

## Knowledge, Attitude and Practice of Immunization among Health Care workers in JSS Hospital

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### **Abstract :**

**Background :** The Health care workers are the section of the population in the community who are frequently exposed and more prone for any kind of infectious disease outbreak. Hence the knowledge of vaccination among the health care workers is important because they play a key role in promoting, advising and informing the community about the vaccinations with up to date information along with scientific evidence. **Objectives :** To Assess the Knowledge, Attitude and Practice of Immunization among Health Care workers in JSS Hospital. **Methodology:** The present cross sectional study was conducted by the Department of General medicine at JSS Medical College and Hospital, Mysore in the month of JULY 2020. A total of 100 study subjects were selected by the convenient sampling method. The data was collected from the healthcare workers which included doctors working as faculty, postgraduates and interns. We used the pre tested semi-structured questionnaire to collect information regarding the socio demographic data, Knowledge Attitude and practise among the health care workers regarding the immunization. **Results:** The mean age of the study participants was  $28.9 \pm 7.4$  years with minimum age of 22 years and maximum of 57 years. 50% of them were females and 50% were males. The mean years of experience was  $3.9 \pm 5.3$  years. In the present 15.9%, 7% and 3% of study participants said that they did not take varicella vaccine, Hepatitis A vaccine and Measles vaccine due to the immunity acquired by prior infection respectively. **Conclusion :** The observed poor level of knowledge therefore is a serious concern, because HCWs may underestimate the risks of contracting the vaccine-preventable diseases and consequently, of their transmission to other members of staff and their patients, particularly those in the vulnerable groups. The rule of compulsory immunization for all the health care workers will be difficult to implement until the government brings the suitable modifications in the present law.

**KEYWORDS:** Immunization, Health Care, Knowledge, Disease, Vaccine

### **Introduction:**

In this modern world where the occurrence of newer disease and reoccurrence of known disease keeps happening, the best and well known preventive measure for protection from these emerging and re-emerging disease is Vaccination Practice.<sup>1</sup>

The Health care workers are the section of the population in the community who are frequently exposed and more prone for any kind of infectious disease outbreak. Hence the knowledge of vaccination among the health care workers is important because they play a key role in promoting, advising and informing the community about the vaccinations with up to date information along with scientific evidence.<sup>2</sup>

Vaccination is central to the goal of reducing the number of susceptible health care workers. The covid pandemic has reiterated this. Vaccinating the health workers will help by protecting them from the disease which in turn prevents the transmission of the disease from them to patients, other healthcare workers and family members.

The vaccination of hepatitis B, MMR, Influenza, COVID, Hepatitis A, Varicella Zoster, meningococcal Vaccines are highly recommended for the health care workers by various governments throughout the world.<sup>3,4</sup>

The practice of the modern medicine has further increased the risk of getting blood borne diseases like Human Immune deficiency Virus and Hepatitis B virus either due to lack of sterilization technique or improper hospital

waste management. Approximately 10 to 20 % of hospital waste generated is considered to be hazardous. Needle Prick injuries and handling of Emergency cases without proper personal protection and lack of awareness regarding the HIV and HBV status of such individual increases risk among the health care workers<sup>5,6</sup>

Hence this study was conducted to assess the Knowledge, Attitude and Practice of Immunization among Health Care workers in the present study settings.

**Aim and Objectives:**

To Assess the Knowledge, Attitude and Practice of Immunization among Health Care workers in JSS Hospital.

**Material and Methods:**

The present cross sectional study was conducted by the Department of General medicine at JSS Medical College and Hospital, Mysore in the month of JULY 2020.

A total of 100 study subjects were selected by the convenient sampling method.

The data was collected from the healthcare workers which included doctors working as faculty, postgraduates and interns. We used the pre tested semi-structured questionnaire to collect information regarding the socio demographic data, Knowledge Attitude and practise among the health care workers regarding the immunization. Participation was voluntary. Participants were informed that the data collected would be kept confidential. The Data collected was analysed using SPSS v21 and presented in the form of percentage. Chi square test was used to check the association with p value less than 0.05 considered to be statistically significant. The institution's ethical committee clearance was obtained.

**RESULT:**

The mean age of the study participants was 28.9±7.4 years with minimum age of 22 years and maximum of 57 years. 50% of them were females and 50% were males. The mean years of experience was 3.9±5.3 years with minimum experience of 0.4 months to maximum of 28 years. 19 % of them were interns, 28% were faculty and 53% were Post-graduates. 92% of the faculties and Post graduate students belonged to clinical departments and the remaining 8% to pre and para clinical subjects

**KNOWLEDGE**

Table 1: Knowledge of the study participants related to the vaccines.

Vaccine	Answer	Answered Correct	Answered Wrong	Don't know
Influenza				
Recommended target population	All adults	24.8	66.3	8.9
Dosage	0.5ml	48.5	33.6	17.9
Route of Administration	i.m	33.7	52.4	13.9
Dose	1	21.8	51.4	26.8
Booster	Nil	48.4	24.8	26.8
MMR				
Recommended target population	High risk	21.7	57.6	20.7
Dosage	0.5ml	57.4	23.7	18.9
Route of Administration	s.c	34.7	54.4	10.9
Dose	1/2	48.7	36.4	14.9
Booster	Nil	25.7	59.4	14.9
Hepatitis A				
Recommended target population	High risk	41.6	46.5	11.9
Dosage	1ml	23.8	51.3	24.9
Route of Administration	i.m	38.7	46.4	14.9
Dose	2	33.7	40.6	25.7
Booster	Nil	60.3	14	25.7
Hepatitis B				
Recommended target population	High risk	54.5	44.5	1
Dosage	1ml	35.7	57.3	7
Route of Administration	i.m	54.5	42.5	3
Dose	3	74.3	17.8	7.9
Booster	Nil	50.4	41.7	7.9
Tdap				
Recommended target population	All adults	31.7	47.5	20.8
Dosage	0.5ml	45.6	33.5	20.9
Route of Administration	i.m	36.7	46.4	16.9

Dose	1	19.8	56.4	23.8
Booster	Yes	23.8	52.4	23.8
HPV				
Recommended target population	All adults	29.7	57.4	12.9
Dosage	0.5ml	35.7	30.6	33.7
Route of Administration	i.m	26.8	42.5	30.7
Dose	2/3	48.6	32.6	18.8
Booster	Nil	69.3	11.9	18.8
Varicella				
Recommended target population	High risk	32.8	47.4	19.8
Dosage	0.5ml	48.6	24.7	26.7
Route of Administration	s.c	28.8	51.4	19.8
Dose	2	37.6	33.7	28.7
Booster	Nil	53.4	17.9	28.7
Zoster				
Recommended target population	All adults	18.8	59.4	21.8
Dosage	0.5ml	48.6	22.7	28.7
Route of Administration	s.c	25.8	53.4	20.8
Dose	1	23.8	47.5	28.7
Booster	Nil	55.5	15.8	28.7
Hib				
Recommended target population	High risk	29.7	59.4	10.9
Dosage	0.5ml	41.7	35.4	22.9
Route of Administration	i.m	39.7	46.4	13.9
Dose	1/3	41.7	35.5	22.8
Booster	Nil	55.4	21.8	22.8
Meningococcal				
Recommended target population	High risk	40.6	42.6	16.8
Dosage	0.5ml	36.7	26.6	36.7
Route of Administration	i.m	34.8	48.3	16.9
Dose	1 or 2	52.6	16.7	30.7
Booster	Nil	54.4	14.9	30.7
Pneumococcal				
Recommended target population	High risk	38.6	48.5	12.9
Dosage	0.5ml	35.7	36.5	27.8
Route of Administration	s.c	16.9	69.2	13.9
Dose	1/2	53.5	20.7	25.8
Booster	Nil	58.3	15.9	25.8
Japanese Encephalitis				
Recommended target population	High risk	47.5	30.7	21.8
Dosage	0.5ml	39.6	28.6	31.8
Route of Administration	i.m	26.8	52.4	20.8
Dose	2	30.7	44.5	24.8
Booster	Yes in high risk	11.9	63.3	24.8
Rabies				
Recommended target population	High risk	50.5	31.7	17.8
Dosage	1ml	30.7	50.4	18.9
Route of Administration	i.m	29.7	59.4	10.9
Dose	3	46.5	31.7	21.8
Booster	Yes in high risk	18.8	40.6	21.8

\*Numbers in the table represent percentages

Majority of the study participants, i.e 60% of them had learnt regarding the recommended CDC guidelines for vaccination through books, and remaining by lectures and internet.

#### **ATTITUDE**

**Table 2: Attitude towards the vaccines recommended to Healthcare professionals among the study participants**

Questions	Attitude Positive	Attitude Negative
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Are you willing to get immunised in case you have not got immunised with the vaccines recommended for Healthcare Professionals?	94.5	5.5
Do you believe that these vaccines will prevent one from acquiring infection?	91.5	8.5
Do you believe that mandatory vaccination is appropriate for Health Care professional?	98	2

\*Numbers in the table represent percentages

Practice

15.9%, 7% and 3% of study participants said that they did not take varicella vaccine, Hepatitis A vaccine and Measles vaccine due to the immunity acquired by prior infection respectively. Also 8.9% took MMR/Influenza and 1% had taken Pneumococcal vaccine/ Hib vaccine during Covid-19 pandemic

Table 3: Practice of the study participants with respect to the vaccines recommended by CDC to healthcare workers

Vaccine	Yes		No
	Complete	Incomplete	
Influenza	37.6	13.9	48.5
MMR	74.3	9.9	15.8
Hepatitis A	25.7	12.9	61.4
Hepatitis B	80.1	14.9	5
Tdap	55.4	12.9	31.7
HPV	19.8	14.9	65.3
Varicella	40.6	12.9	46.5
Zoster	28.7	13.9	57.4
Hib	36.6	12.9	50.5
Meningococcal	15.8	12.9	71.3
Pneumococcal	16.8	12.9	70.3
Japanese Encephalitis	14.8	13.9	71.3
Rabies	18.8	12.9	68.3

\*Numbers in the table represent percentages

Table 4: Rationale for not completing the immunisation schedule according to CDC guidelines for Health Care Professionals.

Reason	Proportion
Lack of Awareness	65.9
Lack of Willingness	18.3
Contraindications	4.9
Doubtful efficacy about the vaccine	22
Fear of Side-effects	8.5
Forgot the booster dose	1.2
Believe previous infection would provide immunity/ reaction	2

- Numbers in the table represents percentages
- Percentage greater than 100 % as participants could opt multiple choices

Table 5: Association of variables with practice of vaccination

Variable	MMR/Influenza vaccine taken during pandemic		Total	Chi-square value	p-value
	Yes	No			
<u>Age (in years)</u>					
<30	62	9	71	2.0	0.57
31-40	22	1	23		
41-50	4	0	4		
51-60	2	0	2		
<u>Years of experience</u>					
<5	68	9	77	1.5	0.8
6-10	11	1	12		
11-15	6	0	6		
15-20	3	0	3		
>20	2	0	2		
<u>Gender</u>					
Male	40	10	50	11.1	<0.001*
Female	50	0	50		

<u>Designation</u>					
Faculty	27	1	28	6.2	0.05*
Post Graduate	44	9	53		
Intern	19	0	19		

\*Fischer exact Test

When the participants were grouped based on the vaccinations they had received according to the CDC guidelines (as those who took less than 50% of vaccines according to the CDC guideline and those who took more than 50% of the vaccines according to CDC guidelines), and association was tested with socio-demographic variables, none of the socio-demographic variables were found to be significantly associated with the practice of taking immunisation.

### Discussion:

The present study was done to evaluate the knowledge attitude and practice of immunization among the health care workers in the JSS Medical College and Hospital at Mysore.

In the present study the CDC guidelines for Immunization among adults was considered as standard protocol. The questionnaire was designed and data was collected based on those guidelines.<sup>7</sup>

In our study nearly 24.8% of them were aware about the target population for influenza Vaccine, 21.7% about MMR Vaccine, 41.6% for Hepatitis A, 54.5% for Hepatitis B, 31.7% for Tdap vaccine, 29.7% for HPV vaccine, 32.8% for Varicella Vaccine, 18.8% about zoster vaccine, 29.7% for Hib Vaccine, 40.6% for Meningococcal vaccine, 38.6% for Pneumococcal Vaccine, 47.5% for Japanese Encephalitis Vaccine, 50.5% about Rabies Vaccine. The knowledge of the health care workers regarding Immunization as per CDC Guidelines was found to be minimal among the study subjects regarding influenza Vaccine, Tdap vaccine, MMR Vaccine and Hib vaccine was less than 30%, which could be due to lesser prevalence of such infection and lesser usage in developing countries like India. Even the prevalence of such disease is very minimal when compared to Hepatitis A and B vaccine, pneumococcal Vaccine, meningococcal vaccine, JE Vaccine and Pneumococcal Vaccine which are more prevalent and frequently used among the health care workers hence the knowledge about these vaccine was found to be more than 40% in our study.

The knowledge about the route of administration, dosage and booster dosages of these vaccine was also found to be on the lower side due to lack of information and lesser re-enforcement of knowledge imparted among the health workers.

Similar to our study where knowledge about all the vaccines were assessed, we could not find any study which is comparable to our study, instead there were many studies to assess the knowledge of single vaccine about influenza, hepatitis B. Similar to our study in other studies also the knowledge about the vaccination among health care workers was found to be lesser in the range of 30-50% only. In the study done by Palolo C et al<sup>8</sup> the knowledge about the awareness of all recommended vaccines for adults was only among 14.1% of the subjects. Whereas in the study done by Tomboloni C et al<sup>9</sup> nearly 60% of health care workers were aware about the herd immunity and its impact on preventing the disease. In another study done by Siraj F et al<sup>10</sup> the knowledge of HCW about Hepatitis B vaccine was more than 90% as they are more prone for it and hence they had more knowledge about it.

The Attitude was assessed by asking the subjects regarding their view in receiving the vaccine after imparting the knowledge nearly 94.5% were willing to get immunized and 91.5% believed that vaccine will prevent from getting the disease if immunized and 98% were of the opinion that it should be made mandatory for Health care workers to get immunized. Whereas in the study done by Pelullo C et al<sup>8</sup> only 57.3% of the health care workers agreed or strongly agreed regarding reliability of the vaccine information received by them.

Further it was disheartening to know that coverage of vaccines recommended to the health care workers were less than 80% in the present study. Hepatitis B vaccine was taken by the nearly 80.1%, followed by MMR in 74.3%, Tdap in 55%, Varicella vaccine in 40.6%.

In the study done by Siraj F et al<sup>10</sup> nearly 56.52% of the HCW had taken Hepatitis B vaccine, in another study done by Pelullo C P et al<sup>8</sup> showed the coverage of Influenza vaccine was 21.6%, 17.7% for Tdap Vaccine and 78.6% for hepatitis B Vaccine. In the study done by Kumar Set al<sup>11</sup> 46.2% were fully immunized against hepatitis B and Shagufta Hussain et al<sup>12</sup> showed 57.6% to be fully vaccinated and Subhash Chandra et al<sup>13</sup> showed 48.5% of complete vaccination against hepatitis B.

In few of the studies they have opined that a mandatory influenza vaccination policy, exempting only those HCWS with a medical contraindication, has been demonstrated to be a highly effective in achieving high vaccine coverage rate among health care workers.

On analysing the socio demographic profile regarding the administration of influenza/MMR vaccine during any outbreak it was found that gender and designation were found to be statistically significant in the present study.

In other studies, conducted in the Asian countries they have shown that there is medium to low correlation of gender and age when evaluated with knowledge and attitude about vaccination.<sup>14,15</sup> In the study done by

Hammour Walid et al the association was found to be significant with age, gender and educational qualifications for influenza vaccine .<sup>16</sup>

**Conclusion:**

The observed poor level of knowledge therefore is a serious concern, because HCWs may underestimate the risks of contracting the vaccine-preventable diseases and consequently, of their transmission to other members of staff and their patients, particularly those in the vulnerable groups. This signals an urgent need for infection prevention and control education to guard the safety of the HCW.

Further it should be made compulsory for all the health care workers to constantly update their knowledge regarding the immunization by attending CME, online lectures at regular intervals and also encourage them to get vaccinated. The vaccination can be made available by the hospital at free of cost for the health care workers.

The rule of compulsory immunization for all the health care workers will be difficult to implement until the government brings the suitable modifications in the present law.

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