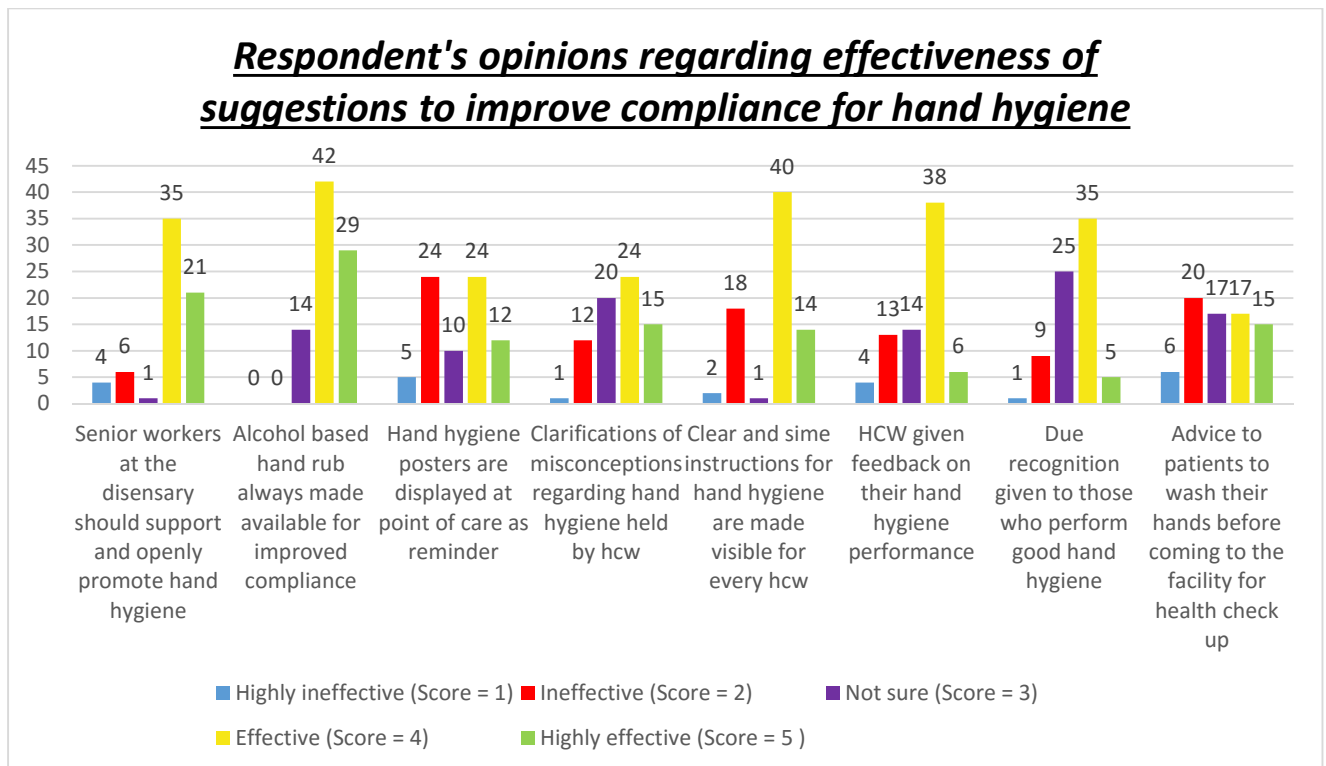


Figure 13

This study may have several limitations. Since it was carried out on a voluntary basis, there may have been a selection bias. Furthermore, when information on behaviour is self-reported, respondents tend to over score socially desirable behaviour, which can lead to adherence's being overestimated by up to multiple time. Respondents can also have unrealistic estimations of their own behaviour. Moreover, HCWs can believe that they wash their hands when necessary even when observations indicate otherwise.

Investigating HCWs' perceptions of measures for improving adherence can provide useful information for designing and implementing tailored actions for better hand hygiene measure at public health facilities. In this study, alcohol-based hand-rub availability was perceived as the most useful tool, confirming its crucial role in multimodal interventions. Poor perception

of advising patients to wash hands before coming to the facility for health check-ups deserves further investigation. Information and education activities were associated with more positive perceptions regarding various improvement measures. Though the relationship between perceptions and behaviours remains to be fully determined, all HCWs should participate in awareness programmes initiated by the government, not only to increase knowledge and possibly to increase adherence, but also to improve perceptions on effectiveness of actions to be implemented.

➤ **References**

- [1].Award to Public Health Facilities- KAYAKALP Guidelines, MoHFW, GOI, May 2015.
- [2] “SWACHHTA GUIDELINES for Public Health Facilities”, MoHFW, GOI, May 2015.
- [3] World Health Organization , “WHO Guidelines on Hand Hygiene in Health Care: *First global safety challenge: clean care is safe care.*” Geneva: WHO, 2009
- [4] Allegranzi B, Pittet D, “The role of hand hygiene in healthcare associated infection prevention”, *Journal of Hospital Infection* , August 2009.
- [5] Mahadeo B Shinde, Vaishali R Mohite, “A study to assess knowledge, attitude and practice of 5 moments of hand hygiene among nursing staff and students at a tertiary care hospital in Karad”, *International Journal of Scientific Research, Volume 3, Issue 2, February 2014.*
- [6]World Health Organization, “Hand Hygiene – Why, How and Why?”.pdf
- [7] P.I. Buerhaus, D.I.Auerbach and D.O. Staiger, “Recent trends in registered nurse labor market in the US: short-run swings on top of long-term trends”, *Nursing Economics, Volume28, 59-66 , 2007*
- [8] Pfuntner A, “ Proper Hand Washing: Avital food safety step” , *Food Safety Magazine, February/March 2011.*
- [9]World Health Organization, “Your 5 moments of Hand Hygiene”.pdf
- [10] Mayo Clinic, “Hand Washing Dos’ and Dents’”, October 2014
- [11] “Infection Management and Environment Plan- Guidelines for health care workers for waste management and infection control in primary healthcare centres”, MoHFW, GOI, 2007.
- [12] World Health Organization, “WHO Perception Survey for Health Care Workers”.pdf

