

Trends in the quality of health care for children aged less than 5 years in Afghanistan, 2004–2006

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Objective To study trends in the quality of the health care provided to children aged less than 5 years in Afghanistan between 2004 and 2006. In particular, to determine the effect on such quality of a basic package of health services (BPHS), including Integrated Management of Childhood Illness (IMCI), introduced in 2003.

Methods In each year of the study, 500–600 health facilities providing the BPHS were selected by stratified random sampling in 29 provinces of Afghanistan. We observed consultations for children aged less than 5 years, interviewed their caretakers, interviewed health-care providers and measured adherence to case management standards for assessment and counselling in a random sample.

Findings The quality of the assessment and counselling provided to sick children aged less than 5 years improved significantly between 2004 and 2006. A 43.4% increase in the assessment index and a 28.7% increase in the counselling index ($P < 0.001$) were noted. Assessment quality improved significantly every year and was statistically associated with certain characteristics of the provider (being a doctor, having a higher knowledge score, being trained in IMCI, being part of a “contracting-in” mechanism and providing a longer consultation time) and the child (being younger and having a female caretaker). Counselling quality was also significantly associated with these characteristics, except for provider cadre and child age. The presence of clinical guidelines and the frequency of supervision were significantly associated with improved quality scores in 2006 ($P < 0.05$ and < 0.01 , respectively).

Conclusion Quality of care improved over the study period, but performance remained suboptimal in some areas. Continued investments in Afghanistan’s health system capacity are needed.

Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español. الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.

Introduction

Afghanistan has some of the poorest health indicators in the world. According to available estimates, in 2002 Afghanistan had an infant mortality rate of 165 per 1000 live births, an under-five mortality rate of 257 per 1000 live births and a maternal mortality ratio of 1600 per 100 000 live births.¹ Many different factors impede access to health services and their effective delivery; they include lack of health infrastructure and human resource capital (especially female health providers), low literacy and other cultural barriers, and poor road access and security conditions. Since 2002, the Ministry of Public Health and its donor partners have made considerable investments in Afghanistan’s health system infrastructure and human resources.^{2–5} The Ministry of Public Health prioritized the implementation of a basic package of health services (BPHS) to improve health service coverage and quality. This implementation has been facilitated in part through contracts with nongovernmental organizations (NGOs) and the Ministry of Public Health providers. Under an innovative “contracting-in” mechanism, state providers are sometimes contracted by the government under the same conditions and targets set for NGOs and are eligible for performance bonuses.⁶ Services are implemented at three health facility levels: basic health centres, comprehensive health centres and district hospitals. According to a report,

in 2006 approximately 82% of the Afghan population had access to basic health services.⁶

Since 2004, the BPHS has been assessed through Afghanistan’s National Health Service Performance Assessment. This assessment provides an overall measure of system performance and patient care by employing a balanced scorecard (used to manage performance in large and complex organizations) to measure six performance domains: patient and community perspectives, staff perspectives, capacity for service provision, service provision, financial systems and overall vision.^{7,8} The overall score for health system performance improved between 2004 and 2006.^{8–10} However, these gains need to be sustained, and additional efforts are needed to address those performance indicators that remain suboptimal.

More than 100 countries now use the Integrated Management of Childhood Illness (IMCI) strategy to address the major disease burden in children aged less than 5 years. The IMCI strategy is integrated into Afghanistan’s BPHS and is included in the country’s health and nutrition sector strategy.^{1,11} Despite controversies and debates on global investments in IMCI, the strategy remains a promising cost-effective way to improve quality of child health care and reduce child mortality.^{12–18} Afghanistan initiated IMCI training in 2003. The training is organized by NGOs that provide the BPHS, with IMCI facilitators from the Ministry of Public Health and donor organizations. More than 2300 health providers (mostly physicians) and 25

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(Submitted: 13 May 2008 – Revised version received: 29 January 2009 – Accepted: 5 March 2009 – Published online: 25 August 2009)

facilitators have been trained by means of the standard 11-day course.

This paper focuses on a subset of the data from the balanced scorecard to assess trends in the quality of health care for children less than 5 years in 2004–2006 and the factors associated with those changes.

Methods

This study, which was approved by the Institutional Review Board at Johns Hopkins University and the Ministry of Public Health Ethical Review Board in Afghanistan, presents data from the 29 provinces of Afghanistan that were included annually in the National Health Service Performance Assessment from 2004 to 2006. The methods used for designing the instruments and sampling health facilities are described elsewhere.^{8,9} Under the BPHS, each level of health-care facility has a specified level of human resource and infrastructure support. For each year of the study, up to 25 facilities were selected from each province through stratified random sampling of 3 district hospitals, 7 comprehensive health centres and 15 basic health centres.

Trained survey teams comprising clinicians, nurses or vaccinators were selected from each province to perform the observations and interviews. Observation of case management was based on a systematic sample of five children aged 2 months to 5 years. Children were selected using a random starting point and a sampling interval determined by the average number of new patients seen in a day. Characteristics of patients and providers were similar across the sample of cases and providers observed. Providers included clinicians, nurses and others responsible for clinical management of sick patients in the facility. To determine facility characteristics, four providers randomly selected from a list of providers were interviewed. To determine assessment and counselling quality, 10 indicators related to patient assessment were aggregated to create an assessment index and 5 indicators related to counselling were aggregated to create a counselling index. Each indicator was given equal weight and scored on a percentage scale.

In relation to IMCI, we considered the extent to which health-care providers adhered to case management procedures. To identify determinants of the quality of clinical and interpersonal care, we

used bivariate and multivariate analysis of patient, provider and facility-related factors known to affect such quality.

More than 98% of the caretakers and providers sampled responded. The same facilities, providers and patients were not compared, since the sample was selected randomly each year.

We used standard procedures for quality control of data editing in the field, followed by double data entry and consistency checking. Initially, we used univariate analysis to examine the pattern of responses and extent of missing values to construct the indexes. The missing values (< 5%) were omitted from the analysis and confirmed to be missing at random. We used bivariate analysis to compare differences for indicators of assessment and counselling between 2004 and 2006 and to compare various groups of the selected independent variables. Multiple linear regression models were constructed using ordinary least squares to compare the quality index between the groups, with clustering at the facility level accounted for using Huber-White estimates of standard error. The model fit was examined using residual plots, and multicollinearity was assessed by estimating the variance inflation factor.¹⁹

Results

Table 1 describes the study sample. Overall, about one-third of the children observed were less than 1 year of age, and diarrhoea was the most prevalent presenting symptom. About 80% of the cases were seen by doctors or assistant doctors in all 3 years of the study, and the rest by nurses or midwives. The proportion of female health-care providers interviewed was higher in 2006 than in 2004.

Quality of care for sick child consultations was determined by adherence to selected indicators on taking a history, physical examination and counselling. Most assessment and counselling indicators improved significantly between 2004 and 2006 (Table 2). For example, the proportion of the providers observed who checked for danger signs in the child's ability to drink or breastfeed increased from about 40% in 2004 to about 60% in 2006; those who asked about diarrhoea, fever and cough or difficulty in breathing increased from less than 70% in 2004 to more than 80% in 2006; and those who explained the disease condition to the caretaker and provided

instructions for home care of the sick child and administration of medications increased from about 55% in 2004 to about 68% in 2006.

In some areas, performance remained poor in 2006, despite significant improvements over the study period. These areas included checking the signs for anaemia (17% in 2006), oedema (19%) or the immunization card (29%); and giving instruction on signs and symptoms requiring an immediate return (< 45%). Factors that did not improve significantly over the study period were providers explaining adverse reactions to medications and measures to undertake when these reactions occurred.

The mean scores for both the assessment and counselling indexes improved significantly between 2004 and 2006 (Table 2).

The results of bivariate analysis of several factors (patient, provider and facility-related) that affect the quality of care are shown in Table 3 and Table 4.

Provider cadre and sex: Performance of health-care providers across all cadres improved between 2004 and 2006. Doctors performed significantly better than assistant doctors and nurses in both assessment and counselling in 2005 and 2006. Sex differences were evident, with female providers showing significantly higher adherence to assessment standards than male providers in 2005 and 2006, and to counselling standards in 2006.

Child sex and age: There were no significant differences for assessment and counselling quality in relation to the sex of the child, but adherence to assessment standards was higher when providers were attending children less than 2 years of age.

Caretaker sex: Children accompanied by female caretakers received significantly better care at facilities in 2005 and 2006 than those who had male caretakers.

Consultation time: In all the years of the study, providers who spent 10 or more minutes in a consultation provided better care, as shown by significantly better assessment and counselling quality.

Type of health facility: Assessment quality was significantly better in comprehensive health centres in 2005 and in district hospitals in 2006. The quality of counselling was significantly better in comprehensive health centres than in district hospitals in 2004 and 2005, but the difference was not significant in 2006. Mean scores indicate that over the years of the study care improved

in all types of facilities, without any observable trend between types of facilities.

Provider knowledge, satisfaction, refresher training and IMCI training: The proportion of providers who received refresher training was more than 13% greater in 2006 than in 2004. The increase in the proportion trained in IMCI was modest; more providers reported IMCI training in basic health centres and comprehensive health centres than in district hospitals. Knowledge scores were significantly higher in 2006 than in 2004. Provider knowledge, job satisfaction, refresher training and IMCI training were associated with better performance in assessment and counselling.

Supervision, availability of clinical guidelines and shura-e-sehie (village health committees): Facilities that received six or more supervisory visits in the previous 6 months and those with case management guidelines provided significantly better quality of care in 2006. The presence of active *shura-e-sehie* also significantly improved the quality of care in 2006.

Type of contracting: Although there was an overall improvement in performance in all contracting mechanisms between 2004 and 2006, providers in facilities with a contracting-in mechanism had higher mean scores for assessment and counselling across the 3 years of assessment than those in facilities with other contracting mechanisms.

Table 5 shows the results of multiple linear regression analysis using selected patient, provider and facility characteristics. The quality of care was higher in 2005 and 2006 than in 2004, upon holding other variables constant. Other factors that were significantly associated with quality of care were high provider knowledge, presence of IMCI-trained providers, support of facilities by the contracting-in mechanism, the provider being a doctor, a consultation time of at least 10 minutes, having a female caretaker and the child being aged less than 24 months. Other factors that were significant in the bivariate analysis were not significant predictors of quality in the multivariate analysis. The model explained 18% of the variance in assessment quality and 10% of the variance in counselling quality.

Discussion

Efforts to restructure the health system in Afghanistan have improved overall health-care provider training and

Table 1. Characteristics of children included in study of the quality of health care provided to children aged less than 5 years, by year, Afghanistan, 2004–2006

Characteristic	Year		
	2004 No. (%)	2005 No. (%)	2006 No. (%)
Age in months			
2–11	546 (25.9)	1084 (38.9)	955 (33.4)
12–23	546 (25.9)	654 (23.5)	736 (25.7)
24–35	475 (22.6)	470 (16.9)	520 (18.2)
36–47	268 (12.7)	267 (9.6)	334 (11.7)
48–59	271 (12.9)	312 (11.2)	313 (10.9)
Sex			
Male	1297 (51.3)	1496 (53.9)	1487 (52.4)
Female	1232 (48.7)	1282 (46.2)	1350 (47.6)
Major presenting symptoms			
Diarrhoea	1087 (42.6)	1326 (47.6)	1276 (44.6)
Fever	560 (21.9)	521 (18.7)	575 (20.1)
Cough/difficulty breathing	431 (16.9)	432 (15.5)	494 (17.3)
Other ^a	474 (18.6)	508 (18.3)	513 (17.9)
Caretaker			
Mother	1619 (70.5)	1795 (66.5)	1908 (66.8)
Father	409 (17.8)	627 (23.2)	603 (21.1)
Other female	169 (7.4)	138 (5.1)	162 (5.7)
Other male	100 (4.4)	141 (5.2)	184 (6.4)
Type of health facility			
Basic health centre	296 (52.7)	364 (58.6)	378 (61.1)
Comprehensive health centre	221 (39.3)	215 (34.6)	199 (32.2)
District hospital	45 (8.0)	42 (6.8)	42 (6.8)
Provider interviewed^b			
Doctor	367 (25.7)	519 (36.1)	582 (34.5)
Assistant doctor	152 (10.7)	461 (32.1)	431 (25.5)
Nurse	325 (22.8)	103 (7.2)	54 (3.2)
Other ^c	582 (40.8)	355 (24.7)	622 (36.8)
Sex of provider interviewed^b			
Male	1047 (75.2)	924 (65.7)	1058 (64.3)
Female	346 (24.8)	483 (34.3)	587 (35.7)
Provider observed^d			
Doctor	1673 (65.6)	1907 (68.4)	2189 (76.6)
Assistant doctor	510 (20.0)	316 (11.3)	135 (4.7)
Nurse	295 (11.6)	467 (16.8)	445 (15.6)
Other ^c	74 (2.9)	97 (3.5)	89 (3.1)
Sex of provider observed^d			
Male	2345 (94.2)	2560 (92.0)	2646 (92.7)
Female	144 (5.8)	223 (8.0)	209 (7.3)

^a Skin infection, pus, injury, earache, jaundice, etc.

^b Data from interviews of health-care providers in each health facility. The sex of the provider was missing for some of the data.

^c Midwife, auxiliary midwife, pharmacist, technologist and vaccinator.

^d Data from case-management observations of health-care providers and patients.

satisfaction, the availability of drugs and equipment, service provision, the availability of clinical guidelines, infrastructure and the use of the health management information system. This is illustrated by the balanced scorecard results for 2004 to 2006.⁹

This study demonstrates that specific improvements are also being made

in the quality of the clinical care provided to children aged less than 5 years, specifically in relation to IMCI. The results indicate significant improvements between 2004 and 2006, particularly in the assessment of danger signs and presenting complaints. Nonetheless, the mean assessment and counselling index in 2006 yielded an average score

Table 2. Provider performance with respect to patient assessment and counselling in study of the quality of health care provided to children aged less than 5 years, by year, Afghanistan, 2004–2006

Assessment and counselling indicator	2004 (n = 2552)		2005 (n = 2787)		2006 (n = 2858)		Change from 2004 to 2006 (%)
	No.	%	No.	%	No.	%	
Asked about or checked if							
Drinking or breastfeeding ^a	1030	41.8	1472	54.8	1742	63.0	+21.1*
Vomiting everything ^a	946	38.6	1545	57.6	1838	66.4	+27.8*
Lethargic or unconsciousness ^a	423	17.2	748	27.9	754	27.2	+10.1*
Having convulsions ^a	402	16.3	330	12.3	555	20.1	+3.8*
Presenting complaint							
Diarrhoea ^a	2012	81.5	2360	87.7	2454	88.7	+7.2*
<i>If diarrhoea present</i>							
Duration	993	90.0	1484	97.1	1450	96.3	
Blood in stool	808	73.2	1143	74.8	1113	73.9	
Skin turgor	510	46.2	662	43.3	832	55.3	
Cough/difficulty breathing ^a	1818	73.6	2064	76.7	2252	81.4	+7.8*
<i>If cough present</i>							
Duration	556	79.7	822	91.0	847	90.9	
Stridor/wheezing	202	28.9	284	31.5	266	28.5	
Respiratory rate	226	32.4	280	31.0	415	44.5	
Lifted shirt	445	63.7	635	70.3	643	69.0	
Listened with stethoscope	447	64.0	599	66.3	654	70.3	
Fever in previous 24 hours ^a	1174	47.5	1815	67.6	2143	77.4	+29.9*
Checked							
Child's palm for anaemia ^a	141	5.7	289	10.7	467	16.9	+11.2*
Child's feet/ankles for oedema ^a	178	7.3	296	11.0	533	19.3	+11.9*
Child's immunization card ^a	299	12.2	556	20.7	790	28.6	+16.4*
Assessment index	2359	34.1	2663	42.6	2746	48.9	+14.8*
Counselled caretaker on							
Disease, causes and course ^b	738	29.9	966	36.0	1320	47.9	+17.9*
Home care ^b	1487	60.7	1925	71.7	2101	75.9	+15.2*
How to administer medications ^b	1836	75.2	2074	77.2	2242	81.1	+5.9*
Adverse reactions ^b	343	14.1	391	14.6	217	7.8	-6.3*
Signs for immediate return to health facility ^b	472	19.3	815	30.3	1188	42.9	+23.6*
Counselling index	2396	39.7	2666	45.9	2752	51.1	+11.4*

* $P < 0.001$.^a Assessment index.^b Counselling index.

of only about 50 points out of a possible 100. These findings strengthen the case for continued investments to support provider adherence to standards of care. Failure to check immunization status and provide appropriate counselling about the administration of medications and the conditions that signify a need to return to the health facility will have a detrimental effect on overall patient outcome and continuity of care. Given that Afghanistan has exceptionally high rates of infant and child mortality, providers must be motivated to provide better counselling and health education to those caring for young children.

One question is “What type of health worker provides better care?” In a study from Morocco, adherence to IMCI tasks was significantly higher for nurses (compared to doctors), female providers, providers who did not identify supervision as a constraint, younger children, children accompanied by their mothers, and those presenting with multiple complaints.²⁰ In other studies, nurses and female providers have also been found to deliver better care than doctors and male providers, respectively.^{21,22} In our study, female health-care providers gave better care to younger children and showed better performance than their male counter-

parts in 2006, but doctors performed better than other providers.

Supervision and training are clearly important factors; for example, providing six or more supervisory visits and IMCI training of assistant doctors and nurses were associated with better quality of care in 2004.²³ Similarly, in a study from Uganda, the quality index was 44% higher in facilities with at least one provider trained in IMCI,²⁴ a finding that further strengthens the case for greater investments in IMCI. We found that the proportion of providers receiving refresher training increased by 16% between 2004 and 2006, but the proportion of IMCI-trained providers

Table 3. Results of bivariate analysis of quality of care for children aged less than 5 years based on provider and patient characteristics, by year, Afghanistan, 2004–2006

	2004			2005			2006			Change ^d (%)
	No. ^a	Mean ^b	<i>P</i> -value ^c	No. ^a	Mean ^b	<i>P</i> -value ^c	No. ^a	Mean ^b	<i>P</i> -value ^c	
Assessment quality										
Health-care provider										
Doctor	1591	34.4		1886	43.7		2173	50.9		+16.5**
Assistant doctor	485	34.2	0.82	316	41.4	0.06	134	45.1	< 0.001	+10.9**
Nurse	283	32.4	0.13	461	39.3	< 0.001	439	40.4	< 0.001	+8.0*
Provider sex										
Male	2198	34.0		2502	42.4		2588	48.6		+14.5**
Female	107	34.3	0.89	158	45.7	0.05	156	54.4	< 0.001	+20.1**
Child sex										
Male	1196	33.6		1440	42.2		1429	48.2		+14.6**
Female	1143	34.4	0.36	1215	43.2	0.21	1299	49.7	0.08	+15.3**
Child age in months										
< 24	1427	36.4		1661	44.3		1623	51.8		+15.3**
≥ 24	932	33.5	< 0.001	1002	39.9	< 0.001	1123	44.7	< 0.001	+11.2**
Caretaker sex										
Female	1642	34.6		1837	44.2		1982	51.6		+16.9**
Male	478	32.6	0.05	747	38.5	< 0.001	764	42.0	< 0.001	+9.4**
Consultation time in minutes										
< 10	1861	32.0		2355	41.6		2375	46.4		+14.5**
≥ 10	438	42.7	< 0.001	307	50.6	< 0.001	368	64.6	< 0.001	+22.0**
Facility type										
Basic health centre	1200	33.7		1496	41.5		1607	48.2		+14.5**
Comprehensive health centre	959	34.2	0.15	973	44.7	< 0.001	931	49.3	0.21	+15.1**
District hospital	200	36.1	0.12	194	41.6	0.89	208	52.9	< 0.001	+16.8**
Counselling quality										
Health-care provider										
Doctor	1612	38.8		1891	45.4		2117	52.4		+13.6**
Assistant doctor	498	43.1	< 0.001	313	53.0	< 0.001	133	50.1	0.30	+6.9*
Nurse	286	39.1	0.87	462	42.9	0.07	442	45.0	< 0.001	+5.9*
Provider sex										
Male	2232	39.6		2503	45.9		2597	50.6		+11.0**
Female	109	43.3	0.16	159	44.5	0.51	153	60.9	< 0.001	+17.6**
Child sex										
Male	1210	38.7		1440	46.4		1431	50.7		+12.0**
Female	1164	40.6	0.09	1218	45.4	0.34	1302	51.7	0.32	+11.1**
Child age in months										
< 24	1453	41.6		1661	46.2		1630	51.6		+10.0**
≥ 24	943	41.0	0.59	1005	45.4	0.47	1122	50.4	0.24	+9.5**
Caretaker sex										
Female	1674	40.5		1839	46.9		1984	53.1		+12.6**
Male	480	38.1	0.08	746	42.9	< 0.001	767	45.9	< 0.001	+7.8**
Consultation time in minutes										
< 10	1893	37.1		2359	44.7		2376	49.3		+12.2**
≥ 10	446	49.8	< 0.001	306	54.8	< 0.001	371	63.2	< 0.001	+13.5**
Facility type										
Basic health centre	1212	41.7		1501	44.9		1608	51.0		+9.3**
Comprehensive health centre	974	37.6	< 0.001	973	48.5	< 0.001	937	51.1	0.91	+13.5**
District hospital	210	38.0	0.06	192	40.5	0.03	207	52.2	0.54	+14.2**

P* < 0.01; *P* < 0.001.^a Total in each category.^b Mean performance score.^c *P*-value for difference between groups with the reference category indicated in italics.^d Change in the mean performance index for each category variable between 2004 and 2006.

Table 4. Results of bivariate analysis of quality of care for children aged less than 5 years based on facility characteristics, by year, Afghanistan, 2004–2006

	2004			2005			2006		
	No. ^a	Mean ^b	P-value ^c	No. ^a	Mean ^b	P-value ^c	No. ^a	Mean ^b	P-value ^c
Assessment quality									
Provider knowledge ^{d,e}									
Low	92	29.1		6	28.7		7	41.6	
Medium	291	34.7	0.01	303	41.0	0.07	319	44.8	0.64
High	87	37.4	< 0.001	273	44.7	0.02	256	53.5	0.09
Provider satisfaction ^{d,f}									
Low	64	30.2		40	41.1		27	42.2	
Medium	303	33.9	0.09	427	41.9	0.76	377	46.4	0.26
High	71	33.7	0.22	113	46.0	0.10	173	54.4	< 0.001
Refresher training									
No staff	175	33.3		82	37.4		119	46.6	
Some staff	108	34.7	0.49	140	42.0	0.05	145	48.3	0.46
All staff	195	34.0	0.67	366	44.1	< 0.001	323	49.4	0.16
Training in IMCI									
No staff	239	32.8		204	40.7		251	45.1	
Some staff	99	35.9	0.12	173	43.8	0.06	168	51.1	< 0.001
All staff	140	34.4	0.35	211	43.5	0.08	168	51.3	< 0.001
Supervision (prior 6 months)									
< 6 visits	214	34.0		134	41.4		126	44.7	
≥ 6 visits	302	34.4	0.81	443	42.9	0.36	468	49.5	0.01
Clinical guidelines									
None	63	33.1		33	37.8		15	39.0	
Some	352	33.6	0.84	541	43.0	0.08	564	48.7	0.05
<i>Shura-e-sehie</i> ^g									
None or not active	303	34.6		259	40.0		165	45.4	
Active	209	33.5	0.50	334	44.6	0.00	421	49.6	0.02
Contracting									
Other	153	35.1		125	41.7		111	42.3	
Contracted in	58	42.0	0.01	61	49.1	0.00	59	67.4	< 0.001
Contracted out	323	31.9	0.05	409	41.9	0.89	424	47.5	0.01
Counselling quality									
Provider knowledge ^{d,e}									
Low	92	32.9		6	44.7		7	46.3	
Medium	290	40.5	0.01	303	43.1	0.87	319	45.3	0.90
High	87	43.6	< 0.001	273	49.8	0.56	256	57.6	0.16
Provider satisfaction ^{d,f}									
Low	64	34.3		40	54.2		27	39.2	
Medium	302	39.5	0.09	427	45.1	0.01	377	48.3	0.03
High	71	42.1	0.04	113	48.0	0.13	173	57.4	< 0.001
Refresher training									
No staff	175	40.0		82	43.3		119	47.6	
Some staff	108	38.0	0.47	140	43.8	0.89	145	49.3	0.53
All staff	194	39.4	0.80	366	48.0	0.08	323	52.4	0.04
Training in IMCI									
No staff	239	38.8		204	45.2		251	46.9	
Some staff	99	39.1	0.91	173	45.4	0.84	168	52.5	0.01
All staff	139	40.4	0.52	211	48.3	0.15	168	54.4	< 0.001
Supervision (prior 6 months)									
< 6 visits	213	38.9		134	47.8		126	44.8	
≥ 6 visits	302	41.0	0.29	443	45.9	0.38	468	52.0	< 0.001
Clinical guidelines									
None	63	39.6		33	47.4		15	36.8	
Some	351	39.0	0.86	541	46.6	0.84	564	50.8	0.01

(Table 4, cont.)

	2004			2005			2006		
	No. ^a	Mean ^b	P-value ^c	No. ^a	Mean ^b	P-value ^c	No. ^a	Mean ^b	P-value ^c
<i>Shura-e-sehie</i> ^g									
None or not active	303	40.8		259	45.0		165	46.3	
Active	208	38.6	0.30	334	47.3	0.22	421	52.3	< 0.001
Contracting									
Other	153	38.5		125	50.6		111	47.3	
Contracting in	57	62.3	< 0.001	61	54.2	0.30	59	65.9	< 0.001
Contracting out	323	36.3	0.30	409	43.8	0.01	424	49.2	0.42

IMCI, Integrated Management of Childhood Illness.

^a Total in each category.

^b Mean performance score.

^c P-value for difference between groups with the reference category indicated in italics.

^d Low = (below mean score for 2004) – (1 standard deviation); medium = (between mean score for 2004) – (1 standard deviation) and (mean score for 2004) + (1 standard deviation); high = (above mean score for 2004) + (1 standard deviation). Note: for subsequent years, the cut-offs created for 2004 were used to classify as low, medium and high.

^e Provider knowledge: included knowledge of IMCI, Expanded Programme on Immunization and reproductive health.

^f Provider satisfaction: comprised 19 indicators related to the working relationship with the staff and health system, satisfaction with the job, supervisor support, opportunities for training and professional development, availability of medications and equipment, security, salary, etc.

^g Village health committees.

increased by only 6% over that period. Our results also support findings from other studies in which provider performance and adherence to standards improved with more frequent and better supervision and with the presence of case management guidelines.²⁵

This study used quality-of-care indicators based on clinical standards and structural indicators, but did not use indicators that focus on patient or community perceptions of quality. Effective health service delivery in Afghanistan faces formidable challenges due to scarce resources, cultural barriers and political and security risks. The challenge for improving and sustaining the gains achieved by the Afghan Ministry of Public Health and international donor community will require innovative mechanisms and the support of local communities. In view of the low numbers and potential turnover of providers and the costs of IMCI training, policy-makers need to consider other creative mechanisms to ensure equitable coverage of basic health services through the training and deployment of community health-care providers.

In high-mortality settings, IMCI training has to be accompanied by efforts to strengthen district health systems and community IMCI.¹⁴ According to recent estimates, more than 19 000 community health workers have been trained and deployed in health posts in Afghanistan, and a recent evaluation endorsed their value

and demand by the community.²⁶ Community providers, particularly women, could compliment efforts at the facility level to achieve equitable coverage of health services. Other strategies for improving health-care quality can be participatory assessments by users of the health system, team-based problem-solving, and creative engagement of health providers through national quality improvement initiatives.^{25,27–29}

As in all assessments that observe provider performance, the presence of observers may have led the providers in our study to alter their usual manner of working. This is illustrated by a study in Benin.³⁰ Other limitations of this study are the lack of re-examination of the sick child by an independent health-care provider to establish a comparison of diagnosis and treatment, lack of risk adjustment for illness severity and the inability to link observed providers to those interviewed. Provider client load has also been associated with quality of care.²² However, we found that the observed quality continued to improve even though patient consultations more than doubled between 2004 and 2006. The finding that the type of contracting mechanism can affect the quality of the care given by providers raises opportunities for benchmarking best practices in health service delivery.⁶

Further empirical evidence is needed to assess how improvements in clinical care affect health outcomes or other aspects of the health system. The

inclusion of data on community-based efforts for prevention, improvement of health-care seeking behaviours and reduced disease burden would provide more realistic measures of health system performance. The Afghan Ministry of Public Health has demonstrated its commitment to improving quality by instituting a National Quality Assurance Committee and by periodically reviewing evidence through the high-level Consultative Group on Health and Nutrition. Improving the quality and coverage of the BPHS must be a high priority if Afghanistan is to effectively address health needs and achieve those Millennium Development Goals that call for reduced child mortality and improved maternal health.³¹

Conclusion

Afghanistan needs to increase support for effective implementation of IMCI at the facility and community level if it is to sustain and build on gains in health-care quality. The concerted plan to improve basic health services across Afghanistan is clearly improving the quality of essential services for child health. However, to reduce child mortality, equitable coverage and access to services are needed. This will require continued investments in health infrastructure; a focus on improving health-worker performance through training, material support and supervision; greater accountability; and increased community capabilities, particularly in

Table 5. Multiple linear regression coefficients for assessment and counselling quality in a study of the quality of health care provided to children aged less than 5 years, by year, Afghanistan, 2004–2006

Characteristic	Assessment quality ^a			Counselling quality ^b		
	Coefficient	Standard error	P-value	Coefficient	Standard error	P-value
Facility-level						
Year	6.62	1.14	< 0.001	4.71	1.57	< 0.001
2004	12.19	1.17	< 0.001	10.05	1.48	< 0.001
2005						
2006						
Facility type	2.55	1.79	0.15	0.56	2.49	0.82
Basic health centre or comprehensive health centre						
District hospital						
Provider knowledge	3.38	0.91	< 0.001	6.07	1.23	< 0.001
Poor/medium						
High						
Refresher training	-2.65	1.31	0.04	-1.99	1.84	0.28
No staff						
Some or all staff						
Training in IMCI	2.56	1.06	0.02	2.93	1.44	0.04
No staff						
Some or all staff						
Supervision (visits in prior 6 months)	0.85	1.12	0.45	1.50	1.49	0.31
< 6						
≥ 6						
Clinical guidelines	1.49	1.65	0.37	-2.85	2.90	0.33
None						
Some						
<i>Shura-e-sehie</i> ^c	0.73	1.00	0.47	0.49	1.31	0.71
None or not active						
Active						
Contracting						
Contracting in	11.78	2.03	< 0.001	11.38	2.43	< 0.001
Contracting out	0.10	1.16	0.93	-2.75	1.52	0.07
Patient- and provider-level						
Provider cadre	5.30	1.01	< 0.001	0.42	1.35	0.76
Assistant doctor/nurse						
Doctor						
Provider sex	1.92	1.73	0.27	3.21	2.35	0.17
Male						
Female						
Child sex	0.76	0.50	0.13	0.02	0.61	0.97
Male						
Female						
Caretaker sex	4.62	0.71	< 0.001	4.00	0.97	< 0.001
Male						
Female						
Child age in months	4.68	0.58	< 0.001	0.55	0.74	0.46
≥ 24						
< 24						
Time of consultation in minutes	10.64	1.00	< 0.001	9.33	1.26	< 0.001
< 10						
≥ 10						

IMCI, Integrated Management of Childhood Illness.

^a $R^2 = 17.65$. The model explains 17.65% of the variation in quality of care measured by the mean score.

^b $R^2 = 10.22$. The model explains 10.22% of the variation in quality of care measured by the mean score.

^c Village health committees.

under-served rural areas. Notwithstanding the difficulties faced by children and health providers in Afghanistan, health care for children is moving in the right direction and deserves greater support. ■

Acknowledgements

The article represents the investments of Afghan and international staff who supported the design, implementation and

analysis of the National Health Service Performance Assessment. We are also grateful to the supervisors, health-care providers, mothers and children who participated in the assessments. The authors would like to thank Dr Jennifer Bryce and Dr Cesar Victora for their insights on the results. We appreciate the comments and recommendations provided by the editorial committee and the anonymous reviewers.

Funding: Funding was provided through a Third Party Evaluation Contract between Afghanistan's Ministry of Public Health and the Johns Hopkins Bloomberg School of Public Health, in collaboration with the Indian Institute of Health Management Research.

Competing interests: None declared.

Résumé

Tendances de la qualité des soins de santé apportés aux enfants de moins de 5 ans en Afghanistan sur la période 2004-2006

Objectif Étudier les tendances de la qualité des soins de santé délivrés aux enfants de moins de 5 ans en Afghanistan entre 2004 et 2006. Déterminer en particulier les effets sur cette qualité d'un ensemble de services de santé essentiels (BPHS), incluant la Prise en charge intégrée des maladies de l'enfant (PCIME), introduite en 2003.

Méthodes Pour chaque année d'étude, 500 à 600 établissements de soins délivrant le BPHS ont été sélectionnés par sondage aléatoire stratifié dans 29 provinces d'Afghanistan. Nous avons observé les consultations dont ont bénéficié les enfants de moins de 5 ans, interrogé les personnes s'occupant de ces enfants et les prestataires de soins et mesuré sur un échantillon aléatoire l'observance des normes de prise en charge des cas pour ce qui concerne l'évaluation et les conseils.

Résultats La qualité de l'évaluation et des conseils délivrés aux enfants malades de moins de 5 ans s'est améliorée significativement entre 2004 et 2006. On a ainsi noté une augmentation de 43,4 % de l'indice d'évaluation de l'évaluation

médicale et de 28,7 % de l'indice d'évaluation des conseils ($p < 0,001$). La qualité de l'évaluation a progressé significativement chaque année et était statistiquement associée à certaines caractéristiques du prestataire (être médecin, obtenir un score de connaissances plus élevé, être formée à la PCIME, travailler sous contrat pour le gouvernement et assurer une consultation plus longue) et de l'enfant (jeune âge et prise en charge par une femme dans la vie courante). La qualité des conseils présentait également une association statistique avec ces caractéristiques, excepté le niveau de qualification du prestataire et l'âge de l'enfant. L'existence de directives cliniques et la fréquence de la supervision étaient significativement associées à une amélioration des scores de qualité en 2006 ($p < 0,05$ et $p < 0,01$, respectivement).

Conclusion La qualité des soins s'est améliorée sur la période étudiée, mais les performances sont restées sous-optimales dans certaines zones. Il faut continuer à investir dans le renforcement des capacités du système de santé afghan.

Resumen

Tendencias de la calidad de la atención sanitaria dispensada a los menores de 5 años en Afganistán, 2004–2006

Objetivo Estudiar las tendencias de la calidad de la atención sanitaria proporcionada a los menores de cinco años en Afganistán entre 2004 y 2006. En particular, determinar el efecto de la calidad de un paquete básico de servicios de salud (PBSS) que incluía la atención Integrada a las Enfermedades Prevalentes de la Infancia (AIEPI), introducida en 2003.

Métodos Mediante muestreo aleatorio estratificado, cada año del estudio se seleccionaron 500–600 centros de salud que empleaban el PBSS en 29 provincias de Afganistán. Observamos las consultas de atención a menores de cinco años, entrevistamos a sus cuidadores y a los profesionales que los atendieron, y medimos su cumplimiento de las normas de manejo de casos para evaluación y asesoramiento en una muestra aleatoria.

Resultados La calidad de la evaluación y de los consejos proporcionados para los niños enfermos de menos de 5 años de edad mejoró significativamente entre 2004 y 2006. Se observó un aumento del 43,4% del índice de evaluación y un aumento del 28,7% del

índice de asesoramiento ($p < 0,001$). La calidad de la evaluación mejoró considerablemente cada año y demostró estar relacionada de forma significativa con determinadas características del proveedor (condición de médico, mayor puntuación de sus conocimientos, capacitación en la AIEPI, participación en un mecanismo de contratación de la Administración, y mayor duración de la consulta) y del niño (una menor edad, y el hecho de tener a una mujer como cuidadora). Se observó que la calidad del asesoramiento también estaba asociada significativamente a esos factores, exceptuando la profesión del trabajador sanitario y la edad del niño. La existencia de directrices clínicas y la frecuencia de la supervisión se asociaron significativamente a mejores puntuaciones de la calidad en 2006 ($p < 0,05$ y $p < 0,01$, respectivamente).

Conclusión La calidad de la atención mejoró a lo largo del periodo de estudio, pero el desempeño seguía siendo subóptimo en algunas zonas. Es preciso seguir invirtiendo de forma continuada en la capacidad del sistema de salud de Afganistán.

ملخص

اتجاهات جودة الرعاية الصحية للأطفال دون عمر الخامسة في أفغانستان، 2004-2006

(قوة الاحتمال P أقل من 0.001). وتحسنت جودة التقييم تحسناً ملحوظاً كل عام وترافقت إحصائياً مع بعض الخصائص لدى مقدمي الرعاية (سواء كانوا من الأطباء الذين زادت أحرار المعارف لديهم، أم من المتدربين على التدبير العلاجي المتكامل للأمراض الأطفال، أم كانوا جزءاً من آلية التعاقد ويقضون فترة أطول من غيرهم في إسداء المشورة) كما كان هناك بعض الخصائص لدى الأطفال (فقد كانوا أصغر عمراً، وكان هناك إناث يقمن برعايتهم). كما ترافقت جودة إسداء المشورة بشكل ملحوظ مع هذه الخصائص، وذلك باستثناء طاقم تقديم الرعاية وعمر الطفل. إن وجود دلائل إرشادية سريرية وتكرار الإشراف قد ترافقا بشكل ملحوظ مع تحسن أحرار الجودة في عام 2006 (قوة الاحتمال أقل من 0.05 لوجود الدلائل الإرشادية وأقل من 0.01 لتكرار الإشراف).

الاستنتاج: تحسنت جودة الرعاية مع تقدم فترة الدراسة، ولكن الأداء لا يزال دون مستواه الأمثل في بعض المجالات، ويُعد تواصل الاستثمار في قدرات النظام الصحي الأفغاني ضرورياً.

الغرض: دراسة اتجاهات جودة الرعاية الصحية المقدمة للأطفال دون عمر الخامسة في أفغانستان في الأعوام 2004-2006، ولإسبب التعريف على تأثير هذه الجودة على حزمة أساسية من الخدمات الصحية تشمل التدبير المتكامل للأمراض الأطفال والتي أدخلت عام 2003.

الطريقة: اختار الباحثون، باستخدام العتبات العشوائية المطبق، في كل سنة من سنوات الدراسة 500 - 600 مرفق صحي يقدم الخدمة الصحية في 29 ولاية في أفغانستان. ولاحظ الباحثون الاستشارات للأطفال دون عمر الخامسة، وأجروا مقابلات مع من يعتنون بهؤلاء الأطفال، ومن يقدمون الرعاية الصحية لهم، وقاسوا مدى التزامهم بمعايير تدبير الحالات للتقييم وإسداء المشورة في العيّنات العشوائية.

الموجودات: لقد تحسنت جودة التقييم وإسداء المشورة المقدمة للأطفال المرضى دون عمر الخامسة تحسناً ملحوظاً في الفترة 2004 - 2006، فقد زاد منسب التقييم بمقدار 43.4%، كما زاد منسب إسداء المشورة بمقدار 28.7%

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