Primary health care facility performance assessment in Armenia

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Abstract

Purpose – The purpose of this study is to focus on the performance of select facilities in Lori and Shirak provinces in Armenia in Spring 2008. This is in response to the deterioration of the primary healthcare sector in Armenia.

Design/methodology/approach – The performance assessment focused on the status of several performance indicators, both current and as recalled for 2006. The interviewer-administered questionnaire addressed access to care, provider relations with community and clients, environment, management, and primary and secondary prevention at the facilities. For each domain, a summative score that ranged from 0 to 3 was computed and a mean score for each facility derived.

Findings – The project has had significant positive impact on facilities' performance. Access to care scores increased from 2.0 in 2006 to 2.5 in 2008; provider relations with community improved from 1.1 to 1.4; environment scores improved from 1.3 to 1.9, facility management improved from 1.4 to 1.7; and prevention efforts increased from 1.3 to 1.9. The overall mean facility score increased from 1.4 to 1.8. Although the scores for small rural clinics increased, their scores were lower than the scores for other facility types.

Originality/value – In the chronic absence of administrative surveillance data, this paper provides valuable information on the status of primary healthcare services in Armenian provinces. It demonstrates the value of interviewer-administered performance assessments in obtaining data across project sites when internal monitoring of progress is unavailable.

Keywords Primary care, Project evaluation, Performance appraisal, Armenia, Health services

Paper type Research paper

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Background

Located south of the Caucasus Mountains at the western edge of the former Soviet Union (FSU), the Republic of Armenia is at the crossroads of Europe, Asia, and the Middle East. Armenia's health care system deteriorated considerably following its independence in 1991 (Von Schoen-Angerer, 2004). The decline in access to health care, its affordability, and its quality, combined with the overall socio-economic disintegration, negatively affected population health (Center for Health Services Research and Development, 2002; Hakobyan, 2006; Torosyan, 2008; Von Schoen-Angerer, 2004). Armenia's primary healthcare (PHC) system was inherently vulnerable to these negative changes, resulting in low utilization of preventive and basic care services, widespread misunderstanding about and low awareness of freely provided services, and the lack of ongoing national health promotion programs (Hovhannisyan, 2004). Rural health care facilities face a particularly dire situation, with dilapidated buildings that are unheated during extremely cold winters and lack most basic drug and equipment supplies (Von Schoen-Angerer, 2004). Healthcare provider compensation is extremely low (Von Schoen-Angerer, 2004).

Countries whose health systems emphasize primary care have healthier residents at lower costs (Starfield, 2008). The economic crisis following the collapse of the Soviet Union coupled with rapidly declining health indicators forced the former republics to reform extensively their health care systems. These emerging democracies could not sustain the costs of maintaining the complex tertiary-care oriented systems inherited from the Soviet Union (Tulchinsky and Varavikova, 1996). However, health care reforms are unlikely to improve health indicators, balance the distribution of resources, or reduce expenses unless they accent both the systemic and clinical features of primary care (Starfield, 2009). Therefore, many reform programs in the region emphasized the restructuring of primary health care services and new models of financing so as to ensure basic benefits to all citizens, including the most vulnerable populations.

One such project in Armenia, the Primary Health Care Reform Project (PHCR), was funded by the United States Agency for International Development (USAID) in response to the deteriorating primary health care sector. The PHCR, a successor program to the Armenia Social Transition Program (ABT, 2009), is a five-year (2005-2010) program implemented by Emerging Markets Group, Ltd., which seeks to improve access to quality PHC services by strengthening PHC facilities and family medicine providers, and by improving public health awareness, health-seeking behavior, and competent demand for PHC services (PHCR, 2009). PHCR project activities are grouped into six main components: Expansion of reforms, family medicine, open enrollment, quality of care, healthcare finance, and public education. The PHCR project renovates PHC facilities, provides basic furniture, medical equipment and supplies, and trains rural nurses in family and community nursing in select PHC facilities across Armenia. The PHCR also establishes Community Health Committees (CHCs) in select rural communities to provide community-based preventive and promotional health education and distribute multi-media health education materials that boost awareness of PHC reforms and services and selected health issues. In addition, PHCR trains facility managers at referral level facilities in PHC reforms, strategic planning, financial management, human resource management, and related areas.

During 2006-2008, the PHCR Project also implemented several nationwide activities. These activities addressed efforts to shift to an open enrollment-based PHC model and to strengthen the financing of the facilities through performance-based payment and enrollment-based financing. The project utilizes a regional scale-up approach, which allows for the zonal expansion of the reforms over the life of the project. This approach relies on province level professionals to advocate and facilitate the scale-up of reforms (EMG, 2005). An important project strategy is building the capacity of Armenian institutions to carry out health sector reform, thus ensuring the continued delivery of high quality primary health care services after the project completes its operations (EMG, 2005; PHCR, 2009). These capacity development efforts are partnered with infrastructure and human capital development efforts. Overall, the project targets approximately three hundred facilities throughout Armenia. The project's first two years focused on Shirak and Lori provinces (Figure 1).

The PHCR Monitoring and Evaluation (M&E) unit was charged with assessing the project's impact on the primary health care services. Although a systemic evaluation of the country's overall primary care system was impractical, the PHCR Monitoring and Evaluation unit developed a comprehensive monitoring and evaluation framework that incorporated the important aspects of primary care including first contact, longitudinality, comprehensiveness, and coordination (Starfield, 1998). Stakeholder input, in particular a patient satisfaction survey (Harutyunyan *et al.*, 2010), was included, as were household and community level surveys and facility-level assessments.

The current study focused on the performance of select facilities in Lori and Shirak provinces in Armenia in Spring 2008. The facility assessment was one component of the overall evaluation, supplementing the extensive technical, equipment, and staffing resource assessments of the targeted PHC facilities. The assessment was not designed

Source: http://mapsof.net/armenia/static-maps/png/armenia-regions-map

Figure 1.
The regions of Armenia

as a quality improvement monitoring tool *per se*; rather its intended purpose was to capture performance issues missed by the technical assessments. While the preference for measuring performance would be to utilize routinely collected, quality administrative data (Lindelow, 2008), this option was not available. Therefore, M&E unit designed and implemented this study based on the dimensions of performance quality considered most relevant for the Armenian context (Crigler, 2005).

Quality must be viewed as a multifaceted concept with dimensions varying in relative importance depending on the context (Brown, 1998). The dimensions most frequently discussed in the literature are Technical competence, Access to services, Effectiveness, Efficiency, Continuity, Interpersonal relations, Safety, and Amenities (Brown, 1998; Crigler, 2005). Experts agree that all of these dimensions are relevant for a less-developed country; however, not all deserve equal weight within a specific program and context (Brown, 1998). The current assessment focused on assessing management, interpersonal relations with client and community, access to services, physical environment, primary and secondary prevention efforts, and technical competence (the latter item not reported here) at select project facilities.

Methods

All participating facilities in Lori and Shirak provinces were included in the study sample. Out of 61 facilities, 39 (63.9 percent) were "feldsher-akusher posts" (FAPs), which are small rural health posts staffed by a nurse (two years of training) with a visiting physician; eight (13.1 percent) were medical ambulatories (staffed by a physician and nurses); 11 (18.0 percent) were health centers (small village hospitals); and three (4.9 percent) were polyclinics (multi-specialty primary health care centers).

The questionnaire used for the study consisted of elements adapted from several sources and elements created specifically for the evaluation. The M&E unit adapted the facility performance self-assessment questionnaire developed by EMG partner Project NOVA ("Innovations in Support of Reproductive Health") as part of its Management Guide for Regional Primary Health Care Managers (Crigler, 2005; Project Nova, 2006; PHCR, 2009), as well as the facility organization/management assessment tools used at several sites by the Armenia Social Transition Program (ABT, 2009). Facility-based prevention activities were assessed against the clinical guidelines established by Armenia's Ministry of Health of in 2005. Consistent with the project's focus on the components of primary care, the final instrument included the following domains:

- access to care (facility hours, general availability and convenience to clients, client awareness of free services, etc.);
- provider relations with community and clients (delivering education materials, talks and sessions, involving patients in decision-making, soliciting patient opinion about services);
- environment (facility conditions, disaster preparedness, maintenance, sanitation, etc.);
- management (questions about job descriptions, staff meetings, record maintenance, and administrative support); and
- primary and secondary prevention (consultations, immunizations and screening coverage at the facility).

The instrument was first utilized for a baseline assessment in Lori and Shirak in 2006 (Demirchyan, 2006). The initial questionnaire was self-administered and distributed to the facility administrators for independent completion. However, to alleviate misreporting concerns raised at baseline, at follow-up in 2008 the M&E unit modified the questionnaire to an interviewer-administered format. In addition, several items from the baseline instrument were refocused to reflect changes in PHCR project objectives.

These changes in content and delivery mode limited the ability to compare directly baseline and follow-up data. To compensate for this limitation, the instrument was modified at follow-up to include retrospective questions about the status of the variables of interest in 2006 based on the respondent's opinion/recall in 2008. This modification was intended to create, *post-hoc*, measures comparable to the prospectively collected baseline data. To ensure this change did not introduce a substantial recall bias, the M&E unit compared the retrospective recall of the baseline state for Lori and Shirak (Zone 1) with the initial (prospective) baseline for the second wave provinces of Kotayk, Tavush, and Gegharkunik (Zone 2) obtained during its baseline assessment in 2007. Comparisons showed that the main baseline indicators/measures were comparable for both sites.

The follow-up fieldwork lasted approximately five weeks. The M&E unit conducted periodic spot-checks of the interview process to assure compliance with the survey protocol. The responses were coded into computer databases using SPSS 11.0 software. Simple descriptive measures (e.g. mean, range) were calculated for each variable. The M&E unit computed a summative score for each domain, giving a maximum score of "3" was to desired ("yes") replies and a "0" to "no" replies. For items with a Likert-type response scale, the responses were scored from 0 to 3 as well, with intermediate scores of 1, 1.5, and 2. A mean score was calculated for each domain and compared between facility types and 2006 and 2008 reports using a paired sample t-test and an independent sample *t*-test. The total performance scores were calculated by adding the mean scores for each section and dividing the sum by the number of sections.

Results

The results are presented by major content domain. Table I shows the status of selected indicators by facility type in 2006 (as recalled) and 2008.

Access to care

Access to care significantly improved across all measured dimensions. Approximately 64.0 percent of all facilities were always open and available to clients in 2008 compared to 49.2 percent in 2006, with most of the improvement occurring in FAPs. According to respondents, communities were more aware of the free services offered at PHC level in 2008 than in 2006 (100 percent of the respondents mentioned that all or the majority of the population knew about free services in 2008). In 2008, educational materials were available in 90.2 percent of the facilities compared to 78.7 percent two years ago; the number of facilities with visible posters describing free services also increased. More facilities had working hours posted in the facility compared to two years ago (35.3 percent increase for FAPs, 28.6 percent increase for health centers). However, only four additional facilities had posted emergency instructions since the baseline, totaling to 15 facilities out of 61 in 2008.

Table I.
Select primary care indicators by facility type *n* (%), 2006 and 2008

	FAP				Ambulatory				Health center				Polyclinic				Total			
	2006		2008		2006		2008		2006		2008		2006		2008		2006		2008	
	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*
Working hours posted in the facilities																				
Yes	43.6	17	59.0	23	87.5	7	87.5	7	63.6	7	81.8	9	100.0	3	100.0	3	55.7	34	68.9	42
No	56.4	22	41.0	16	12.5	1	12.5	1	36.4	4	18.2	2	–		–		44.3	27	31.1	19
Educational materials available describing free services																				
Yes	42.1	16	84.6	33	75.0	6	100.0	8	72.7	8	100.0	11	66.7	2	100.0	3	53.3	32	90.2	55
No	57.9	22	15.4	6	25.0	2	–		7.3	3	–		33.3	1	–		46.7	28	9.8	6
Frequency that providers conduct health talks with patients																				
Always	46.2	18	76.9	30	50.0	4	75.0	6	72.7	8	100.0	11	33.3	1	100.0	3	50.8	31	82.0	50
Usually	35.9	14	17.9	7	12.5	1	25.0	2	9.1	1	–		66.7	2	–		29.5	18	14.8	9
Occasionally	12.8	5	5.1	2	37.5	3	–		18.2	2	–		–		–		16.4	10	3.3	2
Never	5.1	2	–		–		–		–				–		–		3.3	2		
Frequency that patients are involved in choosing treatment options																				
Always	26.3	10	36.8	14	25.0	2	62.5	5	20.0	2	30.0	3	–		66.7	2	23.7	14	40.7	24
Usually	26.3	10	31.6	12	50.0	4	37.5	3	60.0	6	70.0	7	66.7	2	33.3	1	37.3	22	39.0	23
Occasionally	26.3	10	23.7	9	25.0	2	–		10.0	1	–		33.3	1			23.7	14	15.3	9
Never	21.1	8	7.9	3	–	–	–		–		–						15.3	9	5.1	3
Private space for counseling sessions, physical exams, and procedures																				
Yes	23.1	9	56.4	22	62.5	5	87.5	7	100.0	11	100.0	11	100.0	3	100.0	3	45.9	28	70.5	43
No	76.9	30	43.6	17	37.5	3	12.5	1	–		–	-	–		–		54.1	33	29.5	18

(*continued*)

	FAP				Ambulatory				Health center				Polyclinic				Total			
	2006		2008		2006		2008		2006		2008		2006		2008		2006		2008	
	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*
Patient satisfaction surveys regularly conducted at the facility																				
Yes	–		–		25.0	2	25.0	2	9.1	1	–		–		–		5.0	3	3.3	2
No	100.0	38	100.0	38	75.0	6	75.0	6	90.9	10	100.0	11	100.0	3	100.0	3	95.0	57	96.	58
Facility regularly ventilated during working hours																				
Yes	71.8	28	97.4	38	87.5	7	100.0	8	100.0	11	100.0	11	100.0	3	100.0	3	80.3	49	98.4	60
No	28.2	11	2.6	1	12.5	1			–		–		–		–		19.7	12	1.6	1
Frequency that providers wash hands with soap and water before and after each patient																				
Always	7.7	3	30.8	12	37.5	3	37.5	3	9.1	1	27.3	3	–		33.3	1	11.5	7	31.1	19
Usually	43.6	17	48.7	19	37.5	3	50.0	4	81.8	9	72.7	8	33.3	1	33.3	1	49.2	30	52.5	32
Occasionally	41.0	16	17.9	7	25.0	2	12.5	1	9.1	1			66.7	2	33.3	1	34.4	21	14.8	9
Never	7.7	3	2.6	1											–		4.9	3	1.6	1
Established official procedure for responding to client complaints																				
Yes	5.1	2	5.1	2	28.6	2	28.6	2	27.3	3	27.3	3	33.3	1	66.7	2	13.3	8	15.0	9
No	94.9	37	94.9	37	71.4	5	71.4	5	72.7	8	72.7	8	66.7	2	33.3	1	86.7	52	85.0	51
Regular staff meetings																				
Yes	20.5	8	28.2	11	87.5	7	87.5	7	90.9	10	81.8	9	66.7	2	100.0	3	44.3	27	49.2	30
No	79.5	31	71.8	28	12.5	1	12.5	1	9.1	1	18.2	2	33.3	1	–		55.7	34	50.8	31

Table I.

A supervising physician visited 94.9 percent of FAPs at least once per month (59.0 percent in 2006). The frequency of home visits by physicians also increased in 2008 with more physicians making home visits at least once per month (52.9 percent increase since 2006). Visiting physicians always saw patients in the clinic at 82.1 percent of the facilities, and usually at 17.9 percent. Supervising physicians notified 35 FAPs in advance about their in 2006 and to 39 in 2008. Emergency transport (the responsibility of village mayors) was still rare in most facilities in 2008.

Table II depicts the distribution of the scores measuring access to care by the type of facility and geographic region. Polyclinics scored higher than other facility types in 2006 and 2008. FAPs consistently had the lowest scores. Facilities in Lori scored lower than facilities in Shirak in both 2006 and 2008. The mean score for all facilities was 2.0 (out of 3) in 2006 and 2.5 in 2008, a statistically significant increase. This improvement was consistent across facility type and province.

Provider relations with community and clients

Overall, the number of facilities where health education materials were always or usually provided to clients had increased since 2006 (51 facilities in 2008 versus 31 in 2006). Providers conducted health talks with patients during their visits and organized health education sessions with the communities more often in 2008 than in 2006; more facilities prepared for health education sessions adequately. Patients were more involved in selecting treatment options at follow-up, 47 facilities in 2008 versus 36 in 2006. However, most surveyed facilities lacked suggestion boxes in both 2008 and 2006 (52 and 50 facilities, respectively). Among those with boxes, patient suggestions rarely led to changes.

While the number of facilities with private space where counseling sessions, physical exams and procedures could not be observed or overheard had increased noticeably since 2006 (70.5 percent in 2008 versus 45.9 percent in 2006), confidentiality of patient records remained a concern.

In 2008, providers kept records of the community's demographic profile (e.g. age, gender) in 67.2 percent of the facilities (versus 52.5 percent in 2006) and kept lists of community members who were vulnerable and eligible for free services in 42.6 percent of the facilities (versus 32.8 percent in 2006). Only 3.3 percent of facilities (two ambulatories) had conducted patient satisfaction surveys in 2008.

Overall, the score on provider relations with community and clients significantly increased from the baseline (1.4 in 2008 versus 1.1 in 2006) (Table II). Health centers and polyclinics received higher scores both in 2006 (1.6 and 1.2, respectively) and in 2008 (1.7 and 1.7, respectively) than FAPs and ambulatories. Facilities in Lori scored lower than those in Shirak in 2006, but were tied at 1.4 in 2008.

Environment

The number of facilities with appropriate working conditions increased significantly from 23.0 percent in 2006 to 75.4 percent in 2008. This increase was most prominent (almost ten-fold increase since 2006) in FAPs where the PHCR project was active during 2006-2008. All facilities but one FAP were regularly ventilated during working hours in 2008 (while 11 FAPs and 1 ambulatory were not ventilated in 2006), and all facilities were cleaned regularly in 2008 versus 86.5 percent of the facilities in 2006. Official security checks were conducted regularly at only 22 surveyed facilities in 2008

Facility type	2006 Mean	2006 *n*	2008 Mean	2008 *n*
Access to/provision of care				
FAP*	1.9	36	2.4	38
Referral* (ambulatory/health center/polyclinic)	2.3	22	2.6	22
Ambulatory	2.2	8	2.5	8
Health center	2.3	11	2.6	11
Polyclinic	2.5	3	2.7	3
Lori*	1.8	28	2.4	30
Shirak*	2.2	30	2.6	30
Total*	2.0	58	2.5	60
Provider relations with community and clients				
FAP*	0.9	36	1.3	36
Referral* (ambulatory/health center/polyclinic)	1.4	20	1.7	20
Ambulatory	1.3	8	1.6	8
Health center	1.6	10	1.7	10
Polyclinic	1.2	2	1.7	2
Lori*	0.9	28	1.4	28
Shirak*	1.2	28	1.4	28
Total*	1.1	56	1.4	56
Environment				
FAP*	1.0	36	1.7	37
Referral* (ambulatory/health center/polyclinic)	1.9	20	2.3	20
Ambulatory	1.8	8	2.2	8
Health center	1.9	10	2.4	10
Polyclinic	2.0	2	2.5	2
Lori*	1.1	26	1.9	27
Shirak*	1.4	30	1.9	30
Total*	1.3	56	1.9	57
Facility management				
FAP*	1.1	36	1.5	37
Referral (ambulatory/health center/polyclinic)	1.9	20	2.0	20
Ambulatory	1.7	7	2.0	7
Health center	1.9	10	2.0	10
Polyclinic	2.0	3	2.4	3
Lori*	1.1	26	1.4	27
Shirak*	1.6	30	1.9	30
Total*	1.4	56	1.7	57
Primary and secondary prevention				
FAP*	1.4	36	2.0	36
Referral* (ambulatory/health center/polyclinic)	1.3	17	1.9	18
Ambulatory	1.1	7	1.7	8
Health center	1.2	8	1.9	8
Polyclinic	2.1	2	2.8	2
Lori*	1.2	24	2.1	25
Shirak*	1.4	29	1.8	29
Total*	1.3	53	1.9	54

Notes: *2006 to 2008 change within facility category was statistically significant, $p < 0.05$ (*t*-test)

Table II.
Mean scores by domain, facility type, and geographic region, 2006 and 2008

(slight decrease from 25 facilities at baseline). Regular trainings on emergency situations/disaster preparedness for the facility staff were also infrequent: reported by only 33.3 percent of the facilities in 2008. Only two polyclinics and two ambulatories had equipment maintenance staff in 2008, similar to 2006 where two polyclinics and one ambulatory had such staff.

Consumable medical supplies were replenished regularly at 78.7 percent of the facilities in 2008 versus 18.0 percent in 2006. Used needles always were disposed in sharp containers at 93.4 percent of the facilities (versus 67.2 percent in 2006). The increase was consistent across facility types. Providers at only 19 facilities washed their hands with soap and water before and after each patient in 2008. Although this represented a significant increase since the baseline assessment, the number was still low. The regulations on infection control and medical waste management were available at 42.6 percent of facilities in 2008 versus 27.9 percent in 2006.

As shown in Table II, polyclinics received the highest cumulative facility environment score in both 2006 and 2008 (2.0 and 2.5, respectively). Facilities in Shirak were in relatively better condition in terms of the environment than the facilities in Lori in 2006, however, they received the same score for 2008 (1.9). The total mean score was low in 2006 (1.3); it increased significantly to 1.9 in 2008.

Facility management

The respondents from each facility answered a set of questions investigating facets of facility management. Written documents describing providers' job responsibilities existed in 36.1 percent of the facilities in 2008, compared to 29.5 percent of the facilities in 2006. All polyclinics, health centers, and ambulatories and 30.8 percent of the FAPs maintained chronic disease registers (17.2 percent increase from baseline). Most facilities lacked an established procedure to respond to client complaints in both 2006 and 2008.

Of the respondents, 82 percent in 2008 and 83.3 percent in 2006, thought that their current staff was sufficient to provide high quality and cost-effective services to the population. The number of facilities where primary health care standards were available to providers as a reference increased significantly: 46 in 2008 versus 23 in 2006. The providers at 56.8 percent of FAPs, 87.5 percent of ambulatories, 90.9 percent of health centers, and all polyclinics used these standards during their daily work. In 54.1 percent of facilities, all providers were satisfied with their job (an increase from 32.2 percent at baseline). The majority of facilities held regular staff meetings; however, records rarely were maintained in 2006 and 2008.

Most aspects of management at FAPs had significantly improved since 2006. According to 82.1 percent of the respondents, supervisors always or usually engaged providers in problem solving during their visits to FAPs in 2008, an increase from 59.0 percent at baseline. In 2008, supervisors always provided clinical and administrative support to providers at 74.4 percent and 53.8 percent of facilities, respectively, while in 2006 such support was provided only at 51.3 percent and 41.0 percent of facilities. When problems could not be solved locally, the supervisor made all reasonable efforts to solve it by raising the issue with the authorities at 61.5 percent of FAPs (46.2 percent in 2006).

A statistically significant difference was recorded between facility management scores in 2006 (1.4) and 2008 (1.7) (Table II). The change was more prominent in FAPs where the score increased from 1.1 in 2006 to 1.5 in 2008. Polyclinics scored higher than the rest of facilities (2.0 in 2006 and 2.4 in 2008), while FAPs received the lowest score.

Facilities in Shirak seemed to have better facility management mechanisms than facilities in Lori in both 2006 and 2008.

Primary and secondary prevention

The survey included a set of questions investigating primary and secondary prevention at selected facilities. This information was based on the recall of providers and, where applicable, medical records. Prevention activities have increased significantly since 2006. Of the facilities, 93 percent reported about complete immunization of children at 24-months of age in 2008 (defined as coverage of more than 75 percent of the population). Other relatively common preventive efforts included consultations on healthy pregnancy, breastfeeding, childcare, and personal and sexual hygiene for pregnant women (reportedly more than 75 percent of pregnant women in 84.7 percent of facilities), and examination and consultation on reproductive health for 15-17 years old female adolescents (reportedly more than 75 percent of female adolescent population in approximately 73 percent of facilities). In 60.0 percent of facilities, more than 75 percent of the patients with type 2 diabetes reportedly had received at least one blood glucose test per month. In 57.6 percent of facilities, more than 75 percent of first antenatal visits were within the first trimester of pregnancy. Clinical urine and blood tests for children at 12 months and preventive blood pressure measurement at least once per year (with a corresponding record in medical chart) were the least commonly practiced preventive measures (25.4 percent and 11.7 percent of facilities (respectively) reported covering more than 75 percent of the corresponding population in 2008).

The survey included questions specifically addressing primary and secondary prevention in ambulatories, polyclinics, and health centers. More than 75 percent of patients with hypertension and coronary heart disease (CHD) reportedly received regular electrocardiogram (ECG) (at least one ECG per year) in 71.4 percent of surveyed facilities (versus 23.8 percent of facilities in 2006). More than 75 percent of children had their hemoglobin level measured at nine-months of age in 66.7 percent of the facilities (versus 33.3 percent of facilities in 2006). Reportedly, in 60.0 percent of facilities (versus 45.0 percent in 2006) more than 75 percent of pregnant women were examined at least four times during their pregnancy. In less than half of the studied facilities (45.5 percent at follow-up, 23.8 percent in 2006), more than 75 percent of patients with Type 2 Diabetes had received regular eye fundoscopy. Providers of 38.1 percent facilities reported that more than 75 percent of their patients with CHD received regular blood cholesterol tests (at least once per year), compared to 9.5 percent of facilities in 2006.

Clinical breast examination and Pap-smear tests were performed infrequently. Providers at two facilities mentioned that in 2008 more than 75 percent of the female population over 40 years of age received clinical breast examination at least once a year (versus no facility at baseline), while providers of four facilities reported that 50-75 percent of women undergo such examination. Pap smear tests were even rarer: providers at only three facilities reported that more than 50 percent of the female population 30-60 years old underwent this screening.

Table II shows the distribution of primary and secondary prevention measure scores by the facility type and geographic region in 2006 and 2008. The 2008 mean score for facilities in Lori was 2.1 versus 1.8 for Shirak. Primary and secondary prevention mean scores had increased noticeably since 2006 (from 1.3 to 1.9, statistically significant difference). The FAPs consistently scored higher than referral level facilities.

Overall performance score

The total mean scores ranged from 0.6 to 2.3 in 2006 and from 1.0 to 2.5 in 2008. As Table III shows, referral level facilities performed significantly better than FAPs. Performance of Shirak and Lori facilities was quite comparable (1.9 and 1.8, respectively); however, the positive change since 2006 was more pronounced among Lori facilities.

Based on the experience with the 2006 self-administered baseline, the M&E unit included several items in the interviewer-administered questionnaire to validate providers' objective assessment of their facility services and needs and added procedures requiring respondent facilities to document many assertions. These measures were effective. For instance, only 3.3 percent of facilities (two ambulatories) reported conducting patient satisfaction surveys in the 2008 assessment compared to 61.3 percent of the same facilities in 2006s self-administered survey. The 2008 assessment results appeared more in line with objective assessments of quality and performance than did the self-administered baseline survey conducted in 2006.

Discussion

This performance assessment was conducted in 61 primary healthcare facilities in Lori and Shirak provinces of Armenia to evaluate the Primary Health Care Reform Project's impact between 2006 and 2008. The targeted primary healthcare facilities demonstrated a significant improvement in all facets of primary care. Facilities improved their accessibility to care and their community engagement (access to care score increased significantly from 2.0 in 2006 to 2.5 in 2008). Provider relations with community and clients improved from 1.1 to 1.4 ($p < 0.05$), while environment scores improved from 1.3 to 1.9. Facility management scores improved from 1.4 to 1.7. Primary and secondary prevention efforts increased from 1.3 to 1.9. The composite mean score increased significantly from 1.4 to 1.8. While Lori facilities were rated lower than Shirak facilities at baseline, at follow-up both showed large, statistically significant improvements with the regional gap narrowing considerably (1.2 in 2006 and 1.8 in 2008 in Lori versus 1.6 in 2006 and 1.9 in 2008 in Shirak).

FAPs scored lower than other facility types for 2006 and 2008 yet the improvement curve for FAPs was similar to the other facility types. The lower ratings for FAPS are

	2006		2008	
Facility type	Mean	*n*	Mean	*n*
FAP*	1.3	28	1.7	30
Referral* (ambulatory/health center/polyclinic)	1.7	14	2.0	14
Ambulatory	1.6	7	1.9	7
Health center	1.7	7	2.1	7
Polyclinic[a]				
Marz				
Lori*	1.2	17	1.8	19
Shirak*	1.6	25	1.9	25
Total*	1.4	42	1.8	42

Notes: *2006 to 2008 difference was statistically significant, $p < 0.05$ (*t*-test); [a]Only three polyclinics in the sample; all had missing data that precluded calculating this score

Table III.
Total mean scores (all sections combined) by facility type and marz

not surprising given that they serve the smallest and often the most remote villages and experience stronger environmental, resource, and management limitations than other facility types.

While outcome measures or other service statistics that may be a part of monitoring systems in less developed countries have limited value for problem solving (Brown, 1998), experts recommend detailed evaluations through special comprehensive studies to reveal specific service delivery problems. Although using facility surveys as a replacement for administrative data for routine monitoring seems an expensive and inappropriate approach, often such surveys provide data of breadth and depth that is not feasible from routine administrative reporting sources (Lindelow, 2008).

Performance assessments are part of the overall quality improvement process (Groene *et al.*, 2008), which ideally should be undertaken by the facilities themselves. This philosophy presumes openness, interest, internal motivation, and commitment on the part of institution managers and staff (Donabedian, 2003). In the post-Soviet reality, the usefulness and importance of such assessments for the facilities themselves is not yet fully recognized or appreciated, leading to over-reporting or under-reporting of certain problems in self-administered surveys. Managers often fear poor performance information will be used punitively rather than constructively. Although an interviewer-administered format can be perceived as an official inspection, it allows for direct communication between interviewers and administrators that provides opportunity for more detailed explanations of the study purposes and the intent behind certain domains while modeling and nurturing a culture of evidence-based practice. Interviewer-administered surveys also provide an opportunity to clarify and verify responses. While erroneous reporting may have persisted in the follow-up assessment as well, the interviewer-administered format could substantially minimize this bias.

Until a culture of quality improvement is incorporated into Armenia's PHC system and uniform mechanisms of assessing and reporting on quality and performance of primary care services are established, external assessments similar to the current study remain a necessity. However, we hope that such studies serve a larger acculturation and educational role in transforming the perception of evaluation and quality assurance activities from a punitive, externally imposed activity to a rewarding, internally directed one.

In the chronic absence of health sector surveillance data, surveys such as this provide a valuable snapshot of the status and quality of primary healthcare services in Armenian provinces. Other organizations and projects active in the primary health care sphere in Armenia and other post-Soviet republic face similar changes and can adapt these instruments and approaches. While the uniqueness of each republic's reform process and the indicators used to track its progress make direct comparison of these findings difficult, the methods, tools, and approaches are of widespread value. As reforms progress and systems are strengthened, the use of internationally recognized and standardized tools for performance assessment and the culture of using data constructively for continuous quality improvement will become incorporated into the new system's infrastructure. We recommend supplementing such assessments with qualitative facility-level studies to capture information not easily reflected in quantitative audits that primarily rely on administrators and providers as respondents.

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