

# Medical Staff Knowledge about Seasonal Influenza Vaccine in Karbala Hospitals - Iraq

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## Abstract:

**Background:** Seasonal influenza is an acute highly infectious viral infection. Its short incubation period, and efficient person to person transmission, makes it hazardous to patients and staff in health care facilities. Doctors are often exposed to influenza during their work, acting as vectors, passing infection to patients. Influenza vaccines can be either trivalent inactivated influenza vaccine, or Live attenuated influenza vaccine. Seasonal influenza vaccines are valid for one year only, because of the need to adapt (update) the vaccine strain to the changing circulating field virus. Vaccine efficacy for healthy adults and most children ranges (80-100) %. Seasonal influenza control plan in Iraq targets those with chronic disease, pilgrims, & all health care workers.

**Aim of the study:** As this vaccine is new in Iraq, this research aims to determine medical staff knowledge level for using the vaccine in preventive programs.

**Subjects & methods:** A cross sectional study conducted in conveniently selected 7 health institutes in Karbala / Iraq, from 1<sup>st</sup> Feb through May 2012. From the 321 available medical staff, 281 participated after verbal consent (Response rate 88%). Apart from socio-demographics, the questionnaire enquired about Influenza prevention, vaccine (specification, contraindication, immunity, schedule, & risk groups). Knowledge items were scored, and then summed up to get total score. The 50<sup>th</sup> & 75<sup>th</sup> centiles were taken as cut-offs for poor/fair, and fair/good knowledge respectively. SPSS V.16 was used for data analysis, with P value of  $\leq 0.05$  denoting significance.

**Results:** Only 27% of medical staff studied in Karbala received influenza vaccine, and 43% had miss-believe of vaccine unavailability in health institutes, and 33% untrusted the vaccine. Poor influenza vaccine knowledge among medical providers was high (72%). Knowledge was not associated with gender, medical occupation type, and education, but significantly associated with Drs field of medical practice, and vaccination status.

**Conclusion:** Medical staff Knowledge about influenza vaccine is low. MOH Policy makers need to update Medical staff about influenza vaccine via continuing medical education.

**Key words:** Seasonal influenza, Influenza vaccine, Medical staff knowledge, Karbala hospitals

## Introduction:

Seasonal influenza is an acute highly infectious viral infection<sup>(1)</sup>. "Influenza" name originated in 15th century, from an epidemic in Italy attributed to "influence of stars."<sup>(2)</sup>

Human Influenza viruses are three types, belonging to family Orthomyxoviridae<sup>(3)</sup>. Types A & B include different strains causing winter epidemics<sup>(4)</sup>. Close contact with influenza-infected individuals and their respiratory secretions results in higher risk of transmission<sup>(5)</sup>. Its short incubation period, and efficient person to person transmission, makes it hazardous to patients and staff in health care facilities<sup>(6)</sup>.

Doctors are often exposed to influenza during their work, acting as vectors, passing infection to patients, staff, & family<sup>(7)</sup>. Complications and/or deaths occur mainly in high-risk populations including: <2 or  $\geq 65$  yrs, pregnant women, health care workers, patients with chronic diseases, or cancer<sup>(8)</sup>. Inactivated vaccines have been available since 1940s<sup>(9)</sup>, but live attenuated influenza vaccine was licensed in 2003<sup>(2)</sup>. Influenza vaccines can be either trivalent inactivated influenza vaccine (TIV), or Live attenuated influenza vaccine (LAIV)<sup>(10)</sup>.

Seasonal influenza vaccines are valid for one year only because of the need to adapt (update) the vaccine strain to the changing circulating field virus<sup>(11)</sup>. Nasal spray of live vaccines seemed better to prevent influenza illness than inactivated vaccines

<sup>(12)</sup>. Vaccine efficacy for healthy adults and most children ranges (80-100) %<sup>(13)</sup>. Guillain-Barre Syndrome is the most dangerous side effect of influenza vaccines<sup>(14)</sup>. Vaccination contraindications include: Egg allergy, acute febrile illness, first trimester of pregnancy, previous Guillain-Barre syndrome<sup>(15)</sup>. In addition, live attenuated vaccine contraindications are Age <5 or >65 yrs, immune compromised patients, and children <18 months receiving aspirin<sup>(16)</sup>.

Seasonal influenza control plan in Iraq targets those with chronic disease, pilgrims, & all health care workers<sup>(17)</sup>. TIV type is given Intramuscular for children (6-35 months), adults >65 yrs, patients (6-18 yrs) with underlying chronic medical conditions, pregnant women especially in winter time<sup>(18)</sup>. As this vaccine is new in Iraq, there are no studies about medical staff experience with its dose, route, timing, precautions, and side effects. This research aims to determine medical staff knowledge level for using the vaccine in preventive programs.

## Materials and methods:

After official & ethical approvals, this cross sectional study (with analytic element) was conducted in conveniently selected health institutes (Tab 1) in Karbala / Iraq (from 1st Feb through May 2012), on 321 available medical staff requested to fill a comprehensive questionnaire. Accordingly, 281 participated after verbal consent (Response rate

87.5%). Apart from socio-demographic information, the questionnaire enquired about Influenza prevention, vaccine (specification, contraindication, immunity, schedule, & risk groups).

Knowledge items were scored giving one mark for each correct answer, summed up to get total score. The 50th & 75th centiles were taken as cut-offs for poor/fair, and fair/good respectively (tab 3). SPSS V.16 was used for data analysis, with a P value of  $\leq 0.05$  denoting significance.

**Results:**

Studied health providers were having an age range of 23 to 68 years. Two thirds were males

(76%). Around two thirds (62%) were doctors, the rest were pharmacists and dentists, and 42% of the sample had postgraduate medical degree (Tab 2).

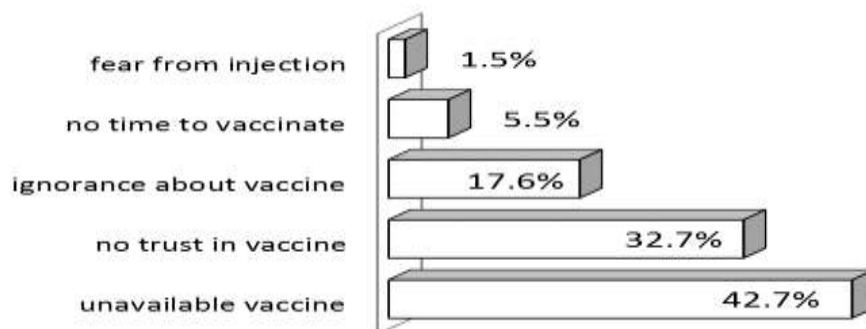
Only 27% of medical staff studied (in Karbala) received influenza vaccine, and 43% had miss-believe of vaccine unavailability in health institutes, and 33% untrusted the vaccine. Poor influenza vaccine knowledge among medical providers was high (72%). Knowledge was not associated with gender, medical occupation type, and education, but significantly associated with Drs field of medical practice, and vaccination status (Fig 1, Tab 3 & 4).

**Tab 1: Health institutes & medical staff selected:**

Health Institute	No	(%)
Husain hospital	127	(45)
Karbala gyne & obst hospital	48	(17)
Karbala pediatric hospital	40	(14)
Karbala Specialized dental center	27	(10)
Hindia hospital	25	(9)
Dept of pharmacy	11	(4)
Safer hospital	3	(1)
<b>Total</b>	<b>281</b>	<b>(100)</b>

**Tab 2: Socio-demographics of studied sample**

variable	Category	No.	(%)
<b>Gender</b>	Male	189	(67)
	Female	92	(33)
<b>Degree</b>	Bachelor	164	(58)
	Postgraduate	117	(42)
<b>Medical Occupation</b>	Dentist	32	(11)
	Pharmacist	75	(27)
	Doctor	174	(62)
<b>Dr specialty</b>	Specialist	100	(57)
	Non-specialist	74	(43)
	<b>Sub total</b>	<b>174</b>	<b>(100)</b>
<b>Dr practice</b> (excluding new graduates)	Surgery	38	(25)
	Medicine	31	(20)
	Pediatrics	30	(19)
	Gynecology	12	(8)
	Others	45	(28)
	<b>Sub-total</b>	<b>156</b>	<b>(100)</b>
<b>Total</b>		<b>281</b>	<b>(100)</b>
<b>Mean age (Range) yrs</b>		35.6 ± 9.0 (23-68)	



**Fig 1: Reasons of not receiving flu vaccine among studied sample**

**Table 3: Item knowledge of medical staff for influenza vaccine**

knowledge items	Staff knowledge		
	Staff No.	(%)	grade
<b>Influenza disease</b>			
Medical & health staff spread influenza to patient	214	(76)	good
Influenza is a potentially serious disease?	173	(61)	fair
There is an effective vaccine for influenza prevention	45	(16)	poor
<b>Influenza vaccine information</b>			
Vaccine benefits exceed risks	181	(64)	fair
Annual change in vaccine	124	(44)	poor
Frequency of vaccine given	116	(41)	poor
Vaccine effective & safe	52	(18)	poor
Vaccine prevent spread in children	45	(16)	poor
Vaccine prevent spread in patients	57	(20)	poor
Vaccination Medical & health staff prevent spread to patients	101	(35)	poor
<b>Influenza vaccine specification</b>			
Vaccine availability and where	193	(68)	fair
Vaccine type in Iraq	57	(20)	poor
Vaccine route	74	(26)	poor
Vaccination site	118	(42)	poor
Vaccine dose for adult	32	(11)	poor
Vaccine storage temperature	77	(27)	poor
<b>Influenza vaccine schedule</b>			
Time schedule of vaccination	97	(34)	poor
Age of giving vaccine	18	(6)	Poor
Vaccine Safely above 65years age	50	(18)	Poor
<b>Influenza vaccine risks &amp; contraindications</b>			
Vaccine contraindication in pregnancy	20	(7)	Poor
Vaccine contraindication in breast feeding	67	(24)	Poor
Vaccine contraindication in egg allergy	31	(11)	Poor
Vaccine cause influenza	63	(22)	Poor
Vaccine percentage causing influenza	63	(22)	Poor
<b>Influenza vaccine immunity</b>			
Immunity start after vaccination	84	(30)	Poor
Duration of antibodies presence in the body	66	(23)	Poor
Vaccine can prevent avian flue	53	(19)	Poor
<b>Risk groups for influenza vaccine</b>			
• Physician and nurses	238	(84)	good
• Person over 50 years of age	125	(44)	poor
• Patient with anemia	76	(27)	poor
• Patient with diabetes	117	(41)	poor
• Patient with asthma	90	(32)	poor
• Patient with HIV/AIDS	62	(22)	poor
• Patient with renal failure	57	(20)	poor
• Patient on chemotherapy	47	(17)	poor
• Patient with ischemic heart disease	51	(18)	poor

**Tab 4: Flu vaccine knowledge by vaccination status & characteristics of studied sample**

Flu vaccine knowledge		No. (%)	No. (%)	No. (%)	$\chi^2$ , df, p
		Poor	Fair/good	Tot	
<b>Gender</b>	Male	130 (69)	59 (31)	189 (100)	3.4, 1, 0.06 NS
	Female	73 (79)	19 (21)	92 (100)	
<b>Degree</b>	Bachelor	121 (74)	43 (26)	164 (100)	0.5, 1, 0.49 NS
	Postgraduate	82 (70)	35 (30)	117 (100)	
<b>Occupation</b>	Doctors	126 (72)	48 (28)	174 (100)	0.2, 2, 0.89 NS
	Pharmacists	53 (71)	22 (29)	75 (100)	
	Dentists	24 (65)	8 (25)	32 (100)	
<b>Vaccination</b>	Vaccinated	47 (61)	30 (39)	77 (100)	<b>6.6, 1, 0.009 HS</b>
	Not vaccinated	156 (76)	48 (24)	204 (100)	
<b>Dr practice</b>	Surgeon	28 (74)	10 (26)	38 (100)	<b>10.2, 4, 0.04 S</b>
	Physician	14 (45)	17 (55)	31 (100)	
	Pediatrician	20 (67)	10 (33)	30 (100)	
	Gynecologist	7 (58)	5 (42)	12 (100)	
	Others	35 (78)	10 (22)	45 (100)	
<b>Subtotal (excluding new graduates)</b>		<b>104 (67)</b>	<b>52 (33)</b>	<b>156 (100)</b>	
<b>Total</b>		<b>203 (72)</b>	<b>78 (28)</b>	<b>281 (100)</b>	

**Discussion:**

There is a wide gap in knowledge about influenza vaccine of medical staff in Karbala, as fair/good score was low (Tab 3,4) when compared with 50% in Iran<sup>(19)</sup>, & very low if compared with 84% in Australia<sup>(20)</sup>. This poor knowledge is peculiar, keeping in mind flu vaccine availability since 2005, & its provision for Iraqi pilgrims after that, in addition to MOH plans to vaccinate all age groups in 2009 (Personal interview: immunization department, head, MOH/IRAQ). Possible explanation might be lack of national data awareness about influenza disease morbidity and mortality. Another reason is that during this study - in Karbala governorate - the plan has not been implemented and was not included in immunization schedule (Personal interview: immunization department, head, Karbala governorate).

No significant difference in knowledge score about influenza vaccine was revealed between males and females (Tab 4), which agrees with researches in Iran & Australia<sup>(19,20)</sup>. This is not unexpected due to lack of vaccine specific use for a particular gender.

Study results show that just more than a quarter of medical staff studied, were vaccinated (Tab 4). This is much lower than Iran<sup>(19)</sup>, and although nearly similar to Australia & Saudi Arabia<sup>(20,21)</sup>, but Reasons for not being vaccinated in Iraq differ.

The high percentage of unvaccinated medical staff would render health staff in our country to be susceptible for influenza, with its negative impact on patients.

The Advisory Committee on Immunization Practices and the Healthcare Infection Control Practices Advisory Committee recommend all health care personnel to be annually vaccinated for influenza<sup>(22)</sup>.

Around three quarters of unvaccinated staff had significantly poor vaccine knowledge, compared

with about two thirds in vaccinated staff (tab 4). This agrees with studies in Australia & Saudi Arabia<sup>(20, 21)</sup>. The difference may be attributed to health provider information after access to flu vaccine.

Postgraduate medical staff didn't show significantly more knowledge about flu vaccine than bachelor graduates (Tab 4). This clearly reflects gaps in Iraqi medical curriculum. As a result, health personnel would still pose risk of infecting patients, with possible hospital born influenza epidemics, even after vaccine availability<sup>(23)</sup>.

Poor influenza vaccine knowledge was high for doctors, dentists and pharmacists (Tab 4). Although insignificant, this may reflect defects in previous curriculum of colleges of medicine, dentistry and pharmacy, added to lack of MOH health education about influenza vaccine. As a result, the community would be ignorant about influenza vaccine presence.

On the other hand, the field of medical practice revealed significant statistical association with flu vaccine knowledge. Physicians showed highest good/fair knowledge about influenza vaccine. This emerged due to more direct contact with influenza patients compared with other branches. Medical staff enthusiasm with vaccine agrees with a study done in Slovenia<sup>(24)</sup>.

Surprisingly, pediatricians' knowledge was low, reflecting possible low enthusiasm to vaccinate children, in spite of seeing many children with influenza. Not unexpected, surgeons showed the lowest knowledge about the vaccine, as flue cases are not prevalent in their daily practice.

Consequently, medical staff knowledge lack would lead to antibiotics abuse for flu treatment, that is both useless and costly, increasing sickness absence.

On questioning health staff, the leading cause of not taking influenza vaccine was unavailability in health institutes. This can be regarded as positive

attitude towards vaccine once they know -via health education- it has become available in health institutes. Other reasons include lack of trust in the vaccine, or lack of knowledge about vaccine. These also necessitate health education campaigns targeting health staff. Study results differ from other research in Saudi Arabia where the most common reason for not being vaccinated was a miss belief that influenza vaccine is ineffective<sup>(21)</sup>. Also, current study disagrees with another research in Iran in which the most common reason for not being vaccinated was fear from adverse effects<sup>(19)</sup>, on the other hand, the most common reason for not being vaccinated in Australia was too busy medical staff<sup>(20)</sup>.

Study limitations include sampling from one governorate that is not entirely representative for all medical staff. Recall bias is another limitation of the study leading to underestimation.

**Conclusion:**

Medical staff Knowledge about influenza vaccine is low. Knowledge is not associated with gender, occupation, and education degree, but significantly associated with field of medical practice, and vaccination status. MOH Policy makers need to boost programs increasing knowledge about influenza vaccine, and update Medical staff via continuing medical education.

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