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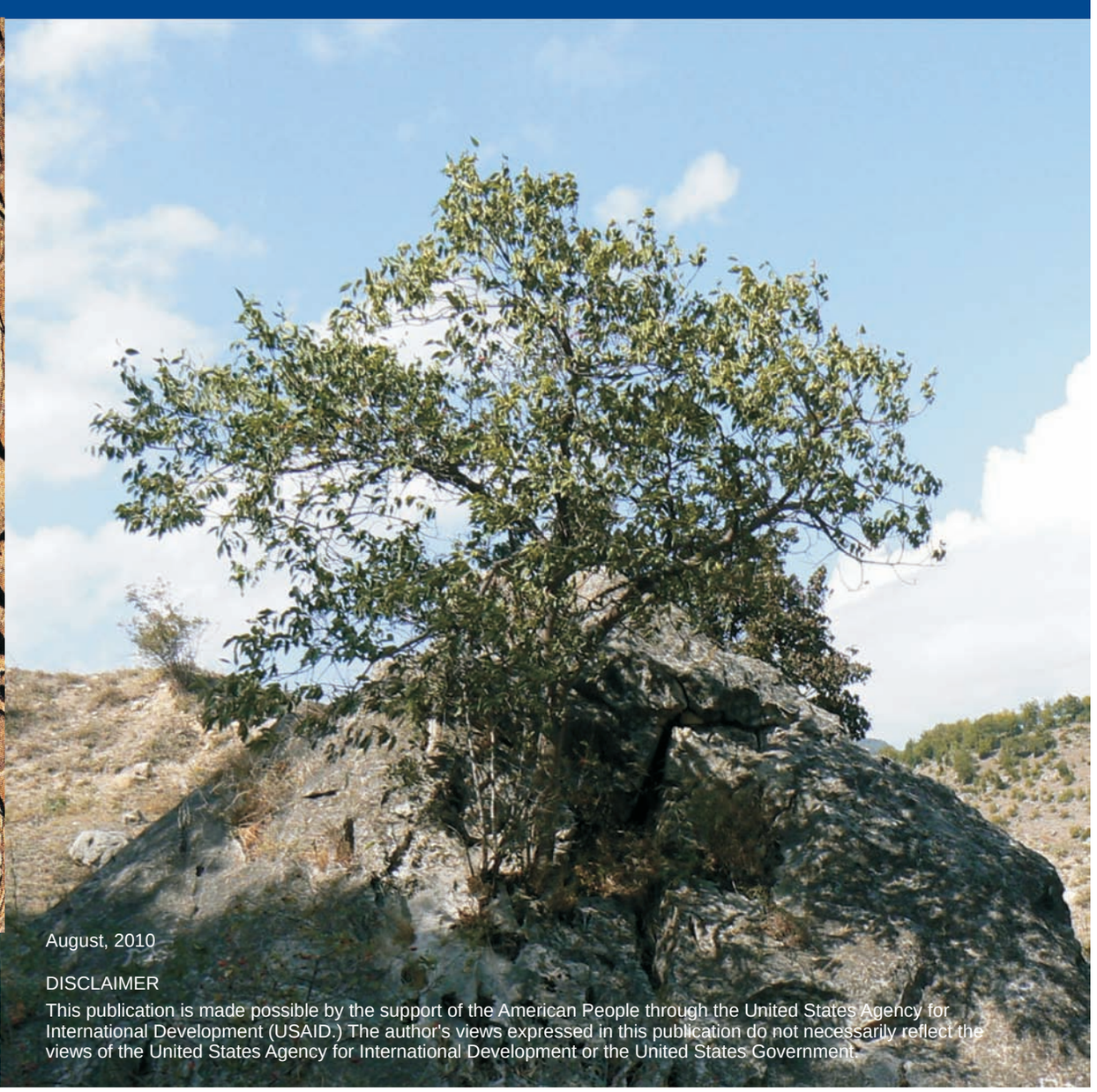
KNOWLEDGE, ATTITUDES, AND PRACTICES OF HEALTH EDUCATION ACTIVITIES

POST-INTERVENTION EVALUATION AMONG PATIENTS OF SELECTED PHC FACILITIES IN KOTAYK, GEGHARKUNIK AND TAVUSH MARZES

2009



August, 2010

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Preface

The Primary Healthcare Reform (PHCR) project is a nationwide five-year (2005-2010) program funded by the United States Agency for International Development (USAID) under a contract awarded to Cardno Emerging Markets USA, Ltd. (Cardno), formerly Emerging Markets Group, Ltd. in September 2005. The project's primary objective is the increased utilization of sustainable, high-quality primary healthcare services leading to the improved health of Armenian families. This objective is operationalized by supporting the Ministry of Health (MoH) to implement a package of six interventions that links policy reform with service delivery so that each informs the other generating synergistic effects. These six interventions address healthcare reforms and policy support (including renovation and equipping of facilities); open enrollment; family medicine; quality of care; healthcare finance; and public education, health promotion and disease prevention.

"What impact are these interventions having" and "what mid-course adjustments in the project need to be made" are questions frequently asked but less frequently funded. Fortunately, provision was made in the PHCR project to address these questions. PHCR developed a set of six tools to monitor progress and evaluate results. Three of these tools are facility-based and are designed to assess changes through a pre-test and post-test methodology at 164 primary healthcare facilities and their referral facilities. Three other tools are population-based and are designed to assess changes for the whole of Armenia's population, using the same pre-test and post-test methodology.

This report summarizes the results of a survey assessing the knowledge, attitudes, and practices (KAP) of health education activities among clients of target and comparison primary healthcare facilities in Kotayk, Tavush and Gegharkunik marzes (Zone 2). The recommendation to carry out this survey came from the mid-term project assessment that was done in September 2007 in order to better understand the Community Mobilization work carried out by PHCR's Public Education team.

The Center for Health Services Research and Development of the American University of Armenia, one of the sub-contractors to EMG, has primary responsibility for PHCR monitoring and evaluation. Dr. Yelena Amirkhanyan, Dr. Anahit Demirchyan, Dr. Varduhi Petrosyan, and Dr. Michael Thompson are the primary authors of this study. Dr. Hripsime Martirosyan and Ms. Nune Truzyan are acknowledged for their valuable contribution in all stages of the study. We would also like to thank our interviewers (primary healthcare physicians in the target marzes) for their data collection efforts, as well as the patients who participated in the interviews. We are also grateful for the excellent support received from the Ministry of Health and marz officials and the opportunity to collaborate in strengthening health services in Armenia

We trust that the findings of this study will be of value in improving health outcomes through more informed decision-making. The report can be found on the PHCR website at www.phcr.am. Comments or questions on this study are welcome and should be sent to info@phcr.am.

Richard A. Yoder, PhD, MPH
Chief of Party
Primary Healthcare Reform Project

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Acronyms

CHC	Community Health Committee
CVD	Cardio Vascular Disease
FAP	Rural Health Post (from Russian abbreviation)
HIV	Human Immunodeficiency Virus
KAP	Knowledge, Attitudes, and Practices
M&E	Monitoring and Evaluation
MoH	Ministry of Health
PE	Public Education
PHC	Primary Health Care
PHCR	Primary Health Care Reform
RH	Reproductive Health
SD	Standard Deviation
STD	Sexually Transmitted Diseases
TB	Tuberculosis
USAID	United States Agency for International Development
UTI	Urinary Tract Infection

Executive Summary

The purpose of this study was to identify and assess knowledge, attitudes, and practices (KAP) of health education activities among selected patients of facilities targeted by the PHCR project in Kotayk, Gegharkunik, and Tavush marzes, and how that data compare with patients in facilities not targeted by the PHCR project.

The survey was conducted in 2009 and utilized a stratified random sampling design. Self-administered interviews were conducted with 336 clients of selected primary health care facilities in Kotayk (140), Gegharkunik (112), and Tavush (84) marzes in June-July 2009. The Monitoring and Evaluation (M&E) Team developed the KAP survey tool on the basis of the project's Public Education (PE) training modules and materials (leaflets and brochures) in close collaboration with the project's PE team. The PHCR project Chief of Party and USAID representatives reviewed the instrument.

Most respondents want to get health information primarily on topics related to prevention and management of chronic conditions, such as hypertension, cardiovascular disease (CVD), and diabetes, as well as child care and reproductive health. Though cumulative knowledge and overall KAP scores were higher in the intervention group compared to the comparison respondents, the scores were still low (about 55%). The lowest KAP scores were found for osteoporosis, hypertension, tuberculosis (TB), and diabetes. KAP scores varied by respondent characteristics. Overall KAP scores were positively associated with education level; older respondents demonstrated more favorable practice scores. Knowledge, attitude, and overall KAP scores in Gegharkunik marz were the lowest among the three marzes in Zone 2 demonstrating the need for more active education interventions in Gegharkunik marz.

Several significant findings with implications for guiding further public education activities emerged from this assessment. Though comparison of patients' cumulative knowledge scores demonstrates better results in the intervention sites, they are still low. Lack of knowledge about widespread chronic conditions emphasizes the importance to continuously address these topics during project's public education activities. Desire to receive health education materials expressed by most respondents indicates the need for continuous health education activities in communities. High smoking rates in men indicate importance of continuous and consistent efforts to reduce tobacco consumption in Armenia. Given better KAP scores in communities where CHCs are established, it is important to expand the role of CHCs, as well as to establish CHCs in villages not targeted by the project.

1. Introduction

The Primary Healthcare Reform (PHCR) project is a nationwide five-year (2005-2010) program funded by the United States Agency for International Development (USAID) under a contract awarded to Cardno Emerging Markets USA, Ltd. (Cardno), formerly Emerging Markets Group, Ltd. in September 2005. The project's primary objective is the increased utilization of sustainable, high-quality primary healthcare services leading to the improved health of Armenian families. This objective is operationalized by supporting the Ministry of Health (MoH) to implement a package of six interventions that links policy reform with service delivery so that each informs the other generating synergistic effects. These six interventions address healthcare reforms and policy support (including renovation and equipping facilities); open enrollment; family medicine; quality of care; healthcare finance; and public education, health promotion and disease prevention.

The six main components of the PHCR Project are run in partnership with IntraHealth International Inc., American University of Armenia, Overseas Strategic Consulting, Ltd., and include the following activities:

Expansion of Reforms: assisting the Government in establishing a supportive regulatory environment for the advancement of reforms; renovating and equipping primary healthcare (PHC) facilities nationwide; designing and delivering training to facility management

Family Medicine: developing up-to-date curricula and training materials for continuous medical education; supporting independent family medicine group practices; providing training to family physicians and nurses

Open Enrollment: introducing the open enrollment model, where every resident registers with a PHC physician, in the Armenian healthcare sector to promote customer-oriented services by fostering competition among providers

Quality of Care: improving the quality of care by introducing state-of-the-art quality standards and quality assurance procedures; introducing provider licensing and accreditation regulations

Healthcare Finance: increasing the transparency and efficiency of the distribution of healthcare funds through improved service costing and performance-based contracting practices; enhancing accountability at the facility level; facilitating the use of National Health Accounts

Public Education: enhancing awareness about PHC services offered; improving understanding of open enrollment and acceptance of family medicine providers; promoting healthy lifestyle and health-seeking behavior.

The Project utilized a regional scale-up approach, which allowed for expansion of reforms throughout the country over the life of the project. Kotayk, Gegharkunik, and Tavush marzes (Zone 2) were targeted by the Project for the second and third years of implementation. To increase the awareness of common health risks and promote health seeking behavior, the Public Education (PE) component of the PHCR Project developed a strategy of health-focused community mobilization that used local NGOs to train Community Health Committees (CHC). CHC is a representative body of volunteers consisting of different community stakeholders, and has a goal of disease prevention, health promotion and generating health ownership. PHCR Project developed Capacity Building and Health Education training manuals and provided Training of Trainers to local NGOs. The NGOs then trained CHCs on high priority health topics and strategies for becoming motivational agents in their communities and long-term partners in future community development activities. The CHC program was implemented in 36 communities of Zone 2. The current

assessment estimates the level of clients' health-related knowledge, attitudes, and practices (KAP) in Kotayk, Gegharkunik, and Tavush marzes to evaluate the impact of the PE component of the Project.

2. Methods

2.1 Sampling

The study utilized a quasi-experimental non-equivalent control (comparison) group design. The sample included patients served by PHC facilities from both intervention and comparison sites. The sites in the intervention group were randomly selected from the list of facilities targeted by the Project in Kotayk, Gegharkunik, and Tavush marzes. The sites in the comparison group were randomly selected from the frame of PHC facilities located in the same area and not targeted by the Project or by any other similar PHC project.

The Monitoring and Evaluation (M&E) team calculated the sample size by the STATA statistical software using a formula for two sample comparison of proportions to detect a 10% pre-post difference within the intervention group, with type one error (alpha) of 0.05, and power of 0.75. The resulting sample size was 196. The sample size for the comparison group was limited by feasibility and budgetary constraints, but was sufficient to detect practically significant differences between the intervention and comparison groups. The same formula for two sample comparison of proportions was used, but with power set to 0.65 and the size of the intervention group as reported above. The calculated sample size for the comparison group was 140. The resulted sample size was sufficient to detect differences between intervention and comparison groups, but it was not sufficient for marz level comparisons within Zone 2. In Zone 1, the sample size from each marz was adequate for marz level comparisons.

Of 55 PHC facilities targeted by the project in Kotayk, Gegharkunik, and Tavush marzes, 10 rural health posts (FAP) and 4 Medical Ambulatories (MA) were selected through stratified random sampling to meet the desired sample size of 196 respondents. The number of facilities selected from each marz was proportional to the number of facilities from that marz in the general pool of targeted facilities.

Seven FAPs and three MAs were selected for the comparison group by stratified random sampling to assure the desired sample size of 140. Another two facilities (one FAP and one MA) involved in the baseline assessment as target sites were excluded from the list of project's targets afterwards and were involved in the follow-up assessment as comparison sites, thus increasing the total number of respondents from comparison sites to 168. In two intervention sites, Tsovak MA and Haghartsin MA, CHCs were not established, and, since they were involved in project's other activities, they could not serve as "pure" intervention or comparison sites. Thus, these sites were excluded from analysis (Table 1), which resulted in 168 respondents from intervention sites involved in analysis (instead of initially planned 196).

2.2 Survey administration

Three interviewers completed 26 clusters (14 for intervention facilities and 12 for comparison facilities). For each cluster, the names and addresses of the 25 most recent clients of the selected facility were taken from the facility's journal of visits. The interviewers visited the

selected addresses and provided a self-administered questionnaires to an eligible respondent until 14 questionnaires were distributed. The completed questionnaires were collected in envelopes (distributed along with the questionnaires) sealed by the respondents to ensure the confidentiality of the data (Table 1).

Table 1. PHC facilities (intervention and comparison groups), Zone 2

Marz	Facility	
	Intervention site	**Comparison site**
Kotayk		
	1. Zar MA	1. Akunk FAP
	2. Kaputan MA	2. Hatsavan FAP
	3. Katnaghbyur FAP	3. Voghjaberd FAP
	4. Jraber FAP	4. Mrgashen MA
	5. Saralanj FAP	
	6. Teghenik FAP	
Gegharkunik		
	7. Gagarin FAP	5. Lchashen MA
	8. Chkalovka FAP	6. Torfavan FAP
	9. Tsovak MA*	7. Aghberk FAP
	10. Akhpradzor FAP	8. Shorzha MA
		9. Aygut FAP
Tavush		
	11. Tovuz FAP	10. Aygehovit MA
	12. Tsaghkavan FAP	11. Khachardzan FAP
	13. Haghartsin MA*	12. Teghut FAP
	14. Hovk FAP	

**CHCs not established, excluded from analysis*

2.3 Instrument

The KAP survey was designed to compare the level of health-related knowledge, attitudes, and practices in selected project target communities with comparison communities not targeted by the project.

The instrument, developed in close collaboration with the PHCR PE team on the basis of its training modules and materials (leaflets and brochures), focused specifically on issues targeted by the Project: child health (including breastfeeding, child safety, and immunization), reproductive health (RH), tuberculosis (TB), diabetes, hypertension, healthy nutrition, urinary tract infections (UTI), healthy bones, and healthy lifestyle. The instrument also contained socio-demographic questions (Appendix 1). In addition to distributing the self-administered questionnaires, the interviewers completed journal forms (Appendix 2) where they recorded information regarding the interview and selection processes to document compliance with the sampling protocol and response patterns.

2.4 Training/pre-testing/data collection & entry

Interviewer training and pre-testing lasted one day in each marz. The PHCR M&E Team developed and delivered to interviewers a training guide containing important information regarding the research objectives, methods, sampling/interview administration, and timeline. Two interviewers in Kotayk marz, two interviewers in Gehgharknik marz, and one interviewer in Tavush marz participated in this assessment. The interviewers received all the items necessary to conduct the fieldwork, including facility code lists, journal forms, maps,

instruments in Armenian and Russian, envelopes, folders, and pencils. Data collection took place in June-July 2009. Several spot-check and monitoring visits were done to data collection sites by Project Technical Assistants to ensure the accuracy of data collection. The staff of the Center for Health Services Research and Development of the American University of Armenia, trained by the Project's M&E Team, entered that data into SPSS 11 statistical package. Double entry and subsequent cleaning ensured the accuracy of the database.

2.5 Data analysis

The KAP survey, focused on health issues targeted by the Project: child health (including breastfeeding, child safety, and immunization), RH, sexually transmitted diseases (STD), TB, diabetes, hypertension, healthy nutrition, UTI, healthy bones, and healthy lifestyle. The data were analyzed by specific topic and in aggregate (e.g., child care) for both the intervention and comparison groups. In two intervention sites, Tsovak MA and Haghartsin MA, CHCs were not established, and, since they were involved in project's other activities, they could not serve as "pure" controls. Thus, these sites were excluded from analysis.

For "knowledge" items, each correct response to one of the 16 items was valued as one while incorrect or "don't know" responses were scored as zero. For the eight "attitudinal" items a score of one was given for each favorable attitude and a zero for each unfavorable or neutral response (see Appendix 1). For "practice" items (4 items), responses consistent with evidence-based recommendations were scored as one; other responses were scored as zero. The M&E team then converted these scores to percentages. Summative scores were not calculated if answers to any element were missing. This led to missing values for up to 4%, 2%, and 5% of the knowledge, attitude, and practice summary scores, respectively.

3. Results

3.1 Client knowledge

The 16 knowledge items consisted of five items on child health, breast feeding, immunization, and safety; two items on healthy nutrition; two on diabetes; two on STDs; and one each on reproductive health, hypertension, osteoporosis, TB, and UTI. Table 2 provides the proportion of correct answers. The intervention group demonstrated statistically significantly better knowledge on prevention of whooping cough and vaccination, and child care and safety. Respondents from the comparison group were statistically significantly more likely to be aware of benefits of longer term breastfeeding (into the second year of child's life). The cumulative knowledge score was higher in the intervention group compared to the comparison group: 47.9 (SD[1] 14.7) versus 45.3 (SD 16.1).

In general, respondents demonstrated good knowledge on breastfeeding, child diarrhea and child care, threat of contracting HIV if getting an injection with unsterilized needle, threat of home-canned food for health, and that condoms cannot be reused. Less than half knew that hypertension does not cause any noticeable symptoms in its early stages; less than one quarter

[1] SD (standard deviation**)** is a statistic that describes the average distance (of the observations) from the center of the data. When the observed data are tightly bunched together and the bell-shaped curve is narrow, the standard deviation is small. When the observations are spread apart and the bell curve is relatively flat, that means there is a relatively large standard deviation.

of participants knew risk factors or symptoms of diabetes type II. Less than one third of all respondents knew that contraceptive pills do not protect from STDs and profuse night sweating could be a sign of TB (Table 2).

Table 2. Correct answers, by intervention and comparison groups

Knowlwdge statements	Intervention		Comparison	
	n	%	n	%
1. For the first six months of life, a baby does not need any food or drink except breast milk. *(true)*	128	76.2	113	68.1
2. It is in child's best interest to be breastfed into the second year of his life. *(true)**	117	69.6	133	80.1
3. Heavily dressing a child is a better way to prevent him from getting whooping cough than vaccination. *(false)**	91	54.5	71	43.0
4. A child less than 4 years old should not be allowed to play with items smaller than his fist or toys with components that can easily come loose. *(true)**	120	71.4	101	60.8
5. When a child has diarrhea, he/she should be given liquids more than he/she normally drinks. *(true)*	124	73.8	122	74.4
6. Home-canned food can be threatening for health. *(true)*	120	71.4	112	67.9
7. Fried food is healthier than baked food. *(false)*	14	8.4	25	15.1
8. Excessive use of coffee cannot increase the risk of bone fractures. *(false)*	19	11.3	28	16.9
9. Obesity does not contribute to the onset of adults' (type II) diabetes. *(false)*	37	22.0	39	23.4
10. Frequent urination or excessive urine volume is not a sign of diabetes. *(false)*	31	18.5	25	15.0
11. At its early stages, high blood pressure does not cause any noticeable symptoms. *(true)**	80	48.2	62	37.6
12. Profuse night sweating could be a sign of tuberculosis. *(true)*	52	31.1	43	25.9
13. Urinary tract infections are more frequent in boys than in girls. *(false)*	38	22.9	24	14.5
14. Contraceptive pills protect from sexually transmitted diseases. *(false)*	51	30.5	47	28.3
15. Condoms can be re-used. *(false)*	132	78.6	132	79.5
16. A person is at risk of contracting HIV if given an injection with an unsterilized needle. *(true)*	136	81.0	123	73.7
Cumulative knowledge score, mean (SD)	**47.9 (14.7)**		**45.3 (16.1)**	

**Statistically significant difference between intervention and comparison groups, $p^2 \leq 0.05$*

[2] P-value is a measure of statistical significance. The P-value represents the probability that a difference between groups happened by chance. An example would be differences in the average birth weight of newborns in two different income groups. A lower P-value for any difference in outcomes indicates a lower probability that the difference was a result of chance. Results with a low P value are considered statistically significant. For example, a p-value of .01 (p = .01) means there is a 1 in 100 chance the result occurred by chance. For most social science research, a p-value of .05 or less is considered acceptable.

3.2 Client attitudes

The eight attitudinal items addressed healthy lifestyle, child health, and reproductive health (two items each), and diabetes and hypertension (one item each). The proportion of respondents exhibiting the desired attitude was generally higher in the intervention group (Table 3). The mean cumulative attitude score was statistically significantly higher in the intervention group: 62.9% (SD 18.5) versus 58.2% (SD 17.9) in the comparison group. The intervention group demonstrated statistically significantly higher levels of desired attitudes towards prevention of diabetes complications and birth spacing. In general, respondents demonstrated desired attitudes towards regular medical check-ups, healthy lifestyle, and brushing of teeth of preschoolers. The greatest attitudinal deficits among all respondents related to physical activity as a preventive measure for hypertension, provider's capacity to recommend contraceptive methods, and adherence to vaccination schedule.

Table 3. Desired attitudes, by intervention and comparison group

Attitudinal statements	Intervention		Comparison	
	n	%	n	%
1. Most people need regular medical check-ups in order to maintain their health. *(desired)*	156	92.9	155	92.3
2. Many people can become healthier by changing their lifestyle and behaviors. *(desired)*	126	75.0	132	79.5
3. Physically active lifestyle cannot prevent hypertension. *(undesired)*	36	21.6	31	18.6
4. Diabetes complications may be prevented if blood glucose level is well controlled. *(desired)**	129	76.8	105	63.6
5. Vaccine schedules are general guides and it doesn't really matter if the schedule is strictly followed. For instance, it is OK if a child is vaccinated within six months of the appropriate time. *(undesired)*	71	42.8	62	37.3
6. There is no need to brush teeth of a preschooler. *(undesired)*	124	73.4	112	67.1
7. At least three years of spacing between births is good for both mother's and newborn's health. *(desired)**	133	79.2	114	68.7
8. Healthcare provider cannot be helpful to a couple in selecting an appropriate method of contraception? *(undesired)*	68	40.5	63	38.0
Cumulative attitudinal score, mean (SD)*	**62.9 (18.5)**		**58.2(17.9)**	

**Statistically significant difference between intervention and comparison groups, $p \leq 0.05$*

3.3 Client practices

The four practice items included two on healthy lifestyle (smoking and preventive primary care visits) and two on healthy nutrition (use of salt and solid fats such as butter, margarine, or lard). Table 4 shows the proportion of those who reported recommended behaviors. The mean cumulative practice score was slightly higher in the comparison group. The only statistically significant difference was observed in the proportion of non-smokers between groups with higher smoking rates in the intervention group. This could be explained by the larger proportion of men in the intervention group (28.0% vs. 22.9%). The proportion of non-smokers was dramatically higher in both groups than the population rates for the country, but this finding was an artifact of the large proportion of women (74.6%) in the sample.

Examining smoking by gender among all respondents provides smoking estimates closer to that of the population as a whole: 1.2% of women and 60.7% of men ($p \leq 0.000$) (Table 5).

Table 4. Desired practices, by intervention and comparison group

	Intervention		Comparison	
	n	**%**	**n**	**%**
1. Non-smoker*	132	79.0	148	88.1
2. Does not add salt in his/her meal before tasting it	130	80.2	132	81.0
3. Usually fries with vegetable oils	88	52.7	97	57.7
4. Had preventive health visit within past year	97	58.1	90	54.2
Cumulative practice score, mean (SD)	**67.1 (26.1)**		**70.2 (21.9)**	

**Statistically significant difference between intervention and comparison groups, $p \leq 0.05$*

Table 5. Smoking practice, by gender

	Male		Female	
	n	%	n	%
Smoker	51	60.7	3	1.2
Non-smoker	33	39.3	246	98.8

Most respondents (83.9% of intervention respondents and 76.0% comparison respondents) reported interest in receiving information on health-related topics in the future. Many people stated that they were interested in all topics. Among most frequently mentioned topics of interest were hypertension and CVD, diabetes, child care, RH, and healthy lifestyle.

The majority of intervention respondents mentioned that they received PE materials (Table 6). About two-thirds of them mentioned that they have participated in some activities led by a CHC. About 80% of respondents in intervention sites mentioned that they received printed health education materials from a CHC member and about 70% of intervention respondents mentioned that they read all those materials.

Table 6. Proportion of respondents receiving PE materials

Received information on:	**Intervention**	
	n	%
Open enrollment	35	72.9
Bone diseases	32	66.7
Diabetes	32	66.0
STD prevention	31	67.4
High blood pressure prevention	34	73.9
Child nutrition	32	69.6
Children safety	33	77.1
Family planning	29	63.0

About 66% of respondents in the intervention sites mentioned that health information received from the CHCs influenced their decision to visit a health facility. An overwhelming majority of intervention respondents mentioned that CHC's work was useful (or somewhat useful) to solve health problems in their communities (70.6% and 25.5%).

3.4 Client KAP levels by PHCR Project targeted topics

Aggregate KAP scores were computed by health topic (combining related knowledge, attitude, and practice items for a given topic) and reported as a percentage. This resulted in scores for child health & care (seven items, including breastfeeding, vaccination, child care, and child safety), breastfeeding (two items), vaccination (two items), child care (two items), child safety (one item), healthy nutrition (four items), healthy lifestyle (four items), diabetes (three items), reproductive health (three items), hypertension (two items), STDs (two items), osteoporosis (one item), TB (one item), and UTI (one item). Table 7 presents the results comparing the intervention and comparison groups by topic. Significantly higher scores were observed for aggregate KAP scores for child safety and vaccination in the intervention group, and marginally significant scores for UTIs. The aggregate KAP sore for osteoporosis, UTIs, hypertension, diabetes, and TB were the lowest both in the intervention and comparison groups. The overall KAP score was slightly higher in the intervention group compared to the comparison group, but this difference was not statistically significant (Table 7).

Table 7. Aggregate KAP scores by health topics, intervention and comparison groups

	Intervention		Comparison	
	n	Mean (SD)	N	Mean (SD)
Child care (cumulative)	165	66.0 (19.3)	163	61.5 (22.3)
Breastfeeding	168	72.9 (31.8)	166	74.1 (32.0)
Vaccination*	165	49.1 (37.2)	165	40.3 (37.8)
Child care	168	73.8 (32.3)	164	70.4 (33.6)
Child safety*	168	71.4 (45.3)	166	60.8 (48.9)
Healthy nutrition	160	53.3 (21.2)	160	55.5 (22.2)
Healthy lifestyle	166	76.4 (22.2)	164	78.2 (18.8)
Diabetes	168	39.1 (28.0)	165	34.1 (27.3)
Reproductive health	168	66.1 (27.4)	166	62.0 (28.9)
Hypertension	165	34.8 (33.8)	165	28.2 (34.6)
STDs	167	56.0 (31.9)	166	51.2 (31.1)
Osteoporosis	168	11.3 (31.8)	166	16.9 (37.6)
Tuberculosis	167	31.1 (46.4)	166	25.9 (43.9)
Urinary tract infections**	166	22.9 (42.1)	165	14.5 (35.4)
Overall KAP score	149	54.5 (12.7)	157	52.6 (13.5)

**Statistically significant difference between intervention and comparison groups, $p \leq 0.05$*
***Marginally significant difference between intervention and comparison groups, $p \leq 0.055$*

3.5 Client KAP levels by socio-demographic characteristics

Tables 8 and 9 summarize respondents' KAP level by socio-demographic characteristics. Women had more favorable practices than men and demonstrated higher overall scores. Older respondents exhibited significantly higher practice scores. Higher education level was statistically significantly positively associated with desired knowledge, attitudes, and overall scores. Respondents with perceived higher standard of living demonstrated better overall KAP scores. However, no association was detected between the family monthly income and KAP score. Knowledge and attitude varied across marzes, with Kotayk residents demonstrating statistically significantly more favorable scores.

Table 8. KAP scores by age, gender, education, standard of living

	Knowledge score mean (SD)	Attitude score mean (SD)	Practice score mean (SD)	Overall KAP score mean (SD)
Age				
Younger (<46†)	46.7 (14.8)	62.1 (16.9)	65.9 (24.9)*	53.3 (11.7)
Older (≥ 46)	46.5 (16.3)	58.9 (19.7)	71.9 (22.7)*	53.9 (14.5)
Gender				
Female	47.5 (15.2)	61.4 (18.6)	73.9 (20.6)*	55.0 (13.0)*
Male	44.4 (16.2)	58.2 (17.5)	53.7 (26.8)*	49.8 (13.0)*
Education				
School (< 10 years)	41.1 (16.7)*	55.8 (18.0)*	65.4 (25.8)	49.0 (14.6)*
School (10 years)	47.0 (14.6)	58.5 (18.2)*	68.9 (25.6)	53.4 (11.9)*
Professional/technical	46.4(15.7)	62.8 (18.2)	68.4 (22.8)	53.7 (13.8)
Institute/University or postgraduate	52.7 (14.3)*	68.9 (17.0)*	72.6 (18.2)	59.9 (11.8)*
Standard of living				
Below average	44.1 (16.4)	57.0 (16.6)	67.1(25.7)	51.1 (13.4)*
Average	48.3 (15.0)	62.2 (19.6)	72.1 (23.2)*	55.4 (13.0)*
Above average	46.7 (14.1)	63.5 (17.1)	61.7 (20.8)*	53.5 (12.2)

† *Mean age*
**Statistically significant difference, $p \leq 0.05$*

Table 9. KAP scores by monthly household income and marz

	Knowledge score mean (SD)	**Attitude score mean (SD)**	**Practice score mean (SD)**	**Overall KAP score mean (SD)**
Monthly household income (drams)				
<25,000	45.1 (17.2)	58.1 (15.9)	69.3 (26.7)	52.3 (13.3)
25,000 – 50,000	45.9 (14.6)	59.3 (19.3)	68.9 (25.1)	52.8 (13.1)
51,000 – 100,000	50.2 (15.5)	62.2 (19.2)	69.8 (21.2)	56.0 (13.6)
>101,000	49.8 (10.5)	66.3 (14.5)	58.3 (20.8)	55.6 (8.2)
Marz				
Gegharkunik	43.2 (15.2)*	57.8 (16.1)*	66.9 (23.2)	50.7 (12.2)*
Kotayk	49.2 (16.4)*	64.2 (18.3)*	68.2 (25.3)	56.1 (13.6)*
Tavush	46.9 (13.4)	58.3 (20.3)	72.5 (22.8)	53.2 (12.8)

**Statistically significant difference, $p \leq 0.05$*

4. Conclusions and Recommendations

The main KAP survey findings are summarized below:

The intervention and comparison groups are different.

- Cumulative attitude scores were significantly higher in the intervention group (62.9%) compared to the comparison respondents (58.2%), but still low.
- Cumulative knowledge score was higher in the intervention group, whereas the cumulative practice score was higher in the comparison group.
- The overall KAP score was higher in the intervention group than in the comparison group (54.5% vs. 52.6%), however this difference was not statistically significant and lower than the desired levels.

Most respondents want to receive health education information. Most (> 75%) respondents in both groups expressed interest in receiving information on one or more health education topics. Many were interested in hypertension and CVD, diabetes, child care, reproductive health, and healthy lifestyle.

Respondents in both groups know most about breastfeeding, child care and child safety, healthy lifestyle, and reproductive health. Intervention respondents demonstrate significantly better knowledge on child safety and vaccination. The aggregate KAP score in the intervention group for child care and reproductive health was similarly high (66%).

Respondents know least about osteoporosis, hypertension, diabetes, and TB.

- The lowest KAP scores were observed for osteoporosis, TB, hypertension, and diabetes (11.3%, 31.1%, 34.8%, and 39.1%, respectively). These findings stress the need for PE activities to target these topics during CHC trainings.

Smoking rates by gender in the surveyed population are close to the population estimates. About 1% of women and 61% of men in the surveyed population were smokers.

More respondents in the intervention group report having preventive visits to health facilities.

Respondents from Gegharkunik marz demonstrate significantly lower knowledge, attitude, and overall KAP scores. Knowledge, attitude, and overall KAP scores in Gegharkunik marz were the lowest among the three marzes in Zone 2 indicating the need for more active education interventions in Gegharkunik marz.

Practice scores are positively associated with age. Overall KAP scores are positively associated with education.

- Older respondents demonstrated higher practice scores compared to younger ones suggesting the need to target younger populations.
- Higher education level was positively associated with desired knowledge, attitude, and overall KAP scores, suggesting the need to target population with lower education levels.

Analysis and comparison of intervention and comparison groups demonstrate that the project is working as intended. Several significant findings with implications for guiding further development of public education activities emerged from this assessment:

Although comparison of patients' cumulative knowledge scores demonstrates better results in the intervention sites, they are still low.

Lack of knowledge about widespread non-communicable diseases (osteoporosis, hypertension, and diabetes) and TB indicates the need to address these topics during public education activities.

Desire to receive health education materials, expressed by most respondents, indicates the need to continue health education activities in communities.

High smoking rates in men indicate importance of continuous and consistent efforts to reduce tobacco consumption in Armenia.

Low KAP scores in Gegharkunik marz compared to other marzes in Zone 2 indicate the importance of continuing educational activities particularly in this marz.

Given better KAP scores in communities where CHCs are established, it is important to expand the role of CHCs, continuously involve them in PE activities, as well as to establish CHCs in villages not targeted by the PHCR project.

Findings of KAP surveys in Zones 1, 2 and 3-1 were generally consistent. In all zones intervention respondents demonstrated higher KAP scores than comparison groups, but still low. The highest KAP score observed in Zone 1 did not exceed 57%. Intervention respondents in all surveys demonstrated higher knowledge in topics related to child care, reproductive health, and prevention of STDs. The lowest scores were observed for such non-communicable diseases as osteoporosis, diabetes, and hypertension.

Women demonstrated consistently higher scores than men. Higher education was positively associated with higher scores across all zones. In all surveys the overwhelming majority of respondents expressed desire to receive health education information.

Findings of the KAP surveys indicate the importance of continuing health education activities with specific emphasis on non-communicable diseases, prevention of smoking, and particularly directing messages to men and to less educated population.

Appendix 1. Health Knowledge, Attitude, & Practice Survey

The following questions assess your attitudes about several health-related issues. Your answers will help us to better organize and evaluate health education activities in your community. Thanks in advance.

For each statement given, please indicate whether you think it is true or false.

1. For the first six months of life, a baby does not need any food or drink except breast milk.	1. True	2.False	3. Don't know
2. It is in child's best interest to be breastfed into the second year of his life.	1. True	2. False	3. Don't know
3. Heavily dressing a child is a better way to prevent him from getting whooping cough than vaccination.	1. True	2. False	3. Don't know
4. A child less than 4 years old should not be allowed to play with items smaller than his fist or toys with components that can easily come loose.	1. True	2. False	3. Don't know
5. When a child has diarrhea, he/she should be given liquids more than he/she normally drinks.	1. True	2. False	3. Don't know
6. Home-canned food can be threatening for health.	1. True	2. False	3. Don't know
7. Fried food is healthier than baked food.	1. True	2. False	3. Don't know
8. Excessive use of coffee cannot increase the risk of bone fractures.	1. True	2. False	3. Don't know
9. Obesity does not contribute to the onset of adults' (type II) diabetes.	1. True	2. False	3. Don't know
10. Frequent urination or excessive urine volume is not a sign of diabetes.	1. True	2. False	3. Don't know
11. At its early stages, high blood pressure (hypertension) does not cause any noticeable symptoms.	1. True	2. False	3. Don't know
12. Profuse night sweating could be a sign of tuberculosis.	1. True	2. False	3. Don't know
13. Urinary tract infections are more frequent in boys than in girls.	1. True	2. False	3. Don't know
14. Contraceptive pills protect from sexually transmitted diseases.	1. True	2. False	3. Don't know
15. Condoms can be re-used.	1. True	2. False	3. Don't know
16. A person is at risk of contracting Human Immunodeficiency Virus if he is given an injection with an unsterilized needle.	1. True	2. False	3. Don't know

Do you think that...

17. Most people need regular medical check-ups in order to maintain their health?	1. Agree	2. Disagree	3. Unsure
18. Many people can become healthier by changing their lifestyle and behaviors?	1. Agree	2. Disagree	3. Unsure
19. Physically active lifestyle cannot prevent hypertension?	1. Agree	2. Disagree	3. Unsure
20. Diabetes complications may be prevented if blood glucose level is well controlled?	1. Agree	2. Disagree	3. Unsure
21. Vaccine schedules are general guides and it doesn't really matter if the schedule is strictly followed. For instance, it is OK if a child is vaccinated within six months of the appropriate time?	1. Agree	2. Disagree	3. Unsure
22. There is no need to brush teeth of a preschooler?	1. Agree	2. Disagree	3. Unsure
23. At least three years of spacing between births is good for both mother's and newborn's health?	1. Agree	2. Disagree	3. Unsure
24. Healthcare provider cannot be helpful to a couple in selecting an appropriate method of contraception?	1. Agree	2. Disagree	3. Unsure

The following questions refer to your lifestyle.

25. Do you currently smoke? 1. Yes 2. No

26. Do you add salt in your meal before testing it? 1. Yes 2. No

27. What do you (or a family member) <u>usually</u> use when frying potato or vegetables:
(please mark only one option).
    1. Butter or melted butter
    2. Ready made oil
    3. Vegetable oil
    4. Margarine
    5. Lard
    6. Other*(specify)*_____
    7. Nothing (do not fry)
    8. Don't know

28. During the last year, did you visit a healthcare provider for a preventive check-up (help to avoid getting sick in future)? 1. Yes 2. No

29. Would you like to receive information on health-related topics in future?
    1. Yes (please, indicate the topics) _____
    2. No

30. To your knowledge, has a Community Health Committee (CHC) been established in your community (CHC is a group of villagers who passed training and are involved in health education activities in your village)?
    1. Yes 2. No (If no, do not answer the remaining questions. Thank you for participating in the survey!)

31. Have you or a family member participated in any CHC-led community activities in the last 12 months? 1. Yes 2. No

32. Have you received any health-related written materials from a CHC member (including a PHC nurse) - any leaflets, brochures, etc.?

1. Yes 2. No (If no, go to question 34)

33. Have you read these materials?

1. Yes, all of them 2. Yes, some of them 3. No

34. Please indicate if you have received any information on the following healthcare topics from the CHC members or through the CHC activities.

1. Open enrollment	1. Yes	2. No
2. Healthy bones	1. Yes	2. No
3. Diabetes	1. Yes	2. No
4. Prevention of Sexually transmitted diseases	1. Yes	2. No
5. Hypertension	1. Yes	2. No
6. Child nutrition	1. Yes	2. No
7. Child safety	1. Yes	2. No
8. Family Planning	1. Yes	2. No

35. Have any of your visit(s) to a health care facility been motivated by the information received from the CHC members or through the CHC activities?

1. Yes 2. To some extent 3. No

36. Do you think that CHC activities help your community in dealing with community health issues?

1. Yes 2. To some extent 3. No

37. **Please, indicate your:**

a. Age: _____

b. Gender: 1. Female 2. Male

c. The highest level of education you completed:

1. School (less than 10 years)
2. School (10 years)
3. Professional technical education (10-13 years)
4. Institute/University or Postgraduate

d. Your family's general standard of living:

1. Substantially below average
2. Little below average
3. Average
4. Little above average
5. Substantially above average

e. Average monthly income of your household:

1. Less than 25,000 drams
2. 25,000 – 50,000 drams
3. 51,000-100,000 drams
4. 101,000-250,000 drams
5. More than 250,000 drams
99. Don't know

f. How many people live in your household (including children)? _____ people

Thank you for participating in the survey!

Appendix 2. Journal Form

(One form for each cluster of 14 respondents served by a health care facility)

Date _____

City/ Village_____

Interviewer name _____

Facility type: Policlinic
SVA
Health Center
FAP

Facility code _____

Visit/ attempt number	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**
Result*														

Visit/ attempt number	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**
Result*														

Visit/ attempt number	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**
Result*														

****Result Code***

1. Complete interview
2. Nobody at home
3. Nobody that complies to study requirements
4. Respondent (client and/or the accompanying household member) is not at home
5. Complete denial
6. Respondent's denial
7. Respondent is not able to answer
8. Other _____
9. Incomplete interview (unreturned questionnaire)