

Assessment of Providers' Performance in Implementing Child Health Services in Primary Health Care Centers in Al-Ramadi City

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Abstract:

Background: The demand for high quality health care for children has been constantly increasing. Performance assessment of primary care providers in this context facilitates the control of whether objectives are being achieved by primary health care settings and gives information about which areas of their performance should be improved.

Objectives: The aim of the study was to assess primary health care providers' performance in the implementation of selected child health care Programmes: 1- Acute respiratory tract infection Programme , 2- Expanded Programme of immunization, and 3- Growth monitoring Programme.

Methodology: A cross sectional observational health center- based study was conducted during the period from October 2012 to February 2013 in ten PHC centers in Al-Ramadi City, 7 main and 3 sub centers, chosen randomly and constituted 25% of all PHC centers in the area. The providers' performance was assessed and validated in case management for 638 children under 5 years of age, attending those centers with acute respiratory infection. Providers' Performance in implementing EPI and growth monitoring Programmes on 300 children was also evaluated through observation of process.

Results: Results showed that history taking and examination performed were less than adequate for the majority of cases in both main and sub centers. The sensitivity of doctors in charge to diagnose pneumonia and severe pneumonia was very low (23.2%) in main centers, and their specificity was 99.4%. While the sensitivity of medical assistants in sub centers was 0% and specificity of 100%.

Providers performance was very satisfactory in the technique of vaccine administration in both main and sub centers, and satisfactory in recording 66.3% of vaccination cards in main centers and only for 6.2% in sub centers. On the other hand, their performance in health education on vaccination was poor for 30% of vaccinated children in main centers, and for all (100%) of children attending sub centers.

Results also showed that Providers performance in weight and growth monitoring was satisfactory for nearly half of attending children in main centers, but poor in sub centers. Their performance in nutritional education was poor for 50% of children in main centers and in all (100%) in sub centers.

Conclusion: Providers' performance in implementing child health care Programme was suboptimal in main primary health care centers and poor in sub centers.

The study highlights the need for Programme planners and health policy makers to undertake a major review of the quality of child health care delivery focusing more on issues relating to providers' performance, and with particular emphasis on health workers training and appropriate use of standard case management guidelines.

Keywords: Performance Assessment, Child Health Care, Primary Health Care Centers.

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Introduction:

The demand for high quality health care for children has been constantly increasing. Performance assessment of primary care providers in this context facilitates the control of whether objectives are being achieved by primary health care (PHC) settings and gives information about which areas of their performance should be improved. Thus, it assists in a better use of limited resources and, consequently, contributes to improving health related quality of life for children⁽¹⁾.

The performance of PHC systems have traditionally been assessed in terms of coverage of services with little attention to quality of the services provided⁽²⁾. Although coverage is important, assessment of quality of services deserves equal attention because quality can be a strong determinant of service use by clients⁽³⁾.

In addition, high morbidity and mortality rates in children attending PHC can sometimes be ascribed to poor health worker skills and inappropriate diagnosis and treatment⁽⁴⁾. Thus, technical quality is assessed by evaluating the health workers performance skills and ability to correctly diagnose and treat illnesses⁽⁵⁾.

The implementation of Basic Health Services Package (BHSP) by PHC centers ensure the timely delivery of cost-effective, integrated and standardized health services tailored to meet the priority health issues faced by the majority of the population⁽⁶⁾. Child health and immunization services provided by PHC main and sub centers include promotive, preventative and curative services, such as:

- Growth monitoring for under 5.
- Immunization according to schedule of Expanded Programme on Immunization (EPI).

- Integrated Management of Childhood Illnesses (IMCI) which involves Standard Case Management of acute respiratory infection (ARI) in children less than 5 yrs.

of age, ear problems and Standard Case Management of Diarrhea less than 5 yrs.

Information, education and communication activities also involved for all child health care services in PHC centers⁽⁶⁾.

Acute respiratory infections (ARI) are major causes of infant and early childhood morbidity and mortality in the developing countries. Studies showed that pneumonia was number one killer of under five children in developing countries. The technology to control ARI is available and it is relatively simple and cheap. However morbidity and mortality of ARI remain high because of failure of health care providers including doctors in recognizing pneumonia early and also due to delay in health care seeking practices of the families⁽⁷⁾.

Considering the enormity of the problem of ARI, the World Health Organization has been encouraging and helping member countries since early eighties to take appropriate measures to reduce mortality due to ARI.

The main strategy of ARI control programme is based on standard case management strategy as recommended by the World Health Organization. The early and correct identification of signs and symptoms of pneumonia by health care providers is the corner stone of standard case management⁽⁸⁾.

Health care providers are expected to be able to categorize ARI cases into: a. severe pneumonia, b. pneumonia, and c. no pneumonia.

Unable to suck or drink and/or chest, in drawing indicate severe pneumonia and the child should be referred to hospital urgently after the first dose of antibiotic therapy⁽⁷⁾.

Growth Monitoring forms the basis of comprehensive child health care. It is defined as the regular recording of a child's weight, coupled with some specified remedial actions if the weight is abnormal

in some way and health education for the parents⁽⁹⁾.

An examination of the strengths and weaknesses of traditional growth monitoring and nutrition-education Programmes shows that the two are ideally suited to be complementary, according to Griffiths⁽¹⁰⁾. Growth monitoring makes it possible to give advice appropriate to the individual child's needs at the time it is needed. Thus nutrition education can be made more effective by making it more specific, action-oriented, individualized, and relevant. It will differ from traditional nutrition education in being tailored to the specific child's needs⁽¹⁰⁾.

Surveys performed prior to the implementation of IMCI intervention reveal that many sick children were not properly assessed and treated by health care providers, and that their parents were poorly advised⁽⁴⁾.

No previous studies had been conducted in this context in Aramadi City, thus the aim of the study was to assess PHC providers' performance in the implementation of selected Programmes: 1- Acute respiratory tract infection Programme (ARI), 2- Expanded Programme of immunization (EPI), and 3- Growth monitoring.

Methodology:

This is a cross sectional observational health center- based study conducted during the period from October 2012 to February 2013 with the aim of assessing the quality of child health services provided by PHC centers in Alaramadi City through assessing providers' performance in implementing selected child health care Programmes.

The study was conducted in ten PHC centers in Alaramadi City, 7 main and 3 sub centers chosen randomly and constituted 25% of all PHC centers in the area.

1- For acute respiratory infection (ARI) Programme:

The researchers assessed and validated the providers' performance in case management for children under 5 years of age attending primary health care centers with ARI depending on guidelines adopted by World Health Organization for case managements. All children attending with symptoms and signs of ARI during the time of the study were enrolled which were 638 (518 in main centers and 120 in sub centers). All doctors and medical assistants in charge of managing these cases were involved in assessing performance (14 doctors in PHC main centers and 4 medical assistants in primary health care sub-centers). The assessment involved:

A- Adequacy of history taking and examination performed: Providers were observed for history taking and examination performed, and then compared with ideal check list according to WHO guidelines for ARI case management. Scoring system adopted for assessment was adopted from other studies^(3,11-13) as follows: 0 score: when history and examination not done, 1 scores: when done but incomplete, 2 scores: when completely done as ideal check list.

The adequacy of history taking and for examination was classified as "satisfactory" for score 2, "less than adequate" for score 1, and "poor" for score 0.

B- Validity of providers in diagnosing pneumonia and severe pneumonia: Observation of providers during their clinical encounter for diagnosing ARI cases was done first without drawing the providers' attention, then by the researcher according to checklist and standard guidelines of WHO case management which was considered as gold standard for assessment⁽¹⁴⁾.

Thus each child was labeled positive or negative case of pneumonia or severe pneumonia by both providers and the researcher.

Then the validity (sensitivity and specificity) of the providers' ability to diagnose pneumonia was calculated.

2-For Expanded Program of Immunization (EPI):

Assessment of adequacy and completeness of vaccination was done through direct observation of providers in: taking information on the child vaccination card, correct way of vaccine given, and provision of health education on vaccination. Health care workers were directly observed during their encounter with a total of 300 children in vaccination rooms of all centers studied (172 in main centers, and 128 in sub-centers).

Scoring of the activities adopted^(3,11) was: Score 0 when any of the above activities was not done, thus performance was considered poor. Score 1: when any of the above activities was done but incomplete or incorrect, thus performance was considered inadequate. Score 2: when any of the above activities was done completely and correctly, thus performance was considered satisfactory. Vaccine administration was evaluated by the researcher according to standard ways adopted by WHO. Health education on vaccination should include: increasing parents awareness about benefits of vaccination, informing mothers about possible side effects of the vaccine administered, and advice for next visits.

3- For Growth Monitoring Programme:

Providers' Performance in implementing growth monitoring Programme was also evaluated through observation of the following activities:

a- Measuring weights of children and plotting the readings on growth charts for comparison with standard curves according to their ages.

b-Health and nutritional education for parents about growth and development of their children.

The same sample of 300 children who attended for vaccination was also included in growth monitoring Programme evaluation in both main and sub centers. Each activity was compared with standards adopted by MOH and WHO. Providers' activities were scored after comparison in a same way as for EPI Programme.

Statistical analysis: Analysis of data was carried out using statistical package for social sciences (SPSS) version 18.0. Most results were descriptive, but standard statistical tests (such as chi-square, Z and t-tests) were used when appropriate. All P values less than 0.05 were considered statistically significant.

Results:

1- Evaluation of the implementation of ARI Programme:

a- Adequacy of history taken: For the majority (443/518[85.5%]) of consultations managed in all main health centers, history taking was gauged to be less than an adequate, whilst at 60 (11.6%) consultations, satisfactory history was taken. Only 15 (2.9%) were of poor quality (not asked).

In sub centers, for the majority (83/120[69.2%]) of consultations, history taking was also found to be less than adequate, whilst at 37 (30.8%) consultations, no history was taken (poor quality). No satisfactory history taking was observed.

b- Examination performed: The majority of providers' performance, in conducting this task, in main centers was rated as less than adequate (78.8% of cases). In 11.2% of consultations, no examination was done (poor quality). Only in 10%, examination was completely done as ideal chick list (satisfactory).

In sub centers, providers' performance in examinations was also rated as less than adequate in 59.2% of cases. However, it was poor in 40.8% (not performing any examination) which is significantly higher than 11.2% poor

performance rate of main centers' providers ($P < 0.000$).

Table 1- Providers' performance in history taking and examination of ARI cases compared with standards of WHO case management

Health center (n=no. of consultations)	History taken			Examination done		
	Satisfactory	less than adequate	poor	Satisfactory	less than adequate	poor
Main PHC centers (n=518)	60 11.6%	443 85.5%	15 2.9%	52 10%	408 78.8%	58 11.2%
PHC sub centers (n=120)	0 0	83 69.2%	37 30.8%	0 0	71 59.2%	49 40.8%

C- The validity of providers for diagnosing pneumonia and sever pneumonia:

From the 518 children that were examined by investigator and the doctors in charge, doctors were able to diagnose 36 pneumonia and sever pneumonia cases out of 155 diagnosed by investigator. Thus, the sensitivity of the doctors in charge was 23.2%. This means that they missed 76.8%

of true cases; however, they were able to recognize 361 as non-pneumonia cases out of 363 recognized by the investigator. The specificity of doctors in charge in diagnosis of pneumonia was 99.4%, and only 0.6% of the non-pneumonia cases were falsely diagnosed as pneumonia by the investigator.

Table 2- Validity assessment of health care workers in main PHC centers

diagnosis of pneumonia & sever pneumonia by health care providers		diagnosis of pneumonia & sever pneumonia by investigator (standard)		
		+ve	_ve	
	+ve	36	2	38
	_ve	119	361	480
		155	363	518

In sub centers, 120 children were examined by the investigator and medical assistants in charge. Medical assistants did not diagnose any case out of 32 cases that were diagnosed by the investigator.

Thus the sensitivity of medical assistants in charge to diagnose cases of pneumonia and sever pneumonia was 0%. This means that they missed all cases.

However, they were able to recognize all non-pneumonia cases (88) recognized by the investigator. The

specificity of medical assistants in diagnosis of pneumonia and sever pneumonia was 100%.

Table 3-Validity assessment of health care workers in PHC sub centers:

diagnosis of pneumonia & sever pneumonia by health providers	diagnosis of pneumonia & sever pneumonia by investigator (standard)			
		+ve	_ve	
	+ve	0	0	0
	_ve	32	88	120
		32	88	120

2-Evaluation of the implementation of Expanded Program of Immunization (EPI) and Growth monitoring Programme.

Table 4 shows that the main centers providers' performance in recording vaccination cards was satisfactory for 114 out 172 (66.3%) children attending for vaccination. While in sub centers the majority (93.8%) of vaccination cards were inadequately recorded. Health care workers' performance in sub centers was satisfactory in only 6.2% of records.

Direct observation of the technique of vaccine administration revealed that the providers' performance was satisfactory in both main and sub centers (97.1% and 97.7%) respectively.

Health education and advices were provided inadequately to 45.4% of vaccinated children mothers in main centers. Only 41/172 (23.8%) received

good EPI health education (satisfactory performance). In sub centers, no health education practiced in all centers studied (100% poor performance).

Regarding growth monitoring, Table 5 shows that growth monitoring was satisfactorily performed for nearly half (48.8%) of children in all main centers, while it was not done in all sub centers (100% poor performance).

Education to mothers on growth and nutrition was inadequately performed to 50% of children eligible for growth monitoring in main centers. In all sub centers, nutrition education was not given to all children mothers (100% poor performance).

Table 4- Providers' performance rates in implementing EPI Programme

Health center	Main PHC centers n=172	PHC sub centers n=128
Vaccination record:		
-Satisfactory performance	114(66.3)	8 (6.2)
-Inadequate performance	58 (33.7)	120(93.8)
-Poor performance	0 (0)	0 (0)
Vaccine administration:		
-Satisfactory performance	167(97.1)	125(97.7)
-Inadequate performance	5 (2.9)	3 (2.3)
-Poor performance	0 (0)	0 (0)
Health education:		
-Satisfactory performance	41 (23.8)	0 (0)
-Inadequate performance	78 (45.4)	0 (0)
-Poor performance	53 (30.8)	128(100)

Table 5-Providers' performance rates in implementing growth monitoring programme:

Health center	Total main PHC centers n=172		Total PHC sub centers n=128	
	No.	%	No.	%
Growth monitoring:				
-Satisfactory performance	84	(48.8)	0	(0)
-Inadequate performance	16	(9.3)	0	(0)
-Poor performance	72	(41.9)	128	(100)
Nutritional education:				
-Satisfactory performance	0	(0)	0	(0)
-Inadequate performance	86	(50.0)	0	(0)
-Poor performance	86	(50.0)	128	(100)

Discussion:

Primary health care systems provide largely curative and preventive interventions that are known to be effective. This means that achievement of quality in PHC facilities requires the proper performance of these interventions according to prescribed standards.

Assessment is usually thought of as a measurement of the performance of an individual against a predefined standard ⁽¹⁾. Assessing staff performance in providing healthcare is more than just important; it has a direct impact on child health and safety ⁽¹⁵⁾.

Skills of health workers were assessed in this study by direct observation of how they managed children who reported to the PHC centers with ARI or for vaccination.

Health workers' performances were observed during sick children encounter for acute respiratory infection.

For the majority of consultations in PHC main centers, history taken was less than adequate in most of the cases (85.5%).

The majority of health providers ask about the chief complaint and duration of present illness only, they did not ask about feeding problems, fever, convulsion, and other symptoms according to checklist of WHO case management. In sub-centers, for 69.2% of consultations by medical assistants, history taken was less than adequate, while the rate of poor quality care was (30.8%) where no history was taken.

With regards to examination performed, the majority of providers' performances in main and sub centers were also rated as less than adequate (85.5%, 59.2% respectively), the rate of poor quality performance was 11.2% of consultations in main centers and 40.8% in sub centers (no examination performed). In all centers (main and sub-centers) the examination done was only by auscultation; while counting of breath per minute, measurement of temperature, examination for chest indrawing were not done.

These results agree with results obtained in a study conducted in south-east Nigeria, where the performance skills of the health workers in case management of acute respiratory infection were also less than adequate or poor⁽³⁾. Also the results in this study are similar to results of a study conducted in India, when they recorded a poor health providers' performance in history taking (36.3%) , and examination (20.41%) of cases of acute respiratory infection⁽¹¹⁾. Boonstra in Botswana, also reported that health care provider's adherence to guidelines on history taking was suboptimal in acute respiratory infection, and poor on examination (63% and 18% respectively)⁽¹⁶⁾.

In rural Yemen, a study revealed that the quality of care provided for ARI management for children was fair in 89.4% and a satisfactory performance of 6.3%

was achieved by medical doctors but only 3.6% of medical assistants⁽¹⁷⁾.

Rowe in Benin evaluated Health workers' performance against IMCI guidelines and also concluded that there was incomplete assessment of children's signs and symptoms by the providers⁽¹⁸⁾.

Regarding the validity of health care workers in diagnosing pneumonia and sever pneumonia, results revealed that the sensitivity of the doctors working in main PHC centers was low (23.2%). This means that they missed 76.8% of true cases. While their specificity in excluding pneumonia and sever pneumonia was high (99.4%).

The results obtained in this study agree with another study conducted in Saudi Arabia, which reported that guidelines were not followed by health care provider in diagnosis and treatment of acute respiratory infection⁽¹⁹⁾. A study by Phillips-Howard⁽²⁰⁾ evaluated diagnostic and prescribing practices of health workers in 11 rural health facilities in Kenya also found gross errors in diagnosis and treatment resulting from limited use of WHO guidelines by the health workers. The results were also consistent with the results of a similar study done in Alexandria, Egypt in which the main deficiency was in detecting the dangerous signs and in missing all cases of "severe pneumonia" and "very severe disease" needing referral to higher levels⁽²¹⁾. In New Guinea primary health care setting, health workers diagnosed 37% of ARI cases as pneumonia, compared to 69% in the same children assessed independently by trained ARI surveyors using case management guidelines (&&). Other studies also confirmed that the ability of the health care workers to identify and classify ARI cases is low⁽²²⁻²⁴⁾. However, a low false-negative rate (high sensitivity) is more important than a low false-positive rate (high specificity) because of a need

for urgent and precise treatment, referring for admission , and to reduce mortality due to severe disease ⁽²⁵⁾.

Low sensitivity of health care workers in diagnosing pneumonia can be attributed to deficient basic training and / or shortage of further refreshing training courses on issues related to standard case management of ARI. Another reason is patient loads and short examination time that made the providers do not follow the guidelines in a right way.

Regarding EPI assessment, it was found that documentation in vaccination cards was satisfactory in two thirds (66.3%) of records of children attending main PHC centers, which is lower than that reported in Rashmi study ⁽¹¹⁾ , and Sunderlal et al study ⁽²⁶⁾ which revealed that EPI documentation was excellent (satisfactory for 83% of children vaccinated).

While the situation in PHC sub-centers was different, the majority of vaccination cards (93.8%) were inadequately recorded by health workers and the satisfactory performance was very low (6.2%). Low documentation is explained by the fact that the sub-centers are headed by medical assistants, no doctors available to complete the English items present in vaccination card, in addition to improper training in recording in vaccination cards.

On the other hand, vaccine administration (technique) by health providers was found very satisfactory in main centers and sub-centers for 97.1% 97.7% of children. The high rate of satisfactory performance of health workers in this aspect at all centers can be attributed to long staff experience in conducting this technique, and nearly all health workers training concentrated on vaccine administration rather than on recording or health education. This result was higher than those reported in a study

in India where the satisfactory performance of vaccine administration was for 81.86% of children ⁽¹¹⁾.

Shabila et al, when conducted a qualitative assessment of Iraqi PHC centers in 2012, reported that immunization programme was among the positive aspects of health services provided in Iraq and that providers' performance in this aspect was almost satisfactory in most PHC centers because of financial, logistical and training support of this Programme from international organizations such as WHO, UNICEF as well as from Iraqi MOH. As a result, staff members involved in this Programme are better trained, received better incentives and are better established in their position ⁽²⁷⁾.

Regarding vaccination health education, nearly half of health workers provided inadequate health education to mothers of vaccinated children in main centers, except in one main center (training center) where the health workers performance was satisfactory in this aspect. These results were opposite to the results recorded in India where the performance of health workers were excellent (satisfactory for 83.1% of children ⁽¹¹⁾).

Poor providers' performance about health education was reported for all (100%) of children vaccinated in sub-centers.

The reason behind inadequate and poor performances in health education for vaccination in both main and sub-centers is because of load and busy centers, and/or insufficient training of health care workers on that aspect of care so their knowledge about issues concerning vaccination was inadequate or poor. Also the supervision of the vaccination program in these centers does not make high attention to this aspect of care.

Assessing the performance of health care providers in implementing growth monitoring Programme revealed that performance was satisfactory for nearly half of children attending main PHC centers, when the child age is calculated and proper weight and height were measured and plotted on growth chart. This activity was not done in one main center and in all PHC sub-centers, thus, it was considered poor performance. This result disagree with Rashmi et al study who reported that age calculation and growth monitoring record maintenance were very good (88.89%) and the weighing method was also good (68.25%) ⁽¹¹⁾.

Regarding health and nutritional education on growth monitoring, the advices given to mother should include issues on proper nutrition and feeding, weight gain or loss, supplementary food; and balanced diet. The health workers performance was inadequate for 50% of attendants and poor in 50% in PHC main centers. While in one main center and all sub-centers the rate of health care worker performance in this aspect was poor (not providing any kind of such education).

Factors that contribute to poor performances in growth monitoring, in spite of presence of weighting scales and height tape measures, could be related to unawareness of the health workers in conducting this task, in addition to insufficient training, experience and follow up measures.

A study revealed that Lack of education materials, providers' and maternal time constraints, and lack of in-service training for health workers were the main challenges to providing nutritional education ⁽²⁸⁾.

The results obtained in this study are similar to the results obtained in another study in India where they reported high performance rates of health care workers in

practicing growth monitoring but regarding the health education it was poor ⁽¹¹⁾.

Data from Thailand has indicated that growth monitoring per se was ineffective in changing nutritional status but that it was effective when combined with nutrition education ⁽²⁹⁾.

A study in Auganda revealed that nutritional educational intervention was effective in improving caregivers' food selection practices and meal planning skills and improved children's nutritional status and growth ⁽³⁰⁾.

In conclusion, this study showed inadequacy in performing child health services in PHC centers. It is important to note here that this study provides only a snapshot assessment of providers care for children in PHC setting in Al-Ramadi City, and there is a need for further evaluation studies using other indicators. Findings from this study highlight the need for programme planners and health policy makers in the study setting to undertake a major review of the quality of health care delivery in PHC centers, focusing more on issues relating to providers' performance, and with particular emphasis on health worker training, appropriate use of standard case management guidelines, and the development and implementation of protocols for systematic supervision.

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