

## Knowledge of Health Providers in Salahiddin towards Integrated anagement of Neonate & Child Health in Year 2014

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### Abstract

This study aims at reducing morbidity and mortality among children under-five years by assessing the Knowledge of health providers towards Integrated Management of Neonate & Child Health strategy in PHCCs of Salahiddin Governorate after one year of implementation.

This was comparative cross-sectional study conducted from January, 12th to May, 29th, 2014. Data was collected from 84 health providers (42 trained and 42 non-trained) who are working in 20 Primary Health Care Centers (PHCCs); 7 of them were in Tikrit (Salahiddin's Capital) and the remaining 13 PHCCs were in the other districts of SA (Tooz, Beji, Dor, Samarra, Balad and Dijel), the aim is to assess knowledge, attitude and practice of those workers (HPs) towards Integrated Management of Neonate and Child Health (IMNCH).

The mean age of total respondents was  $(33.18 \pm 5.82)$  Years and more than half 44(52.4%) of them lies in age group of 30-39 Years old. The vast majority (75%) of participants, 63, were females compared to 21(25.0%) of them who were males. More than two third (69.0%) of participants were paramedical, 58, compared to 26(31.0%) of them who were doctors. More than one third (41.7%) of participants, 35, spent 5-10 years in their position compared to 27(32.1%) of them who spent less than five years and 22(26.2%) of them who spent more than ten years in their position.

Healthcare providers had mean score of  $(73.10 \pm 11.53)$  for knowledge. Results of this study revealed that the trained healthcare provides had statistically significantly higher knowledge  $(76.88 \pm 12.99)$  compared to non-trained healthcare providers  $(69.29 \pm 16.60)$

Other findings of this study showed that the trained medical staff had statistically significantly higher knowledge  $(89.77 \pm 4.53)$  compared to trained paramedical staff  $(71.10 \pm 11.25)$

Furthermore, this study found that the trained healthcare providers from Tikrit city had statistically significantly higher knowledge  $(85.05 \pm 6.60)$  compared trained healthcare providers from districts  $(70.13 \pm 13.17)$

This study demonstrated that there was a significant difference in knowledge, attitude and practice in IMNCH among the trained and non-trained health providers and between those from different districts and between the doctors and other paramedical staff.

### Introduction

Every year, almost 10 million children under the age of five years in developing countries die from readily preventable and treatable illnesses such as diarrheal dehydration, acute respiratory

infections (ARI), measles, and malaria. In half of the cases, illness is complicated by malnutrition (1,2).

What is the Integrated Management of Neonate and Child Health Strategy?

The strategy of Integrated Management of Neonate-Child Health

(IMNCH) was initially adopted by the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) in 1992, and eventually introduced in an increasing number of countries since 1995(3). At that time; its nomenclature was, Integrated Management of Child Illness (IMCI) which stands up to June, 2013. Thereafter, the name was updated to the current description (IMNCH). IMNCH strategy includes elements of preventive as well as curative measures and it addresses the most common conditions that affect young children (4). Moreover, IMNCH seeks to reduce childhood mortality and morbidity by improving community and family practices based on mothers' health education and home management(4).

The Integrated Management of Neonate and Child Health in Iraq:

Integrated Management of Neonate-Child Health (IMNCH) was officially introduced in Iraq since 1998 as a strategy to address the most important causes of under-five mortality and morbidity using an integrated approach in line with the primary health care policy (7-9). This was done through three phases: the introduction phase (October 1998 - October 1999), the implementation phase (May 2001- May 2005) and the expansion phase in between 2006 and 2012 which indicated the progress of IMNCH implementation in Iraq as illustrated below in Table 1.

Recently in 18th of December, 2013, both Ministries of Health of Iraq and the Kurdistan Regional Government, together with WHO, UNICEF, the United Nations Population Fund (UNPF) and

other health partners launched Iraq's national acceleration plan for maternal and child health (8). Salahiddin Governorate was the last but not the least who implemented IMNCH strategy. Details are shown in Tables 2 & 3.

The Integrated Management of Neonate and Child Health Impact Indicators: According to WHO reports in 2015, Mortality Rates (MR) of children under five and infants under one year witnessed (10). A remarkable improvement in (IMNCH) impact indicators (Neonatal mortality rate, Infant mortality rate and Under-five mortality rate) were reported between 2006 and 2013 consequent to implementation of the IMNCH in PHCCs all-over Iraq (10,11) as illustrated in Table 4.

### Objectives of The Study

1. To obtain knowledge levels of trained Health Providers (HPs) who are distributed in primary healthcare centers of Salahiddin.
2. To compare between trained and non-trained HPs' knowledge.
3. To compare between trained medical & paramedical HPs' knowledge.
4. To compare of knowledge between trained HPs from Tikrit and trained HPs from other Districts.

### Subjects & Methods

Target Population: 24 PHCCs of Salahiddin were included:

8 PHCCs from Tikrit, 16 PHCCs from other Districts : ( Balad:2, Samarra:2, Dijel:2, Dor:2, Beji:2, and Tooze: 3).



**Study Tool:** It was semi-structured questionnaire. An extensive review of the available training materials which were distributed by MOH to all Primary Health Care Centers (PHCCs) (83-89) (95-103)

The questionnaire was designed with 20 questions distributed as follows; 2 questions were about preventive measures(1&7); 3 questions about danger signs (2,3&4); 5 questions about pneumonia(5,6,8,9&10); there were 5 questions about diarrhea(11,12,15,16&17); 3 questions about dehydration& fluids(13,14&18); the 19th was about growth ; and the last, but not the least, question was about breast feeding.

The scoring of the questions in knowledge questionnaires was ranging from 4-6 marks according to importance,, questionnaire had final score of 100 points.

**Pilot Study:** The first version was in English language and pre-piloted with a randomly selected sample of 10 doctors. Two questions were not convenient. As a result, these questions were revised and a second pilot study was done to another 10 candidates outside the sample; 5 doctors and 5 were nurses, answers were applicable then considered.

#### Inclusion Criteria:

1. All the PHCC that having a working unit of IMNCH.
2. All trained medical and paramedical staff who were practicing IMNCH strategy for more than 6 months and attending more than one workshop training with a course ranging between 6-

11 days. Over 80% (34) of trained HPs had 3-4 training courses.

#### Exclusion Criteria:

1. Four PHCCs were excluded as they didn't have working IMNCH unit (the 3 Main PHCCs of Shirgat and Al Jamaie Main PHCC in Tikrit).
2. HPs who have IMNCH experience of less than 6 months (as in 2 H.P.s in Beji and 1 in Dor).
3. HPs who were not willing to participate (as 1 in Samarra and 1 in Tooz).
4. HPs who were absent in day of data collection (1 in Tooz).

Total excluded HPs = 13 ( 6 in Shirgat, 1 in Tikrit, 2 in Begi, 2 in Tooz, 1 in Samarra and 1 in Dor )

So, Included Population = 54 - 13 = 42

#### Statistical Analysis:

The Statistical Package for Social Sciences(SPSS;version 16) was used for data entry and analysis. Statistic Significant t-test was indicated when P value of  $\leq 0.05$  was regarded.

### Results

Cronbach's alpha reliability statistics was done to the questionnaires' scores and the result were 0.822 which indicated a reliable questionnaire.

Validity statistic test was found to be inconvenient because there were no standards of Knowledge questionnaire to compare with.

A total of 84 questionnaires were collected from (42) trained health providers and (42) non-trained health providers participated in the study. About 26 (31.0%) of participants were doctors

compared to 58 (69.0%) paramedical staff.

As shown in Tables 5 & 6: Seven primary health centers from Tikrit city compared to 13 primary health centers from other districts have been included in this study.

Three primary healthcare centers (Ebn Rushd, Al Razi and Al Alam) from Tikrit city have the highest proportion of trained and non-trained staff compared to other centers.

Table 7 presents the percentages of different socio- demographic factors the of respondents.

Trained and Non-Trained Healthcare Providers:

As in Table 8; Trained HPs had statistically significantly higher knowledge ( $76.88 \pm 12.99$ ) compared to non-trained: ( $69.29 \pm 16.60$ ) ( $t(82) = 2.335$ ,  $p = 0.037$ ), with a difference of 7.60 (95%CI, 1.12 to 14.10).  
Trained Medical and Paramedical Staff  
Trained medical staff had statistically significantly higher knowledge ( $89.77 \pm 4.53$ ) compared to trained paramedical staff ( $71.10 \pm 11.25$ ) ( $t(40) = 5.743$ ,  $p = 0.001$ ), with a difference of 18.66 (95% CI, 12.09 to 25.23), as illustrated in Table 9.

Trained Staff from Tikrit and Districts

Trained HPs from Tikrit city had statistically significantly higher knowledge ( $85.05 \pm 6.60$ ) compared to trained healthcare from districts ( $70.13 \pm 13.17$ ) ( $t(40) = 4.487$ ,  $p = 0.004$ ), with a difference of 14.92 (95% CI, 8.20 to 21.64).

Knowledge, in Relation Health Centers:

The highest (86.8) knowledge mean scores were from Ebn Rushd healthcare center in Tikrit city and the lowest (53.0) knowledge mean scores were from Al Wahda healthcare

center in Al Dijel district, as shown below in Table 12.

## Discussion

### Trained Medical and Paramedical Staff:

Trained medical staff (doctors) had significantly higher knowledge compared to trained paramedical (nurses) staff. Doctors had already undergone focus training courses during their study in their hospital services compared to nurses.

These results are supported by findings of Nigerian study in 2014 indicated that IMNCH implementation is affected by inadequate professional aids like wall charts and chart booklets for proper IMNCH implementation and nurses have had to improvise materials when taking care of a sick child (75).

Trained Staff from Tikrit and Districts:

The study revealed that the trained HPs who are working in PHCs in the districts other than Tikrit city have limited knowledge ( $70.13 \pm 13.17$ ), compared to trained health providers ( $85.05 \pm 6.6$ ) who are working in PHCs in Tikrit. In fact, the former had received more IMNCH training programs. Similarly, findings from Senegal (64), showed that the IMNCH training had improved HPs' knowledge skills, and the opportunities to recognize IMNCH strategy guidelines, especially for PHC nurses who are regularly attending to under- fives compared to their nursing colleagues working in other areas as documented in WHO(2008) (71).

### Knowledge in Relation to Primary Health Centers:

the highest total mean scores were obtained in Tikrit PHCCs, this was



expected because they were included in most of the training courses done by MHC Unit, as well as the Primary Health Care Project in Iraq (PHCPI) which was advocated by USAID (United States Agency for International Development) since December, 2012 up to June, 2014 and was confined to Tikrit. Al Tooz PHCCs came next for they are well known of highly expert and abundant sub staff, while the least mean scores were in recorded in PHCCS of Samarra because their trained staff was changed into employees with lesser experience.

The highest mean scores of knowledge were collected from Ebn Sena and Al Razi PHCCs which were considered as a project for model clinics by PHCPI, whereas Samarra and Dijel PHCCs gained the least scores again due to the poor expert staff and deficient doctors.

### Conclusions

1. Trained health providers had significantly higher knowledge, than the non-trained health providers.
2. Trained doctors have significantly higher knowledge than the paramedical staff.
3. Trained health providers who were working in Tikrit city had significantly higher knowledge, than those in other districts.
4. HPs with age group between 30 – 39 years of had the highest mean scores of both knowledge, while the lowest mean scores were obtained by the older age group (above 39 years). However, all age groups showed insignificant knowledge statistic difference.

5. Male health providers showed no significant statistic differences of knowledge, compared with females.

6. There was insignificant statistic difference among health providers' knowledge, in relation with years of service.

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Table 1: Progress of The Integrated Management of Neonate & Child Health Implementation in Iraq from 2006 to 2012(\*).

No.	Items	2006	2012
1	Provinces which have started implementing IMNCH	22.2%	88.9%
2	Health facilities implementing IMNCH	0.9%	77.3%
3	Health providers trained in IMNCH	189	5268
4	Case management training courses in IMNCH	5	90

Table 2: Training Courses Conducted in Salahiddin by 2012.

No.	Courses	Tikrit	Districts
1	Courses for doctors	2	0
2	Courses for paramedical	4	0
3	Trained medical	10	3
4	Trained paramedical	25	1
5	Duration of each course	7 days	N/A
6	PHCC included	7	2 (Dor& Dijel)

Table 3: Distribution of Trained Health Providers in Salahiddin by The End of Year 2012.

No.	Courses	Tikrit	Districts
1	Trainer nurses	3	6
2	Trainer doctors	10	3
3	PHCC included	7	25
4	Trained medical	25	30
5	Trained paramedical	25	81
6	Total examined children	708	2139

Table 4: Impact indicators for child health status in Iraq(\*\*).

No.	Impact indicator	2006	2013
1	Neonatal mortality rate(per 1000 live births)	63	18.7
2	Infant mortality rate (probability of dying by age 1 per 1000 live births)	102	28.0
3	Under-five mortality rate (probability of dying by age 5 per 1000 live births)	125	34.0



Table 5: Distribution of Respondents According to Occupation in Tikrit Centers.

No.	Health Centre	Trained		Non-trained	
		Doctors	Paramedical	Doctors	Paramedical
1	Ebn Sina	2	2	2	2
2	Al Razi	2	2	2	2
3	Al Alam	1	3	1	3
4	Ebn Rushd	1	1	1	1
5	Al Oja	0	2	0	2
6	Erbeda	1	1	1	1
7	Albo Ajeel	0	1	0	1
	Total	7	12	7	12

Table 6: Distribution of Respondents According to Occupation in Districts' Centers.

No.	Health Centre	Trained		Non-trained	
		Doctors	Paramedical	Doctors	Paramedical
1	Al Muallimeen - Samarra	1	1	1	1
2	Al Rashid - Samarra	0	2	0	2
3	Model- Aldor	0	1	0	2
4	Main 1- Aldor	0	1	0	1
5	Al Tooz - Tooz	1	1	2	0
6	Al Askary-Tooz	1	1	1	1
7	Al Jumhoria -Tooz	1	1	0	2
8	Al Hussein-Dijel	0	2	0	2
9	Al Wahda-Dijel	0	2	0	2
10	Al Zahraa-Balad	1	1	1	1
11	Balad -Balad	1	1	1	1
12	Beji-Beji	0	1	0	1
13	Al-Ifray -Samarra	0	2	0	1
	Total	6	17	6	17

Socio-Demographic Characteristics of Health Providers:

Table 7: Distribution of Age, Gender, Years of Service and Occupation among Respondents.

No.	Variables	Total sample	Trained	Non-trained
1	Age (mean + SD)	33.18 + 5.82	34.36 + 6.07	32.09 + 5.41
	Age group			
	20-29	28(33.3%)	11(26.2%)	17(40.5%)
	30-39	44(52.4%)	25(59.5%)	19(45.5%)
	> 39	12(14.3%)	6(14.3%)	6(14.3%)
2	Gender			
	Male	21(25.0%)	9(21.4%)	12(28.6%)
	Female	63(75%)	33(78.6%)	30(71.4)
3	Years of Service			
	< 5 Years	27(32.1%)	13(30.0%)	14(33.3%)
	5-10	35(41.7%)	17(40.5%)	18(42.9%)
	> 10 Yeas	22(26.2%)	12(28.5%)	10(23.8%)
4	Occupation			
	Doctors	26(31.0%)	13(31.0%)	13(31.0%)
	Paramedical	58(69.0%)	29(69.0%)	29(69.0%)

Table 8: Descriptive Statistics of knowledge between Trained and Non-Trained Respondents.

Variables	Trained (n=42)	Non-trained (n=42)	df, t-test, p-value	95% CI
Knowledge	76.88 ± 12.99	69.29 ± 16.60	(t (82) = 2.335, p = 0.037)	1.12- 14.10

Table 9: Descriptive Statistics of Knowledge between Trained Medical and Paramedical Respondents.

Variables	Medical (n=26)	Paramedical (n=58)	df, t-test, p-value	95% CI
Knowledge	89.77 ± 4.53	71.10 ± 11.25	(t (40) = 5.743, p = 0.001)	12.09 - 25.23

Table 10: Descriptive Statistics of Trained Respondents' Knowledge in Tikrit and other Districts.

Variables	Tikrit n=19	Districts n=23	df, t-test p-value	95% CI
Knowledge	85.05 ± 6.60	70.13 ± 13.17	(t (40) = 4.487, p = 0.004)	8.20 - 21.64

Knowledge Scores: Detailed below in Table 11.



Table 11: Descriptive Statistics of Knowledge Scores among Trained Respondents.

No.	Knowledge Statements	Mean	SD	Scores	%
1	The 2 effective preventive interventions in children less than 5 years are:	4.70	0.81	5	94.0
2	Main Symptoms of sick child are:	4.64	1.30	5	92.8
3	General Danger Signs of child are:	3.12	1.66	4	78.0
4	The most important Danger sign in a 3 months old child is	3.12	1.04	4	78.0
5	Normal Respiratory Rate in a child aged:	3.77	1.66	5	75.4
6	Signs of Severe Pneumonia in a 6-months old child are:	3.76	2.15	5	75.2
7	In a 5 months child with cough; Indications for urgent referral are:	3.81	1.49	5	76.2
8	A 3-years old child with cough & RR: 55/ min is classified as:	3.76	1.57	6	62.7
9	A 10- months child with cough of 4 days, RR:52/min, chest in drawing & no strider; how would you classify him;	5.60	1.37	6	93.3
10	Classify a child with Pneumonia	3.52	1.36	5	70.4
11	Key Questions to mother of a child with diarrhea are:	3.61	0.96	5	72.2 0
12	What do you look and feel (Signs) in an 8-months old child with diarrhea:	3.21	0.72	4	80.3
13	Classify Skin Pinch according to time of return:	3.16	0.70	4	79.0
14	Signs of sever dehydrations are:	2.64	1.11	4	66.0
15	A 12- months child with diarrhea of 4 days, no danger signs, irritable, sunken eyes, normal drinking, skin pinch returns in 3 seconds is classified as:	2.93	0.81	4	73.3
16	An 8-months child with diarrhea of 13 days, lethargic, no sunken eyes, drinks poorly & skin pinch goes slowly; is classified as:	3.88	1.80	6	64.7
17	Features of Mild Dehydration are:	5.24	1.72	6	87.3
18	A 5-months child with 15 days of diarrhea; no danger signs, irritable, sunken eyes, drinks eagerly & immediate return of skin pinch; is classified as:	4.40	1.47	6	73.3
19	The range of normal body weight of a 3 months old baby is:	3.53	1.50	5	70.6
20	Advantages of Breast feeding are:	4.38	0.91	6	73.0

Table 12: Distribution of Knowledge, Mean Scores in Primary Health Care Centers of Salahiddin.

No.	Health center	Knowledge
1	Ebn Sina	86.8
2	Al Razi	88.5
3	Al Alam	84.8
4	Ebn Rushd	91.0
5	Al Oja	77.0
6	Erbeda	84.0
7	Albo Ajael	72.0
8	Al Muallimeen -Samaraa	74.5
9	Al Rashid -Samarra	55.0
10	Model- Aldor	60.0
11	Main 1- Aldor	67.0
12	Beji-Beji	68.0
13	Al Tooz -Tooz	85.5
14	Al Askary-Tooz	85.5
15	Al Jumhoria -Tooz	80.0
16	Al Hussein-Dijel	58.0
17	Al Wahda-Dijel	53.0
18	Al Zahraa-Balad	78.0
19	Balad -Balad	74.5
20	Al-Ifraz -Samaraa	65.0