

# Knowledge and Practice of Mothers About Antenatal Tetanus Toxoid Vaccination in AL-Hilla City 2015.

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## Abstract

**Background:** Immunization remains one of the most important public health interventions and a cost effective strategy to reduce both the morbidity and mortality associated with infectious diseases. Uptake of vaccination services is dependent not only on provision of the services but also on other factors including knowledge and practice of women.

**Objectives:** To assess the knowledge and practice of mothers on antenatal tetanus vaccine in addition to their tetanus toxoid vaccination status.

**Methods:** Across sectional interview KAP study was conducted targeting a convenient sample of 400 Iraqi women in Al Hilla city\Iraq who attended the primary health care centers during the period 1st of February to the 30th of May 2015, mothers were interviewed to assess their knowledge and practice about Antenatal Tetanus immunization which were assessed by using a prepared questionnaires and then compared according to other variables.

**Results:** The study found that only 73 women (18.3%) had completed their tetanus vaccination. And 12 women (3%), unfortunately, were unimmunized, the remaining women had incomplete tetanus toxoid vaccination.

**Conclusions:** Mothers had an overall good knowledge and practice about Antenatal Tetanus vaccination. Less than one fifth of mothers had completed tetanus toxoid vaccination.

**Keywords:** immunization, mothers, Tetanus Toxoid, knowledge and practice.

## الخلاصة

**خلفية البحث:** لا تزال اللقاحات هي من اهم مقومات الصحة العامة التداخيلية ضمن استراتيجيات الكلفة والفائدة التي تهدف الى تقليل المراضة والوفيات المرتبطة بالأمراض المعدية. ان خدمات التطعيم لا تعتمد فقط على تقديمها ضمن الخدمات الصحية بل تعتمد على عوامل اخرى اهمها المعرفة والموقف والممارسة للأمهات حول اللقاحات.

**هدف الدراسة:** تقييم المعرفة والممارسة للأمهات حول تطعيم لقاح الكزاز.

**طرائق العمل:** دراسة مقطعية وصفية لتحديد المعرفة والتوجه او (الموقف) والممارسة لعينة قصدية من الامهات العراقيات في مدينة الحلة, استمرت هذه الدراسة من الاول من شهر شباط 2015 الى الثلاثين من شهر مايس من نصف السنة والتي تضمنت اربعمائة ام تم مقابلتهن لتقييم معرفتهن وتوجهتهن وممارساتهن في مجال اللقاحات الكزاز للأمهات.

**النتائج:** اوضحت هذه الدراسة ان فقط 73 ام وبنسبة (18,3%) كن قد اكملن لقاح توكسيد الكزاز وللأسف الشديد هنالك 12 أمراه وبنسبة (3%) لم يأخذن اللقاح على الاطلاق بينما الأمهات الباقيات أخذن تلقح توكسيد الكزاز بشكل غير كامل .

**الاستنتاج:** نستنتج من هذه الدراسة ان اقل من خمس الامهات اكملن لقاح توكسيد الكزاز قبل الولادة وكانت المعرفة والممارسة جيدة الى حد ما , توصي الدراسة بضرورة تفعيل زيادة التغطية بهذا اللقاح لحماية الام والطفل.

**الكلمات المفتاحية:** اللقاحات الأمهات، توكسيد الكزاز، المعرفة والممارسة

## Introduction:

Immunization is one of the most effective, safest and efficient interventions towards disease prevention, the World health Organization (WHO) defines Immunization as the process whereby a person is made immune or resistant to the infectious diseases ,by administration of vaccine (Bernsen *et al.*, 2011; WHO 2015).

In different countries with good vaccination programs people have better health, due to lower mortality of the infectious diseases (Fadil and Al-Lami, 2010).

The coverage rate of vaccination in many developing countries, has now reached steady rates despite good coverage of vaccination has been made, therefore we need to find urgent ways to increase the rate of immunization (Bofarraaj, 2011).

The success of vaccination programs relies sufficiently on high coverage to maintain herd immunity, the coverage rates in Iraq are different by the types of vaccines, for example, the coverage rate reported in 2010 regarding the tetanus toxoid for pregnant and non-pregnant women, was very low, only 0.1% of the targeted women (Ministry of health, 2015).

The causes of under immunization and low coverage are several and also related to the vaccine such as storage, transport and administration (Qidwai *et al.*, 2007).

Neonatal Tetanus is a significant health problem in many countries. Newborns can be successfully protected against tetanus by vaccinating women with Tetanus Toxoid, the coverage rate of vaccination with this vaccine proved to be affected by the knowledge, attitude and practice of women about antenatal tetanus toxoid vaccine (Basher, 2010).

This study was conducted to assess knowledge and practice of mothers about antenatal tetanus vaccine in addition to their TT vaccination status.

### **Subjects and Methods**

A cross sectional interview KAP study survey was conducted targeting 400 conveniently selected Iraqi mothers who attended 6 primary health care centers (PHCC) in Hilla city from the period 1<sup>st</sup> of February to the 30<sup>th</sup> of May 2015.

Mothers verbal consents were obtained prior to interviewing after explaining the objectives of the study to them.

Data were kept confidentially; names of participants were replaced with identification codes. Data were not disclosed to unauthorized.

#### **Inclusion criteria**

1. Mothers resident in Hilla city.
2. Mothers were recruited regardless of their age.

#### **Exclusion criteria**

1. Non-consenting mothers.

#### **Pilot study:**

Before starting to collect the information, a pilot study was carried out for two weeks. The pilot study done in AL – Baqir PHCC for the period of 1<sup>st</sup> to 14<sup>th</sup> of February 2015 aimed to test the validity and reliability of questionnaire and to detect any modification needed, to estimate the time needed for collection of data and to find any other difficulties. The pilot sample was excluded from the study sample.

#### **Sample size determination:**

Fisher's formula was used for sample size determination as recommended

$$n = Z^2 P (1-P)/d^2$$

Where n=desired sample size

Z=95% the corresponding value for the 95% confidence interval which= 1.96

P = proportion of women who had good knowledge, was assumed to be 0.5 to get the larger sample size.

d=the degree of precision was set at 0.05 at 95% confidence interval

$$n = \frac{(1.96)^2 \times 0.5 \times (1-0.5)}{(0.05)^2} = 384$$

Hence the desired sample size was 384 and approximated to 400 mothers proposed to be selected in this study.

### **Data collection tools**

Data were collected by using a pretested structured questionnaire which was administered to interview the mothers which pertain the following information:

#### **1) Socio-demographic and personal information:**

Maternal age, level of education for mothers and fathers (categorized into 8 categories; illiterate, read and write, primary school, intermediate school, secondary school, institute, university and higher education). Mothers' and fathers' employment status, income, household number of family, number of children, number of rooms in the house (then crowding index was calculated), and residence.

#### **2) Knowledge of mothers about antenatal maternal vaccination (Tetanus vaccine) questionnaires:**

These questionnaires include 7 items that assess the mothers' knowledge about the antenatal maternal vaccination (Tetanus vaccine) these include knowledge of the mothers about antenatal vaccination, diseases prevented by this vaccine, when to start antenatal vaccination?, times of antenatal vaccination, receiving information from the PHCs, did she received tetanus toxoid during pregnancy?, was vaccine received as per schedule? and then the mothers was asked about the number of doses received.

#### **3) Health related questionnaires:**

These include history of tetanus vaccination, complete or not and family history of vaccine preventable infectious diseases or side effects.

#### **Definitions of variables:**

**Crowding index:** The crowding index is one of the indicators of the socio-economic status of the population was defined as the total number of co-residents per household, excluding the newborn infant, divided by the total number of rooms, excluding the kitchen and bathrooms. The continuous variable was measured as mean and standard deviation and the higher mean index indicated the more household crowding

**Family income:** classified into three categories

**High income:** when the monthly income of the family exceed one million Iraqi Dinars (ID).

**Middle income:** when the monthly income of the family equal or more than 500000 (ID).

**Low income:** when the monthly income of the family less than 500000 (ID).

### **Statistical analysis**

Data of the 400 mothers were entered and analyzed by using the statistical package for social sciences version 22, IBM,US,2013. Descriptive statistics were presented as mean, standard deviation (SD), frequencies (No.) and proportions, the results and findings were introduced in tables, figures and paragraphs by using the Microsoft Office software, Words, version 2013, for windows.

### **Results**

**Table(1)** demonstrates the demographic characteristics of the studied participants, including the mothers' age, level of education, occupation, mothers and fathers employment, place of residence, family income, crowding index and number of children the mothers' did have.

**Table( 1) Socio-Demographic characteristics of the studied group.**

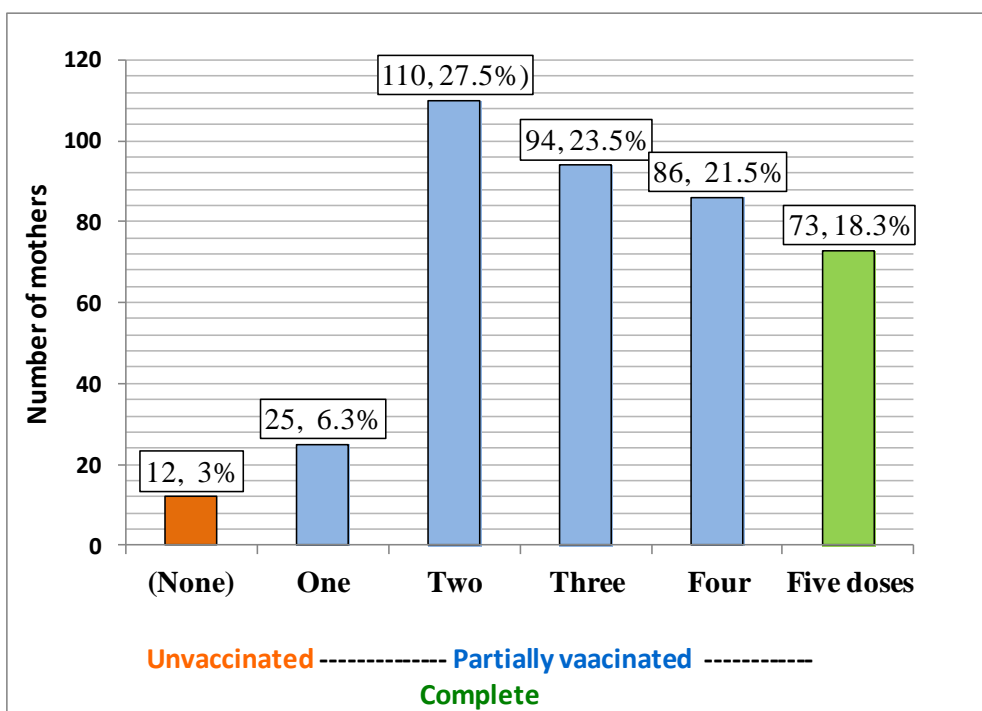
<b>Variable</b>	<b>No.</b>	<b>%</b>	
Mother's age (year)	≤ 20	21	5.25
	21 – 30	160	40.00
	31 – 40	170	42.50
	> 40	49	12.25
	Mean ± SD*	31.8 ± 7.2	-
	Range	18 – 53	-
Education	Illiterate	<b>48</b>	12.00
	Read and write	<b>73</b>	18.25
	Primary school	<b>54</b>	13.50
	Intermediate	<b>25</b>	6.25
	Secondary	<b>44</b>	11.00
	Institute	<b>65</b>	16.25
	College	<b>69</b>	17.25
	Higher	<b>22</b>	5.50
Mother's Employment	Employed	<b>119</b>	29.75
	Unemployed	<b>281</b>	70.25
Place of Residence	Rural	<b>136</b>	34.00
	Urban	<b>264</b>	66.00
Family income	Low	<b>185</b>	46.25
	Middle	<b>194</b>	48.50
	High	<b>21</b>	5.25
Crowding index	Mean ± SD*	<b>2.76 ± 1.4</b>	
	Range	<b>1 – 7</b>	
Number of children	1 – 2	<b>179</b>	44.75
	3 – 4	<b>120</b>	30.00
	≥ 5	<b>101</b>	25.25

\*standard deviation

**Table(2)** shows that 376 (94%) of mothers heard about the antenatal tetanus vaccination, 131 women (32.75%) knew the disease that prevented by this vaccine, only 85 women (21.25%) knew when to start tetanus vaccination, 334 women (83.5%) obtained their information about this vaccination from ante natal clinic, 160 (40%) of the mothers had received tetanus vaccine as per schedule but only 73 women (18.3%) had completed their tetanus vaccination (5 doses). However, 12 women (3%), were unimmunized (didn't receive the vaccine at all), 25 women (6.3%) received only one dose, 110 (27.5%) received 2 doses, 94 (23.5%) received 3 doses, 86 (21.5%) received 4 doses and 73 women (18.3%) had complete 5 doses as shown in **figure( 1)** .

**Table( 2) Frequency distribution of mothers’ knowledge and practice about antenatal tetanus vaccine (N=400).**

Item	Yes		No		Don't know	
	No	%	No	%	No	%
Hear about AN tetanus vaccination of the mothers	376	94.00	8	2.00	16	4.00
Know the disease prevented by AN tetanus vaccination	131	32.75	137	34.25	132	33.00
knowing When to start AN tetanus vaccination	85	21.25	44	11.00	271	67.75
Obtaining information about AN vaccination from an AN clinic	334	83.50	50	12.50	16	4.00
Receiving tetanus toxoid per schedule	160	40.00	223	55.75	17	4.25
Complete TT vaccination	73	18.3	327	80.7	-	-



**Figure( 1) Frequency distribution of status and doses of tetanus vaccine.**

**Discussion**

Immunization is one of the most effective, safest and efficient interventions towards disease prevention (Al-lela *et al.*, 2011).

Mothers’ knowledge, attitude and practices regarding immunization can potentially affect the immunization or vaccination uptake( Bernsen *et al.*, 2011; Al-Shemari , 2006; Qidwai *et al*, 2007, Perry *et al.*, 2007; Al Lela *et al.*, 2013,).

The present study is targeting Iraqi mothers who attended 6 selected primary health care centers in Hilla city, during the study period a total of 400 mothers were interviewed.

The current study assessed the mothers’ knowledge and practice about antenatal tetanus vaccine in addition to their tetanus toxoid vaccination status. Despite the majority of the mothers were heard about antenatal maternal tetanus vaccination,

only (32.75%) had adequate knowledge about the disease prevented by this vaccine, (21.25%) of participants knew when to start tetanus vaccination.

Majority of surveyed mothers obtained information about antenatal tetanus vaccination from an antenatal tetanus clinic. Only (40%) of women recruited in this study received tetanus toxoid as per schedule while only (18.3%) had completed the 5 doses of tetanus toxoid which is relatively higher than the rate reported in a study carried out in Karbala province (Hadeel and Iqbal, 2014) which reported that only (8.5%) of pregnant women completed the doses (5 doses were received) and this might be attributed to intra country variations in the coverage rate of this vaccination, also it is higher than that reported by (Basher, 2010) who reported that only (11.36%) of the studied group had completed the 5 doses.

In a study conducted in Peshawar, Pakistan, Tetanus Toxoid coverage was assessed in women of reproductive age. The overall coverage was 65% and was influenced by the extent of information about tetanus toxoid vaccination, lady health worker's home visits and antenatal care visits (Afridi *et al.*, 2005).

Additionally, other study carried out in Dhaka reported that More than two-thirds of the respondents had knowledge about tetanus toxoid immunization before the start of their reproductive life but only half of them were completely vaccinated (Tanjida *et al.*, 2009).

## **Conclusions and Recommendations**

### **Conclusions**

1. Low proportion of mothers had completed their tetanus vaccination.
2. Higher proportions of mothers had inadequate knowledge and practice about antenatal tetanus vaccination of, and low proportion had completed their TT vaccination.

### **Recommendations**

1. Improvement on Supplemental immunization activities such as National Immunization Days and catch-up campaigns.
2. Immunization campaigns should be conducted frequently to overcome the lower proportion of complete vaccination.
3. Strengthen antenatal clinic by training more health care workers to increase the immunization coverage and identify the missed opportunities since this finding shows that majority of mothers attended antenatal clinics received good information.
4. Targeting women in productive age in educational program about tetanus vaccination, and conducting tetanus vaccination campaign frequently, this better to be done in the secondary schools of girls, institutes and colleges.
5. Vaccines should be made available to every mother and child and provided in all primary health care centers during the whole days of the week.
6. Further studies are recommended.
7. Public awareness about the importance of vaccination should be raised using different types of mass media, religious and community leaders.

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