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## Assessment of knowledge, attitude and practices regarding H1N1 pandemic influenza among the health care providers working at a tertiary care hospital in Kashmir: A cross sectional study

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### Abstract

**Background:** Health care professionals are a high risk group for H1N1 and it is important for them to have correct knowledge about the disease in order to be able to prevent themselves from the disease.

**Objectives:** To assess the knowledge, attitude and practices regarding H1N1 pandemic influenza among the health care providers working at a tertiary care hospital.

**Methodology:** Data was collected from 279 health care providers who were selected by convenience sampling.

**Results:** Overall the participants had some/sufficient knowledge about the disease. 44.8% of the study participants had received training on hand hygiene while only 24% had received training on the use of personal protective equipment. Only 54.8 % of the study participants were vaccinated against H1N1.

**Conclusion:** It was seen that there were some gaps in the knowledge about the disease. Educational and training programmes for health care providers should be conducted regularly.

**Keywords:** H1N1, swine flu, health care providers, vaccination, hand hygiene

### 1. Introduction

Influenza viruses belongs to the family Orthomyxoviridae. The influenza viruses are classified into types A, B and C on the basis of their core proteins <sup>[1]</sup>. Only types A and B cause human disease of any concern. This changeable virus is responsible for several pandemic events such as 1947, 1976, 1977, and 2009 pandemics <sup>[2]</sup>. Respiratory transmission occurs mainly by droplets disseminated by unprotected coughs and sneezes. Short-distance airborne transmission of influenza viruses may occur, particularly in crowded enclosed spaces. Hand contamination and direct inoculation of virus is another possible source of transmission. Typical influenza symptoms include fever with abrupt onset, chills, sore throat, non-productive cough and, often accompanied by headache, coryza, myalgia and prostration. Complications of influenza viral infection include primary influenza viral pneumonitis, bacterial pneumonia, otitis media and exacerbation of underlying chronic conditions. Illness tends to be most severe in the elderly, in infants and young children and in immunocompromised hosts <sup>[1]</sup>. Influenza occurs all over the world, with an annual global attack rate estimated at 5–10% in adults and 20–30% in children <sup>[1]</sup>.

The best thing to prevent the spread of the swine flu is to have knowledge of it <sup>[3]</sup>.

Whenever possible, avoid crowded enclosed spaces and close contact with people suffering from acute respiratory infections. Frequent hand-washing, especially after direct contact with ill persons or their environment, may reduce the risk of acquiring illness. Ill persons should be encouraged to practise cough etiquette (Maintain distance, cover coughs and sneezes with disposable tissues or clothing, wash hands) <sup>[1]</sup>.

Vaccines are available for different kinds of swine flu. However, vaccines against the new strain are developed, with safety profile like seasonal flu vaccine. Knowledge, attitude and practice (KAP) of people regarding swine flu are a cornerstone in prevention of virus spread and outbreak <sup>[4]</sup>. Since health care providers are a high risk group for H1N1, it is very important for them to have correct and sufficient knowledge about the disease in order to be able to prevent themselves from contracting the disease. With this background in mind the present study was carried out to assess the knowledge,

attitude and practices regarding H1N1 pandemic influenza among the health care providers working at a tertiary care hospital in Kashmir so that relevant recommendations can be put forth to improve the knowledge among the health care providers regarding H1N1 pandemic influenza and its prevention.

**2. Objectives**

To assess the knowledge, attitude and practices regarding H1N1 pandemic influenza among the health care providers working at a tertiary care hospital in Kashmir.

**3. Methodology**

A cross sectional study was carried out to assess the knowledge, attitude and practice regarding H1N1 pandemic influenza among the health care providers working at SKIMS. The study was carried out in different wards and laboratories of SKIMS after taking clearance from the Institutional Ethics Committee. Participants were selected by convenience sampling and those professionals present in the ward/ laboratory at the time of data collection were included in the study after taking a proper consent from them. A total of 279 health care providers participated in the study. Data was collected using a pre designed semi structured questionnaire which included questions on socio demographic particulars of the participants and their knowledge, attitude and practices regarding H1N1 pandemic influenza. Based on knowledge the participants were divided into two groups. Those with some or sufficient knowledge included participants who answered some or all questions regarding knowledge correctly and those with no knowledge who did not answer any of the questions

regarding knowledge correctly. Attitude was assessed by the asking about vaccination status and reasons for not being vaccinated. Vaccination status and having received training on hand hygiene and use of personal protective equipment were considered as representing practice of the health care providers towards H1N1 pandemic influenza.

**4. Results**

**Table 1:** Particulars of the Study Participants

Age	Frequency	Percent
20-30 years	119	42.7
31-40 years	79	28.3
41-50 years	44	15.8
>50 years	37	13.3
<b>Gender</b>		
Male	163	58.4
Female	116	41.6
<b>Profession</b>		
Doctor	178	63.8
Others	101	36.2

A total of 279 health care providers participated in the present study. Most of the study participants were in the age group of 20-30 years(42.7%) followed by 28.3% in the 31-40 years, 15.8% in the 41-50 years and 13.3% were more than 50 years of age. Majority of the participants were doctors (63.8%) while 36.2% belonged to other professions and included staff nurses, laboratory technicians and ward boys.

There were more males (58.4%) than females (41.6%) among the participants (Table 1).

**Table 2:** Knowledge about Vaccination

	Sufficient/Some knowledge		No knowledge	
	Number	percentage	Number	percentage
Who should get vaccinated?	275	98.6	4	1.4
Who should not be vaccinated?	263	94.3	16	5.7
When to get vaccinated?	273	97.8	6	2.2

Table 2 depicts the knowledge of the study participants regarding vaccination against H1N1 influenza. It was observed that 98.6% of the participants had sufficient or some knowledge regarding who should get vaccinated,

94.3% had sufficient or some knowledge regarding contraindications to vaccination and 97.8% had sufficient or some knowledge regarding the timing of vaccination.

**Table 3:** Knowledge about the disease

	Yes		No	
	Number	Percent	Number	Percent
High fever is most likely seen with the flu	245	87.8	34	12.2
Muscle & bone aches more with common cold than with flu	135	48.4	144	51.6
Red eyes/conjunctivitis are seen more with common cold than with flu	132	47.3	147	52.7
H1N1 virus has disappeared	20	7.2	259	92.8
Current available vaccine protects against H1N1	238	85.3	41	14.7
Vaccinating health care workers protects patients	259	92.8	20	7.2
Vaccination reduces the duration of symptoms	197	70.6	82	29.4
Vaccination reduces the severity of complications	216	77.4	63	22.6
Flu vaccine has no value	19	6.8	260	93.2
Hand hygiene controls its spread	265	95.0	14	5.0
Using N95 mask controls its spread	274	98.2	5	1.8
Using regular mask when caring controls its spread	109	39.1	170	60.9
Admitting patients in single room controls its spread	174	62.4	105	37.6
Admitting patients in negative pressure room controls its spread	154	55.2	125	44.8
Antiviral medication reduces duration & severity of symptoms	244	87.5	35	12.5
Antiviral medication has role in prevention after exposure	162	58.1	117	41.9
Antiviral medication is available in oral and inhaler form	169	60.6	110	39.4

It was seen that overall the participants had correct knowledge regarding various aspects of the disease. It was however alarming that 7.2% of the participants thought H1N1 had disappeared and 6.8% thought that vaccine was of no value. (Table 3).

**4.1 Training**

44.8% of the study participants had received training on hand hygiene while only 24% of them had received training on the use of personal protective equipment.

**4.2 Vaccination status**

Only 54.8 % of the study participants were vaccinated

against H1N1. Among the rest, the most common reason cited for not being vaccinated was considering vaccination unnecessary (57%).

Other reasons cited were not having information about the vaccine (25%), not being at risk (16%), considering vaccine ineffective(11%) besides considering vaccine unsafe and costly. Vaccination rates among doctors was higher than other health care providers (57.86% and 49.50% respectively). This difference however was not significant. However 69.9 % of the study participants said that they planned to get vaccinated in the current flu season.

**Table 4:** Difference in the knowledge about vaccination among different professions

	Profession	Sufficient/Some knowledge		No knowledge		p value
		number	percent	number	percent	
Who should get vaccinated?	Doctors	177	99.4	1	0.6	0.137
	Others	98	97	3	3	
Who should not get vaccinated?	Doctors	175	98.3	3	1.7	0.000
	Others	88	87.1	13	12.9	
When to get vaccinated?	Doctors	175	98.3	3	1.7	0.671
	Others	98	97	3	3	

The difference in the knowledge about vaccination between doctors and other professions was not significant except for knowledge about contra indications to vaccination which

was significantly higher among doctors (98.3% vs 87.1%, p value < 0.001). (Table 4).

**Table 5:** Training received by the study participants

	Doctors				Others				p value
	Yes		No		Yes		No		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Training on hand hygiene	80	44.9	98	55.1	45	44.6	56	55.4	0.950
Training on use of PPE	40	22.5	138	77.5	27	26.7	74	73.3	0.423

Almost an equal number of doctors and other professionals had received training on hand hygiene while a higher number of other professionals had received training on use of PPE. The difference however was not statistically significant. (Table 5).

It was seen that 70.2% doctors and 69.3% of other professionals were planning to get vaccinated. The difference however was not statistically significant (p value 0.872).

**5. Discussion**

A total of 279 health care providers participated in the present study.

Majority of the participants were doctors (63.8%) while 36.2% belonged to other professions and included staff nurses, laboratory technicians and ward boys. Most of the participants in a study conducted by Helena C. Maltezou *et al* among health-care workers in Greece belonged to other professions (73.61%) and only 26.38% were doctors [5]. Also in a study conducted by Marc Tebruegge *et al* among health-care workers in Australia only 34.9% of the participants were doctors and medical students while 65.04% belonged to other professions [6].

Regarding knowledge of the study participants about vaccination against H1N1 influenza it was observed that 98.6% of the participants had sufficient or some knowledge regarding who should get vaccinated, 94.3% had sufficient or some knowledge regarding contraindications to vaccination and 97.8% had sufficient or some knowledge

regarding the timing of vaccination. In a study conducted by Rajvardhan R. Solunke *et al* amongst medical students in Maharashtra, 157 (62.8%) participants knew about who must take swine flu vaccine, 162 (64.8%) participants were aware of contraindications to the vaccine but only 21.6% knew about timing of vaccination [7].

In the present study, 58.1 % of the participants knew that Antiviral medication has role in prevention after exposure. In study conducted by S. Puri *et al* among healthcare providers, in a multispecialty teaching hospital in North India it was observed that 47.9% of the participants knew that treatment has to be started within 48 h of symptom onset [8].

It was seen that 6.8% of the participants in the current study thought that vaccine was of no value. A higher number of participants had doubts about vaccine efficacy (30.0%) in a study conducted by Silvia Vírseada *et al* among health-care workers in a Spanish University Hospital [9]. However only 1.65% of participants in a study conducted by Pandey S *et al* among health care workers & medical students in Pune disagreed on a protective role of Influenza vaccine [10].

In the present study it was observed that 85.3% of the participants believed that influenza vaccine has a protective role. Similar findings were reported in a study conducted by Pandey S *et al* among health care workers & medical students in Pune where 98.5% of the participants believed in the protective role of vaccination [10]. Much lower rates were reported by Esen Savas *et al* in their study on Knowledge, attitudes and anxiety towards influenza A/H1N1 vaccination

of healthcare workers in Turkey where only 17.6% of the participants believed the vaccine to be effective <sup>[11]</sup>.

95% of the study participants in the present study knew that proper hand hygiene can help in controlling spread of the disease. In a study conducted by Esen Savas *et al* in Turkey similar findings were reported where 95.7% practiced hand washing to control spread of the disease <sup>[11]</sup>. In a study conducted by Omer Evirgen *et al* on knowledge, attitudes, and behaviors of employees of a university hospital in Turkey where 77.9% of the participants believed that washing hands with soap would protect them <sup>[12]</sup>. Also more than 50% of subjects in two studies and 100% of subjects in the other study were of the opinion that frequent hand washing and use of sanitizer are one of the effective methods to prevent swine flu in a systematic review conducted by Ramandeep SG *et al* among dental professionals in India <sup>[13]</sup>.

95% of the participants in the current study believed that wearing masks could prevent infection while 70% of respondents in a study conducted by Naresh Kumar *et al* in Haryana thought that use of masks prevent the disease <sup>[14]</sup>. In a study conducted by Omer Evirgen *et al* in Turkey 57.1% participants thought that masks could prevent infection <sup>[12]</sup>. In a study conducted by Esen Savas *et al* in Turkey masks were considered protective by 78.7% of the study participants <sup>[11]</sup>.

44.8% of the study participants had received training on hand hygiene while only 24% of them had received training on the use of personal protective equipment. However in a study conducted by Helena C. Maltezou *et al* among health-care workers in Greece 73.9% of the study participants had received training on hand hygiene while only 46.3% of them had received training on the use of personal protective equipment <sup>[5]</sup>. Only 54.8 % of the study participants in the present study were vaccinated against H1N1. Almost an equal vaccination rate was reported by in studies conducted by Omer Evirgen *et al* in Turkey <sup>[12]</sup> and Silvia Vírveda *et al.* <sup>[9]</sup> in a Spanish University Hospital (46.8% and 49.7% respectively). Lesser vaccination rates were reported by Esen Savas *et al* in Turkey <sup>[11]</sup> and by Sebahat D. Torun *et al* <sup>[15]</sup> among healthcare workers in Istanbul (12.7% and 23.1% respectively). A good number of participants (82.6%) were vaccinated against H1N1 in a study conducted by Pandey S *et al* among health care workers & medical students in Pune <sup>[10]</sup>.

Among those not vaccinated 16% did not consider themselves at risk of infection while 11% considered vaccine to be ineffective. In a study conducted by Sebahat D. Torun *et al* in Istanbul 16.3% of the participants thought that they were not at risk of infection and 41.7% of them did not believe in the efficacy of the vaccine <sup>[15]</sup>. In another study conducted by Omer Evirgen *et al* in Turkey 36.3% of the participants thought that they were not at risk of infection and 46.4% of them thought that the vaccine was not effective <sup>[12]</sup>. However 69.9 % of the study participants said that they planned to get vaccinated in the current flu season while only 21.8% of the study participants in a study conducted by Helena C. Maltezou *et al* among health-care workers in Greece were planning to get vaccinated <sup>[5]</sup>.

## 6. Conclusion & Recommendations

It was seen in the present study that even though the health care providers had substantial knowledge about swine flu but there were some gaps in the knowledge especially about

vaccine. The vaccination rates among the participants was low because of various reasons including doubts about need, efficacy and safety of the vaccine. Also less than half of the participants had received training on hand hygiene and only 24% had received training on the use of personal protective equipment. It is therefore recommended that the health care providers should be well informed about the disease and its prevention through regular and periodic educational campaigns. Training programmes on hand hygiene and use of personal protective equipment for the health care providers should also be conducted on a regular basis.

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