

**EVALUATION PLAN FOR PILOT PRIMARY
HEALTH CARE DEVELOPMENT PROGRAM - THE
SUBCOMPONENT OF WORLD BANK ASSISTED
PRIMARY HEALTH CARE DEVELOPMENT PROJECT**

(Grant Proposal)

Written by
Candidate for Master's Degree
of
Public Health
Nune Mangasaryan
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Abbreviations

CP	Control Population
GP	General Practitioner
GPP	General Practice Pediatrician
MB	Management Board
MC	Medical College
MoH	Ministry of Health
NIH	National Institute of Health
PHC	Primary Health Care
PHCDP	Primary Health Care Development Program
PI	Program Implementation
SMU	State Medical University
TP	Target Population
UNDP	United Nations Development Program
WB	World Bank
WG	Working Group

1. Abstract

The government of Republic of Armenia intends to implement the Primary Health Care Development Project with assistance of World Bank (see Annex A). The overall Project consist of three main subcomponents aiming to establish a strong and developed Primary Health Care system. One of subcomponents, Primary Health Care Development Program (PHCDP), aims to develop high quality performance in PHC through wide ranging support of PHC teams, including the maintenance and rehabilitation of facilities, provision of equipment, medical supplies, first aid drugs, computers, etc. In the first year, it is planned to select 10 facilities from two marzes for piloting of PHCDP, and to continue the program later in other 9 marzes if program evaluation shows a positive result.

The objective of the paper is to propose an evaluation plan for the first phase. Although every facility will have its own set objectives, several general indicators and objectives will be common for all target PHC teams and may be evaluated by the common delineated evaluation plan. Five objectives detailed below will be evaluated by the proposed evaluation plan. Considering all 5 set objectives as very important and necessary for evaluation of program, the purpose of this paper is to give detailed description of evaluation plan for objective 1, which pertains to the PHC facility as the place of first contact between the medical services and patients.

In order to assess the impact of the program, it is proposed to use the pre- post- quasi-experimental method. The data about target and control PHC facilities' activity will be gathered before and after program implementation, during the same calendar month, with interval of 1 year between them and the corresponding proportions will be calculated. According to objective 1, the net gain in target population proportions shall be 20% or more compared with the net gain in control population. Questionnaire shall be used as a main tool to gather the necessary data; the source of data will a community survey. The *systematic sampling method* or cluster sampling will be used for choosing the sampling elements.

Analysis of the program will be based on estimation of both statistical significance (hypothesis testing) and practical significance (confidence intervals) of collected data and comprise of 3 stages: 1)analysis of pre-data - comparison between TP (Target Population - population served by facility where the program is implemented) and CP (Control Population - population served by facility where the program is not implemented); 2) analysis of TP data - comparison between pre- and post- data; 3) analysis of TP and CP pre- and post- data - comparison between changes of TP and CP after program implementation.

The budget and management issues are described in order to have the picture of all steps and expenses of the program evaluation.

2. Specific aims

The government of Republic of Armenia intends to begin reforms in health system. The overall Armenia Health Project (see Annex A) consists of two parts: PHC Development Project, and Improvement of Health Financing Mechanisms. The MoH applied in 1997 to United Nations Development Program (UNDP) for a grant to ensure countrywide information campaign about the beginning of Health Reforms in Armenia. The overall Health Project content, ways of implementation, directions and timetable of actions will be elucidated in the campaign.

The following proposal is aiming to conduct the evaluation of 1-year implementation of Primary Health Care Development Program (hereinafter referred as PHCDP), one of subcomponents of PHC Development Project, in 10 facilities of 2 marzes by asking a grant from UNDP, which will allow to present results of the pilot-program and will guide further decision making.

3. Background and Rationale

3.1 PHC Development Project in Armenia

Armenia's health care system is directed towards highly specialized, hospital-based approach to disease management. Public resources are mostly spent on the secondary and tertiary levels of health care for the management of conditions which could be managed more efficiently and effectively at the primary level of care. In Yerevan polyclinics, where both primary care and secondary care are provided, by district therapists and specialists respectively, the utilization of district therapists' services is less than 50% in all polyclinic visits.

The PHC reforms started in many countries since 1950-1960. Results of these reforms were evaluated and showed increase in utilization in PHC settings and high cost-effective use of resources for health care (1,2,3). The visits for expensive specialized care to out-patient and in-

patient health facilities and the utilization of hospital beds decreased dramatically. Comparative analysis between reformed PHC centers and control facilities in Spain showed: reduction of emergency rooms' use by 40%, reduction of volume of hospital stays by 16%, and reduction of the volume of total inpatient days by 10% (1).

Taking into account the experience of countries reached high level of primary health care, the Government of Armenia has decided to adopt new health strategies centered around primary health care. The reforms are intended to facilitate equitable, efficient, and effective utilization of the resources available to respond to the population's most urgent health problems. To begin the process of reforms, the Government plans to implement the Primary Health Care Development Project with assistance of World Bank, which provides a credit for both PHC Development and Health Financing components of the Armenia Health Project (see Annex A).

The Project Proposal, presented to the World Bank, was elaborated by special working groups in the Ministry of Health, having representatives from different institutions of health care. Main approaches in the PHC Development Project were based on the general strategy of PHC Development in Armenia, where the unique features will be: first contact care/accessibility, comprehensiveness, coordination of care, and continuity (see the attached strategy document - Annex B). The main provider unit of PHC, described in strategy, will be the PHC team, comprised of a general practitioner (family physician), general practitioner-pediatrician, midwife, and nurses, and working within polyclinics (several teams in the same facility) or ambulatories (one team).

The author of this proposal has participated as a member of the working group in preparation of PHC Development Strategy and Project Proposals (see Annexes B and C).

3.2 Components of PHC Development Project

The overall PHC Development Project, which consists of three main subcomponents, aims to establish a strong and developed Primary Health Care system. The subcomponents are as follows:

1. Training of Primary Health Care Providers
 - 1.1 Training of general practice physicians at the State Medical University (SMU)
 - 1.2 Retraining of district therapists, district pediatricians, midwives and district nurses at the National Institute of Health (NIH)
 - 1.3 Training of Primary Health Care nurses at the Medical College #1(MC)
2. Development of a high quality performance by PHC facilities through wide ranging support of PHC teams, including the maintenance and rehabilitation of facilities, provision of equipment medical supplies, first aid drugs, computers, etc. (Primary Health Care Development Program).
3. Development of clinical practice guidelines for family practice by specially established office of general practitioners at NIH.

3.3 PHCDP - Brief Description

PHCDP implementation will begin in 1998. The Program is intended to target 70 PHC teams in all 11 marzes of Armenia during 4 years of program implementation, which includes: the maintenance and rehabilitation of facilities, provision of equipment, medical supplies, first aid drugs, computers, printers, etc. Main institutions participating in implementation of the program are:

- PHCDP office, which shall be responsible for management of PHCDP. The seven staff members are comprised of Manager, Appraisal and Promotion Officers, Computer and Medical Equipment Specialist, Monitoring and Evaluation Officer. Other temporarily hired staff will support the mentioned permanently working specialists.

- PHCDP Committee, which shall be responsible for supervision of program implementation. The Committee will be headed by first Deputy Minister of Health include heads of MoH Departments.
- PHC facility Management Board, which will be comprised of elected members of community and facility, and shall be responsible for program implementation and supervision at the local level. Each facility participating in the program will have its Management Board. The Board is responsible for presenting to PHCDP office the facility PHC Development Plan, which will be appraised, and in case of approval by office and Committee will become the main document for later evaluation of Program. Thus, the set objectives will be defined by several community and facility representatives, joined in Management Board.

The first year is planned to select 10 facilities from two marzes for piloting of PHCDP, and to continue the program later in the other 9 marzes if program evaluation will show successful achievement of team's objectives stated. The purpose of the paper is to describe an evaluation plan for first 10 selected facilities of 2 marzes.

As was mentioned earlier, evaluation of every facility will be based on objectives, as stated in PHC Development Plan - Main Document, which will be drawn up by PHC facilities that participate in PHCDP. The PHCDP staff will assist all applicant facilities in writing the PHC Development Plans. It is expected, that the objectives and the planned extent of their achievement will vary among all 10 facilities, depending on the local PHC needs. Nevertheless, several general evaluation indicators will be mandated and therefore be common to all target PHC teams (4). These common indicators will be evaluated by the evaluation plan, delineated below, and set by PHCDP office after agreement with PHCDP Committee.

The implementation in all first 10 facilities, which includes civil works and provision of equipment, supplies, drugs, etc., will begin gradually, from 1st March, 1997, and the average duration of it for every facility is supposed to be about 4 months.

3.4 Literature Review and Discussion of Applicability of Different Approaches to Armenian Model of Reforms and PHCDP

Evaluation of PHC services mostly involves the assessment of quality of care. In order to evaluate health programs concerning PHC, most evaluators analyze the quality through separate analysis of three main “portions”- structure, process, and outcome, as originally proposed by Donabedian (5).

There are several other approaches to PHC program’s evaluation, worked out before and after Donabedian’s three-side model. Donabedian, the author of three basic approaches, showed them in comparison with other authors’ models and approaches, with interrelationships and correlations (see table1, Annex D). In these approaches some of three elements actually are broken down into two parts, as it is shown in the table. Although Donabedian himself, describing his model, admit the usefulness of different approaches in different situations, he considers his model as more flexible, and more valid model, where the “validity is straightened by its overt or latent presence as a substitute in these other formulations”(5).

Donabedian emphasizes the significance of “process of care” evaluation and considers it as the “the primary object of assessment” in both quality assessment of medical care and evaluation of programs at PHC level. At the same time Donabedian underlines two other components, structure and outcome, also as important elements for measuring and assessing the quality, although less directly (5).

According to Barbara Starfield, who also used the structure-process-outcome approach to measure the attainment of PHC, it is important to evaluate PHC programs by defining the

potential of health services, reflected in four *structural* elements (accessibility, range of services, eligible population, and continuity), and *activity* of PHC facilities, reflected in two *process* elements (utilization, needs recognition). While the structural elements show the *potential* for, the process elements reflect the “*attainment* of each of unique attributes of primary care: first contact care, longitudinality, comprehensiveness, and coordination”(6).*

Thus, structure assessment of medical care, reflecting the medical facilities, staffing, equipment, etc., will become the potential and basis for ensuring the quality of medical care.

Many authors consider the measurement of process elements to be more important, since the high level structure elements should be “translated” into appropriate activities, i.e. into process elements, in order to achieve increased health outcomes.

In the PHCDP all PHC offices are supposed to be rehabilitated and equipped according to same standards, and all physicians and nurses will be retrained at the NIH by the same programs. In such a program, the measurement of the structure of new offices obviously will show all target facilities the same in case of “correct” implementation and the difference between equipment provision in target and control offices will be sufficient, even if it will not lead to increase of process and outcome components in TP. Therefore the PHCDP evaluation is proposed to assess, whether the new structure elements will change the next stages, particularly the process and outcome of medical care after program implementation.

It is not reasonable to measure *outcome* within pilot program, conducted over a short time period. The outcome of medical care (reflecting, according to Donabedian, patients’ current and future health status(5)), will be the final stage of PHCDP evaluation, and show the population health changes due to the program. Still, for the pilot program evaluation, which is necessary to accomplish within the short period of 1 year, the outcome evaluation may not show real outcome changes due to program implementation.

* page 17

Although both the structure and process evaluation may be conducted in PHCDP, the process evaluation is more appropriate method of PHCDP evaluation, since:

- a) the measuring of both structure and process elements will require more resources and time,
- b) actually the process evaluation shows the *activity* (measured by process elements) of the *potential* (measured by structure elements), so the process evaluation assesses the use of potential as well.
- c) for selected indicators, there is evidence that change in process indicators is correlated with improvement in outcome (7). While the relationship between structure elements and health outcomes is not strong, , the process elements are shown to be directly related to health outcomes (8).

Thus, the process evaluation, being manifested in literature as a direct measuring of quality of care, is chosen as the basic method for Pilot PHCDP evaluation.

Evaluation of PHC programs is usually based on three types of characteristics: unique features of PHC, essential but not unique features, and derivative features (6). The achievement of unique features of primary care is important to measure within the evaluation framework, although most evaluators prefer to estimate the achievement of essential and derivative features as well (6).The unique features, according to Barbara Starfield and Strategy of Armenia Health Reforms, are as follows:

1. **First contact care (accessibility)** - is reflected in both accessibility of PHC facility and of heath care, in use of PHC facility for the visit during first symptoms of disease. May be measured by utilization, assessment of accesibility in terms of time, place, payments, etc. Medical records and patients' interviews may be used for evaluation.
2. **Equity** - the equal opportunity for community members to use PHC services
3. **Comprehensiveness** - the appropriate range of services, corresponding to needs of population and including the range of preventive services as well. The necessary

information can be acquired from medical records and from patients about rates of use for particular services as well as by direct observations in PHC clinics.

4. **Continuity** - the continuous process of “the whole range of health care issues arising during an individual’s lifetable” (see Annex B). This feature means continuous follow-up of patients for every health problem, even in case of referral to specialist.
5. **Coordination of care** - reflected in system of management of referral system to and receiving the feedback from specialists, proportion of people managed within the PHC facility without referrals.

The issue of longitudinality, which means continuous, regular care of patient by the *same* PHC provider/facility, is not emphasized in Armenian Strategy, since the patients in current health care system mostly do not have different options of health care providers - they are assigned to certain therapists and often (in villages) the alternative nearby therapist is not accessible geographically. Besides, assuming limitations in defining the longitudinality in Armenia, it will be difficult to evaluate this feature.

The proposed evaluation plan is mostly concerned with the measurements reflecting the first contact care and comprehensiveness.

Within the pilot part of PHCDP it is reasonable to construct the evaluation framework for mentioned unique features, taking into account:

- necessity to have quick answers for later continuation of the program
- ease to record necessary data by health providers
- resource constraints
- need for valid, reliable data

Particularly, one of process elements, utilization, may be of use for the evaluation framework, reflecting the attainment of first contact care and comprehensiveness. Therefore utilization, which is the important measure in process evaluation and reflects the “extend and

kind of use of health services”(6), may be used for PHCDP evaluation as main element, reflecting the attainment of two unique features of PHC.

4. Program objectives / Research Questions

Since the utilization patterns can be the important factors reflecting two unique features to be estimated, some indicators may be selected to estimate the achievement of the pilot program’s objectives (see table 2, Annex D). Based on important goals and features of PHC, among numerous objectives of the PHCDP the following will be stated in all PHC Development Plans:

1. The proportion of patients applied first to GP among those having health problems, for which they sought assistance from health providers, during three months, will be compared in target and control population, before and after program implementation. The difference between target population (TP) changes over 1-year interval and control population (CP) changes at the same period will be 20%* higher.

Indicator - The proportion of patients applied at first to GP among those having health problems for which they sought assistance from health providers during three months.

Numerator - number of patients having health problems and applied first to GP during three months.

Denominator - number of patients having health problems, for which they sought assistance from health providers during three months.

The objective will reflect achievement of one of unique features - first contact care/accessibility

* Note: all changes in proportions are considered to be absolute

2. The proportion of people who have minor surgery manipulations* in PHC facility in total population during three months will be compared in target and control population, 2 months before and 6 months after program implementation. The difference between target and control population will be 10 % higher compared with baseline data after the program implementation.

Indicator - The proportion of people who have minor surgery in PHC facility in total population during three months.

Numerator - number of patients having minor surgery manipulations in PHC facility during 3 months.

Denominator - number of population served by PHC facility.

The objective will reflect achievement of one of unique features - comprehensiveness.

3. The proportion of called ambulances (for emergency care) for hypertension among all hypertension patients during three months will be compared in target and control population, before and after program implementation. The difference between target and control population after the program implementation will be 10% higher compared with baseline data.

Indicator - the proportion of called ambulances for hypertension among all hypertension patients during three months.

Numerator - number of called ambulances for hypertension patients during three months.

Denominator - number of hypertension patients

The objective will reflect achievement of one of unique features - comprehensiveness.

* Minor surgery manipulations include: sutures, debrided wounds, dressing, fractures immobilized, etc

4. The proportion of children referred to ENT specialists among all ENT cases in children during three months will be compared in target and control population, 2 months before and 6 months after program implementation. The difference between target and control population will be 10 % higher (towards decrease in target population) after the program implementation.

Indicator - the proportion of children referred to ENT specialists among all ENT cases (all diseases of ear, nose, throat) in children during three months.

Numerator - number of children referred to ENT specialists during three months

Denominator - number of all ENT cases in children during three months

The objective will reflect achievement of comprehensiveness.

5. The proportion of diabetes patients checked for blood glucose level during one month in all registered cases will be compared in target and control population, 2 months before and 6 months after program implementation. The difference between target and control population will be 50 % higher after the program implementation. In those cases when previously physicians did not accomplish those tests, the mentioned proportion will reach 50%* .

Indicator - the proportion of diabetes patients having checked for blood glucose level during one month in all registered cases

Numerator - number of diabetes patients having checked for blood glucose level during one month

Denominator - all registered cases of diabetes in PHC facility

The objective will reflect achievement of comprehensiveness.

* According to guidelines, every diabetes patient should have checked blood glucose at least once a month.

Additional objectives, considered important for the Management Board, may be set for some facilities, and afterwards evaluated, although not included in the current evaluation plan.

Preventive services, which are considered very important at PHC level, are not included in the evaluation plan. For example, the vaccination coverage may be a good indicator for PHC facility activity. But, since the vaccination programs for children have been implemented in Armenia through vertical programs not depending on quality of PHC services and achieved high results after the assistance of international organizations, we do not expect to observe sufficient changes in the vaccination coverage through the PHCDP implementation.

The utilization of PHC services for prevention of diseases is also not included in the evaluation plan, since it is expected that the PHC providers will need more time to promote importance of preventive regular check-ups. Therefore the impact of this PHC activity can be evaluated later.

Considering all 5 set objectives very important and necessary for evaluation of program achievements, the purpose of this paper is to give detailed description of evaluation plan for objective 1, reflecting, mostly the PHC facility as the place of first contact between the medical services and patients.

5. Methods

5.1 Design

In order to assess the impact of the program, it is proposed to use the pre- post- quasi-experimental method (9,12). Therefore, the data about PHC facility activity will be gathered before and after program implementation, during the same month, with interval 1 year between them. Taking into account, that the process of implementation will last about 4 months, and

“after” data will be gathered when the new PHC facility will work about 6 months, the “before” data will be gathered 2 months prior to program implementation. (see time-table, p.20).

At the same time similar data will be gathered about control facilities, which will be chosen in the same marz, in neighborhood of target facilities, in order to maximize comparability (10,11):

Figure I. PHCDP evaluation design

	Pre - test	Intervention	Post - test
Intervention facility	O	X	O
Control facility	O		O

Every target facility (teams) and every control facility (teams) will be evaluated by the same method, where baseline data and the data after program implementation will be gathered with interval of 1 year, during the same month. According to set objective 1, the adjusted difference between target and control population proportions shall be more than 20% increase in the target population.

The comparison of the intervention and control facilities within two pilot marzes (having almost the same population structure and socio-economic conditions within intervention marzes) will provide more real picture of program impact (10,11). In this case the local factors should not influence evaluation results.

4. 1. 1. Strengths / Limitations of Design

The strengths and limitations of design depend on level of internal and external validity. The more are threats to both internal and external validity within any chosen design, the more are the limitations and the less is the importance of evaluation results concluded. It is essential

to anticipate the expected internal validity of the design, which will show the extent of real correspondence between the calculated proportions and the program impact. At the same time the external validity of design, reflecting the generalizability or representativeness of results, is not of less importance. Taking into account Campbell and Stanley framework (12), where the 8 threats to external, and 4 - to external validity of design may be present at evaluation designs, the following threats to validity should be considered during the evaluation of the program:

Table I. Threats to internal validity

Threats to internal validity	Present	Absent	Not applicable	Why?
1. Contemporary history	✓			Other programs implementing in TP or CP should be taken into account. The localized effects of such programs may change the picture due to PHCDP impact. The threat is weak - less likely
2. Maturation		✓		Even if the maturation processes (such as biological or psychological) will take place, they will be in both TP and CP, therefore the comparison of proportions between them will be not affected.
3. Pre-testing procedures		✓		The pre-testing procedures will be conducted by randomized population survey. "Learning from pre-test" is not an issue here.
4. Measuring instruments		✓		The instrument for pre- and post-testing is the same.
5. Statistical regression		✓		The selection of surveyed population will be not due to extreme factors.
6. Differential selection of subjects	✓ ?			Characteristics of TP and CP that may be different (SES, education, age, etc). Will be weak (?) in case of selection similar TP and CP
7. Attrition (differential experimental mortality)	✓			Emigration should be taken into account
8. Interactions with	✓			The interaction of selection and history is possible

selection				to be present. The participant communities may be more motivated.
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Table II. Threats to external validity

Threats to external validity	Present	Absent	Not applicable	Why?
Reactive or interaction effect of pre-testing (Testing/treatment interaction)		✓		The survey of population is not likely to impact the use of PHC facilities for first contact care.
Selection/treatment interaction	✓			Differences in SES, education, age composition between TP, CP from one side and the whole country population - from another, may make the program achievements not generalizable.
Reactive/situational effects of experimental procedures		✓		Alteration of the TP behavior due to evaluation of the program may especially have an impact on health providers and be reflected in record keeping, which is not a problem for objective #1.
Multiple treatment interference			✓	No other implementation is expected to be done.

The high degree of reliability of the both measurement process and measuring instrument, i. e. highly “consistent results on repeated measurements” (14), is also necessary to achieve within the evaluation process. Since the population survey in both TP and CP will be conducted and the measurement instrument will be the questionnaire (see 4.2 -Sources of Data - p.19), it is of great importance to take into account possible sources of low reliability and to take corresponding measures to avoid them. The measures should be directed towards achievement of high reliability of both surveying process and the quality of questionnaire:

Table III. Sources of low reliability and measures to avoid them

Sources of low reliability	Measures to avoid them
Subject	Try to reach respondents willing to give truthful

	response
Observer / Rater / Interviewer	Appropriate choosing of interviewers and high level training of them
Situation	Try to interview in convenient conditions
Instrument	Questionnaire easy to understand, with the good wording, pre-tested.

5.2 Sources of data:

The necessary sources of data depend on the research questions - stated objectives.

For the objective#1 the population based quantitative data are needed, thus the questionnaire shall be used as a main tool to gather the necessary data; the source of data will be population survey. The questionnaire, developed specially for the PHCDP evaluation, includes demographic data, questions, which will allow not only to calculate proportion of patients applied for health problems at first to PHC office, but also to reveal the reasons for it (see Annex E). The first version of questionnaire will be pre-tested in Yerevan, and several necessary corrections will be made. The survey of population will be conducted for patients served by both target and control facilities* .

Validity and reliability of questionnaire

Taking into account the proportions to be estimated, the questionnaire will include questions regarding the achievement of objective #1 (see questions 9-14). Questions are developed with purpose of achievement more concise understanding of an issue for all interviewees and reflecting the measure of using the PHC facility as the place of first contact care. At the same time, having questions for not more than last 3 months, it is possible to not have the recall bias. Pre-testing of the questionnaire and other measures mentioned in table III will allow to have highly reliable data.

Time-table.

* In case when the utilization of PHC facility by children should be checked, the parents will respond to questionnaire

Since the program implementation will not begin and finish in all 10 facilities simultaneously, but rather gradually, the timetable will be different for all 10 pairs. Every “pair” of population will be surveyed 2 months prior to implementation, then - 6 months later after implementation in target facility. The latter will last 4 months. For example, if the program is going to be implemented in facility in period of April - July, 1998, the baseline data for November, 1997 - January, 1998 will be collected in February, 1998, and the post-data for November, 1998 - January, 1999 will be collected in February, 1999, and analyzed later:

Table IV. Example of evaluation time-table

November 1997 - January 1998 (3 months)	February, 1998 (2 months)	April-July, 1998 (4 months)	August 1998 - January, 1999 (6 months)	February, 1999
Presently existing office works	Baseline data collected for November -January, and analyzed	Implementation	The rehabilitated PHC office works	Post-data for November-January are collected and analyzed

5.3 Population

Sampling universe.

Since we are evaluating the activity of PHC facilities, the sampling universe will be all patients served by PHC providers.

Sampling frame.

Every facility has the list of served population, which is renewed once a year, which is a reliable source of information about served population. Since we will survey the population served by 10 target and 10 control PHC facilities, the sample frame will be the patients in the lists. In total, while evaluating, we will deal with 20 lists: 10- of target and 10-of control facilities/teams.

Population of exclusion.

The people who are registered in the district list, but do not use PHC services, because actually do not live there, cannot be considered either as influenced by intervention or as representative of control group. For example, many emigrants remain registered in the list of served population, therefore it is important to exclude them at the beginning of pre-test phase. It is feasible task, since actually all district/village physicians and nurses have information about inhabitants of their districts.

Sample elements and sampling method.

Having the final, ascertained list of population served by all 20 facilities, the sample elements may be chosen by one of sampling methods. Usually in the lists of population the patients names are enumerated by addresses, from 1st building to last, in every building -from the 1st flat to the last. Therefore it is reasonable to use *systematic sampling method* in order to have equal representatives from different buildings, which may differ by their living conditions, even socio-economic status.

Thus, the sampling elements will be chosen, taking randomly first name from the list, and then-every k-th name, until completion of number needed for the sample size. If the respondent will not be reached, the person registered before or after him in the list will be interviewed.

It is also reasonable to use the cluster sampling method due to more feasibility of the latter. Therefore the sampling method may be chosen later, either systematic or cluster, taking into account available staff and budget.

Sample size.

The evaluation of objective #1 achievement implies measurement of changes in proportions, Assuming, that the 50% of having health problems and applied to health providers population will apply to GP ($p=0.5$, $q=0.5$), and that we need $\alpha=0.05$; $\beta=0.1$ for 1-tailed test, the sample size will be:

$$n = \frac{(Z_a + Z_b)^2 \times 2(pq)}{(0.2)^2} = \frac{(1.65 + 1.28)^2 \times 4(0.5)(0.5)}{(0.2)^2} = 214;$$

$$\Delta^2$$

since supposed % of change is 20%, $\Delta = 20\% (0.2)$.

Thus, the sample size for each group, intervention and control, will be 214 for 1-tailed test.

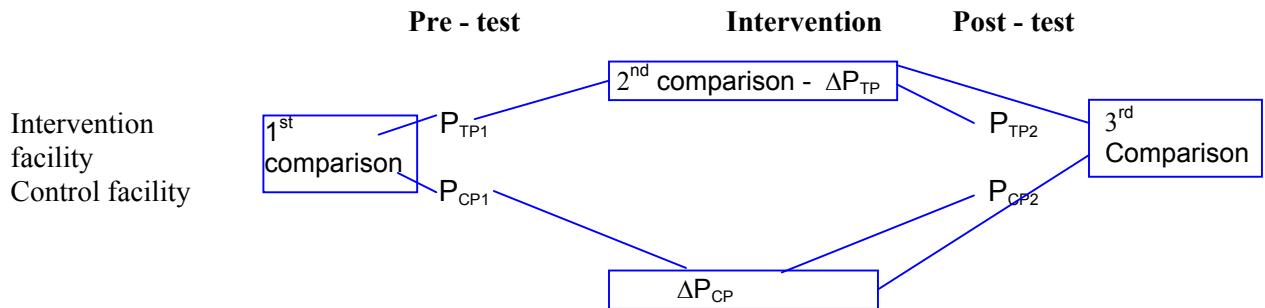
In case if $\beta=0.2$ the $Z_b = 0.84$ and sample size will be equal to 155.

5.4 Analysis

The analysis of the program will comprise of 3 stages:

1. Analysis of pre-data - comparison between TP and CP: is there difference in proportions in TP and CP before program implementation. The analysis will reflect whether the control is appropriate (no significant difference - no threats to internal validity due to selection bias) or not (significant difference- there are threats to internal validity due to selection bias)
2. Analysis of TP data - comparison between pre- and post- data: is there difference in proportions in TP before and after program implementation. The analysis will show whether the program have had positive impact on target population.
3. Analysis of TP and CP pre- and post- data - comparison between gains of proportions of TP and CP after program implementation: is there difference between TP and CP in gains of proportions after program implementation? The analysis will show how much gains in proportions of TP are due to program.

Figure 2: The scheme of analysis stages:



The analysis of data may be planned using two types of significance:

- practical/clinical - calculating confidence intervals
- statistical - testing the hypothesis and calculating p-value

The results of analysis will be joined in the following table, where the program impact in different facilities will be possible to compare:

Table V. Estimated differences between: a) TP and CP proportions before program implementation, b) gains of TP and CP proportions

Facility (#, location, TP and CP)	Difference in proportions before program	p-values	Difference in gains of proportions after program	p-values
Facility #1, CP#1				
Facility #2, CP#2				
Facility #3, CP#3				
Facility #4, CP#4				
Facility #5, CP#5				
Facility #6, CP#6				
Facility #7, CP#7				
Facility #8, CP#8				
Facility #9, CP#9				
Facility #10, CP#10				

Stage 1.

In order to determine whether the objective of the program has been met or not, the following hypothesis should be proved or rejected at the first stage of analysis:

Is there difference in proportions in TP and CP before program implementation?

H_0 : There is no difference in proportions between TP and CP before program implementation

$(DP = P_{TP1} - P_{CP1} = 0;$ where P_{TP1} -baseline proportion in target population; P_{CP1} -baseline proportion in control population)

$H_0:$ There is a difference in proportions between TP and CP before program implementation

Since the analysis will be based on changes in proportions, the z-test is appropriate to use for data analysis(13).

$$Z = \frac{p_{TP1} - p_{CP1}}{\sqrt{(p_{TP1} q_{TP1}/n_{TP1} + p_{CP1} q_{CP1}/n_{CP1})^{1/2}}}$$

where p_{TP1} - baseline proportion in target population sample; p_{CP1} - baseline proportion in control population sample, $q_{TP1} = 1 - p_{TP1}$; $q_{CP1} = 1 - p_{CP1}$; n_{TP1} = baseline sample size in TP, n_{CP1} = baseline sample size in CP.

The results will be considered significant, if $'$ -value will be less than 0.5 for 1-tailed test.

In this case the null hypothesis will be rejected.. In this case the new control should be picked up to have comparability of TP and CP.

Stage 2.

The following hypothesis will be tested at this stage:

Is there difference in proportions in TP before and after program implementation?

$H_0:$ There is no difference in proportions in TP before and after program implementation.

$(\Delta P = P_{TP2} - P_{TP1} = 0;$ where P_{TP2} - proportion in target population after program implementation

$H_0:$ There is a difference in proportions in TP before and after program implementation
 $(\Delta P \neq 0)$

$$Z = \frac{p_{TP2} - p_{TP1}}{\sqrt{(p_{TP2} q_{TP2}/n_{TP2} + p_{TP1} q_{TP1}/n_{TP1})^{1/2}}}$$

The results will be considered significant, if α -value will be less than 0.05 for 2-tailed test. In this case the null hypothesis will be rejected. Consequently, since the practical significance is important in evaluating public health program, the confidence intervals for the observed difference will be calculated according to formula:

$$CI = (p_{TP} - p_{CP}) \pm Z_{1-\alpha/2} \times S.E ;$$

$$\text{where } S.E. (\text{standard error}) = \sqrt{(p_{TP}q_{TP}/n_{TP} + p_{CP}q_{CP}/n_{CP})}$$

$$Z_{1-\alpha/2} = 1.96 \text{ (at a 95 % confidence level).}$$

Stage 3.

Is there difference between TP and CP in gains of proportions after program implementation?

H_0 : There is no difference in gains of proportions before and after program implementation between TP and CP.

($\Delta P = \Delta P_{TP} - \Delta P_{CP} = 0$; where ΔP_{TP} - difference in proportions in target population before and after program implementation; ΔP_{CP} - difference in proportions in control population before and after program implementation)

H_1 : There is a difference between TP and CP in gains of proportions after program implementation. ($\Delta P \neq 0$)

$$Z = \frac{\Delta p_{TP} - \Delta p_{CP}}{\sqrt{(p_{TP}q_{TP}/n_{TP} + p_{CP}q_{CP}/n_{CP} + p_{CP1}q_{CP1}/n_{CP1} + p_{CP2}q_{CP2}/n_{CP2})}}$$

The results will be considered significant, if α -value will be less than 0.5 for 1-tailed test. In this case the hypothesis will be rejected. In this case the confidence intervals for the observed difference will be calculated according to formula:

$$CI = (\Delta p_{TP} - \Delta p_{CP}) \pm Z_{1-\alpha/2} \times S.E ;$$

$$S.E. (\text{standard error}) = \sqrt{(p_{TP}q_{TP}/n_{TP} + p_{CP}q_{CP}/n_{CP} + p_{CP1}q_{CP1}/n_{CP1} + p_{CP2}q_{CP2}/n_{CP2})}$$

6. Management and Budget (logistical considerations)

Since the approval for continuation of the Program will be based on the evaluation of the pilot, the proper planning and management will have the important role in desicion-making process (15). It is necessary to anticipate all required human and financial resources.

The PHCDP office does not have necessary staff to conduct the whole evaluation of the pilot program, but Monitoring and Evaluation Officer of the PHCDP may take the responsibility for the management of the whole process. Additional temporary staff for the program evaluation will be hired:

1. One person for the statistical analysis of the data.
2. Three persons for the survey conducting.

The anticipated time per one pair - TP and CP facilities is 4 weeks, 2 weeks- for baseline-, and 2 weeks - for the post-program data collection and analysis:

Table VI. Example of evaluation process time-table for 1 TP-CP pair

November 1997 - January 1998 (3 months)	February 1-14, 1998	April-July, 1998 (4 months)	August 1998 - January, 1999 (6 months)	February 1-14, 1999
Presently existing TP and CP offices work	Baseline data for both facilities collected for November -January, and analyzed	Implementation	The rehabilitated PHC office works	Post-data for both facilities for November-January are collected and analyzed

Data collectors will not work in all facilities, one of them will be chosen for data collection process taking into account availability. Taking into consideration that the time-table for every pair depends on the planned implementation time, it is not reasonable to hire the data collectors and the data analyst permanently, but only for the time when the evaluation process is planned to conduct. All questionnaire filled in and reports prepared by data analyst and evaluation manager will be presented to PHCDP office within 3-4 weeks after data collection.

The final report for all 10 facilities should be presented within 1 month after the last data collection.

Having in total 20 facilities for evaluation of the Program, the following budget per facility and in total will be disbursed:

Table VII. The budget for first-year pilot Program (\$)

Item	Unit Cost per facility	Number of Units per facility	Total cost per facility	Total cost for 20 facilities
Management of the evaluation process (Evaluation and Monitoring Officer- monthly salary - 400)				2800
Salary for temporarily hired staff: Statistical analysis of the data Survey conducting.	50 50	1 1	50 50	1000 1000
Transportation	100	1	100	2000
Office supplies	20	1	20	400
Computer/space renting	200	1	200	4000
TOTAL				11200

Ethical considerations

In the frame of pilot program evaluation it is planned to conduct population survey, using as a tool the well pre-tested questionnaire. During the design of the questionnaire and the population survey the issues of privacy, confidentiality, consent should be taken into consideration (16). It is also very important to have community representatives to be involved and informed about the evaluation process, which actually will reflect both the results of the program implementation and the achievement of objectives stated by Management Boards. All

steps of evaluation will be passed with emphasis on the principle: “primum non nocere” - first, do not harm.

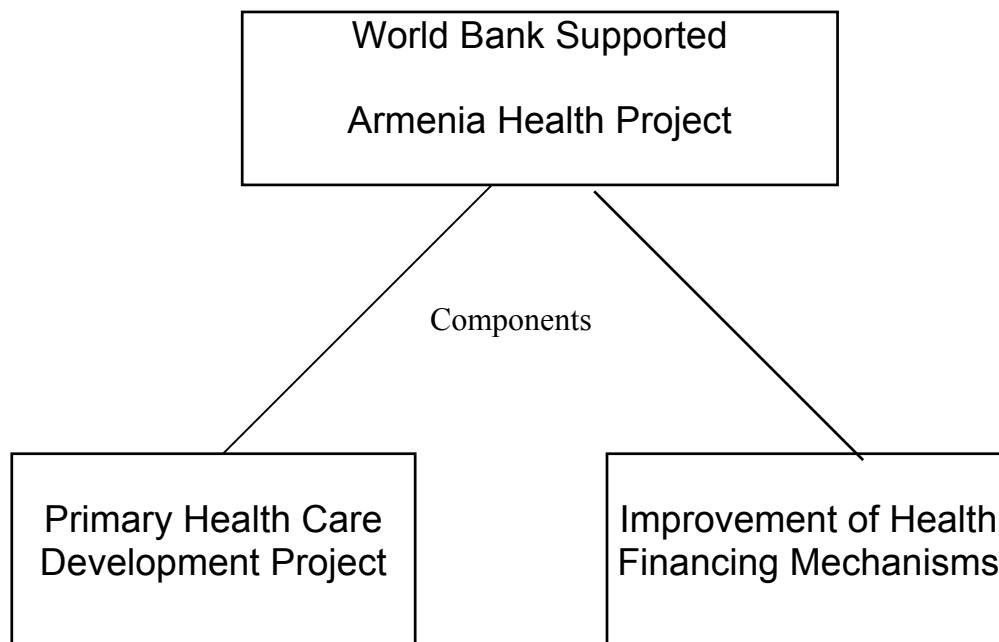
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7. References

1. *Primary Health Care Reforms*, ed. by Josep Goicoechea, WHO, Regional Office for Europe, Copenhagen; 1996
2. Wenke G. W. et al., *Health Care and General Practice Across Europe*, Dutch College of General practitioners, 1993
3. Boerma W.G.W et al., *The Anatomy of General Practice in Europe*, Royal College of General Practitioners, England, 1995
4. H. James Harrington et al., *High Performance Benchmarking*, McGraw-Hill, 1995.
5. Donabedian Avedis, *The Definition of Quality and Approaches to its Assessment*, Health Administration Press, Ann Arbor, Michigan, 1980
6. Starfield, B., *Primary care*, Oxford University Press, 1992
7. Bert Van Norren et al. *Simplifying The Evaluation Of Primary Health Care Programmes*; Soc. Sci. Med. Vol. 28, No 10; 1989
8. John W. Peabody et al, *Quality of Care in Public and Private Primary Health Care Facilities: Structural Comparisons in Jamaica*
9. Rossi Peter H., Freeman Howard E., *Evaluation: a Systematic Approach*, SAGE Publications, 1993
10. Laura-Mae Baldwin et al. *The effect of coordinated, multidisciplinary ambulatory care on service use, charges, quality of care and patient satisfaction in the elderly* Journal of Community Health, Vol. 18, No. 2, April 1993
11. M. El Shabrawy Ali, *A study of Patient Satisfaction with Primary Health Care Services in saudi Arabia*, Journal of Community Heath Vol. 18, No. 1, February 1993
12. Campbell D.T. and Stanley J.C., *Experimental and Quasi-experimental Designs for Research*, Chicago, Rand McNally and Company
13. Fleiss L.Joseph, *Statistical Methods for Rates and Proportions*, sec edition, John Wiley&Sons, 1981
14. Carmines E. G. et al., *Reliability and Validity Assessment*, SAGE Publications, 1979
15. Stephem M. Shortell, et al., *Health Care Management*, 3rd edition, Delmar Publishers, 1994
16. Jonathan S. Rakich et al., *Managing Health Services Organizations*; Health Professions Press, 1992

Annex A



Subcomponents:

1. Training of Primary Health Care Providers
2. **Primary Health Care Development Program (PHCDP)**
3. Development of Clinical Practice guidelines

Subcomponents:

1. Establishment of State Health Agency
2. Improvement of the Methodology for determining Basic Benefits Package
3. Streamlining Providers' payment Mechanisms
4. Upgrading the Health Financing Information System

Annex B

**PRIMARY HEALTH CARE REFORM STRATEGY
IN THE REPUBLIC OF ARMENIA**

(Translation from the official Armenian Document)

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1. The Concept of Primary Health Care (PHC)

1.1 The definition of PHC

The development of a PHC strategy, within the context of health care system reforms in the Republic of Armenia (RA), is based on the PHC concept adopted at the Alma-Ata conference in 1978.

According to the WHO definition, “ Primary Health Care is the main part of health care, based on scientific, practical methods accessible for the population, and is implemented at a cost the country and community can afford. PHC is the central function of the State Health Care System, the principal vehicle for the delivery of health care, the most peripheral level in a health system stretching from the periphery to the center, and an integral part of the social and economic development of a country ” (1994 Copenhagen, WHO Glossary).

In the RA, PHC, as “the first contact zone between a person/family and the health care system, is the basis for the health care system and an integral part of it, aiming to satisfy the main medical-social needs of the population using a limited amount of simple and inexpensive medical technologies, with an emphasis on preventive activities; special attention is focused on accessibility and equity, integration of services, participation of the community and intersectoral coordination.”

1.2. The Tasks of PHC

- Promotion of health
- Prevention of disease
- Treatment of disease
- Rehabilitation

1.3. The Main Principles of PHC Implementation

ACCESSIBILITY	<i>Geographic, time, psycho-social and financial; evaluation of accessibility is based on public opinion.</i>
EQUITY	<i>It is impossible to attain equality in health status for everybody. It is, however, necessary to provide equal opportunity for all individuals to realize their full health potential.</i>
COMPREHENSIVENESS	<i>The broad range of services offered satisfies the main health care needs of the population (although the final solution to any given health care problem may not be realized at the PHC level).</i>
CONTINUITY	<i>PHC addresses not the treatment of a special case, but the whole range of health care issues arising during an individual's lifetime.</i>
COORDINATION	<i>The majority of health care issues faced by an individual are addressed at the PHC level. The individual, however, can receive additional specialized medical care, coordinated through his/her family doctor. Centralized patient files would ensure an efficient coordination process.</i>

2. PHC in the Armenian Context

The primary reason for health care reform in the RA is the fact that PHC, although present, has many shortcomings at the organizational level. These include:

- ⇒ an insufficient level of preventive measures;
- ⇒ the low level of authority of the district therapist, and his/her passive role as a "dispatcher"/controller (In the past, emphasis was placed on specialized and hospital services. In order to ensure maximum occupancy rates for hospital beds, the district therapist was persuaded to refer patients to in-patient care and testing. As a result, the district therapist was deprived of his/her main function of providing patients with services);
- ⇒ lack of consideration of the family as a unit with regards to health care provision, resulting in a separation of therapeutic, pediatric and obstetrical-gynecological services;
- ⇒ the absence of financial incentives to develop activities; and
- ⇒ insufficient capacity building.

As a result, the system is inefficient, and the quality of services is insufficient. Health indicators in the RA are currently lower than international standards.

The need for PHC reform is obvious. The main goal of this reform is to improve the health of the population, through :

- ⇒ the provision of high quality health care;
- ⇒ the organization of more effective and efficient health services;
- ⇒ greater emphasis on health promotion and preventive measures;
- ⇒ a partial shift of the health care burden from the hospitals to the PHC units, i.e. from more expensive to more cost-effective medical care;
- ⇒ increased accessibility of medical care by the introduction of a "family medicine" approach;
- ⇒ a "gate keeper" role for the family doctor;
- ⇒ financial motivations for doctors to provide a better service;
- ⇒ continuous examination and follow-up of the patient;
- ⇒ coordination between the PHC providers' services and secondary health care services.

3. Services that will be Provided by the Armenian PHC Team

- Health education
- Maternal and child health care programs, including immunization and family planning
- Prevention and control of endemic diseases
- Identification of the social, environmental, demographic, and psychological risk factors for disease, and development of preventive measures directed towards health promotion for the population
- Diagnosis, treatment and rehabilitation for health care problems
- Medical assistance in emergency situations
- Social services

4. Providers of PHC in Armenian

The PHC medical services in Armenia will be provided by the PHC team. During the transition period the PHC team will consist of the following providers: family doctor/general practitioner, general practice pediatrician, general practice nurse, midwife. In the future, in connection with the development of the social and economic conditions of the Republic, the team members can be reviewed and changed.

5. Organization and Management of the PHC Sector in the Health Care System

5.1 The types of ownership

Medical facilities providing primary health care services will be owned by *hamainks* (communities). At present these facilities belong to *marzes* (regions) and will be transferred to *hamainks* when the State Health Agency (SHA) begins to function. Transfer of PHC facilities to *hamaink* ownership will be carried out gradually. Priority will be given to *hamainks* that will invest in the development of these facilities. Several *hamainks* can join together to own a single PHC facility. In this case, the same team of family doctors will provide services addressing the health needs of the entire population in the associated *hamainks*.

Hamaink ownership of PHC facilities will stimulate *hamaink* participation in both facility-related activities, and the refurbishing and renovation of the PHC facilities.

Family doctor services can also be provided on a private basis.

5.2 Responsibilities at the National, Marz and Hamaink Levels

National level (Ministry of Health)

- Formulate and implement health care policy.
- Design drafts of legislative and regulatory acts for the main health tasks.
- Define health priorities based on health survey data.
- Within the scope of health priorities, design the Basic Benefits Package (BBP) including the plan for its implementation and monitoring.
- Prepare a health care budget according to the BBP.
- Define health care standards and monitoring.
- Provide the authorized bodies at the *marz* and *hamaink* levels with guidelines, according to adopted health policy.
- Store health care strategic resources for emergency situations.
- Develop and introduce methodology for the collection of health statistics and accountability.
- Organize a health information system.
- Organize licensing for health care providers.
- Implement control measures aimed at ensuring the hygienic-epidemiological safety standards for State programs, and the quality of medical aid and services, independent of type of ownership and juridical structure.

Marz level :

- Organize the activities of health care facilities at the *marz* level.
- Monitor non-governmental providers' activities.
- Ensure the implementation of the national health care program at the *marz* level.

- Collect and analyze statistical information from medical aid and service providers at the *marz* and *hamaink* levels, independent of the type of ownership; present the information to the Ministry of Health.
- Identify the health needs of the *marz*, approve tasks and, if necessary, present proposals to the Ministry of Health for further action.
- Coordinate inter-*hamaink* health care activities.
- Organize and implement hygienic and epidemiological measures to prevent transmitted and non-transmitted diseases and poisoning.
- Provide support to the national hygienic and epidemiological providers in water control, food and environmental safety, and sanitation of schools and other buildings.
- Organize the construction, maintenance and utilization of facilities at the *marz* level.

Hamaink level :

- Organize activities of the health care facility at the *hamaink* level.
- Define and assess the health care needs of the *hamaink*.
- Provide the *marz* information-analytical center with health care data from medical aid and service providers, in the framework of the PHC programs.
- Develop and implement *hamaink* health care programs and time schedule according to adopted standards.
- Prepare the *hamaink* health care budget.
- Ensure the implementation of national and *hamaink* health care programs.
- Support the provision of hygienic-epidemiological measures.
- Organize the construction, maintenance and utilization of facilities at the *hamaink* level.

5.3 The Active Participation of the Community in the Organization of PHC

Community members are not only the consumers of PHC services, but can also be active participants in its organization, implementation and monitoring in the following ways: consultation with program users; control of results; participation of users in service provision; development of proposals for improving the health of different social groups (elderly people, socially vulnerable groups, chronically ill patients, etc.) based on needs assessment survey data.

There is some uncertainty regarding the regulations and management structure at the *hamaink* level. Consequently, the active participation of community members in PHC is not yet clear.

5.4 Financing of PHC

The PHC providers' team will contract with the SHA according to which services will be provided within the framework of the BBP. The SHA will implement quality assurance monitoring for the services provided. Payment for these services will be carried out according to the principle of capitation.

In facilities which meet certain criteria, the family doctor, along with his/her team, will provide PHC services directed towards the promotion of health and treatment of diseases for the population. Concurrently, the family doctor will act as the financial and logistic manager of the team. All members of each team should act within the same administrative managerial unit.

In urban areas, former polyclinics can be used as family doctors' offices. Each polyclinic will be allocated some family doctor teams, and provide these teams with appropriate laboratory, diagnostic, X-ray and other services in common facilities. The logistics of the teams' activities will be the responsibility of the manager, who will be appointed by the owner of each PHC facility. The manager will also contract with the SHA regarding services implemented by teams within the framework of the State Order. Team members will be paid via contracts with the manager from the sources allocated for them by the Government. The manager will be accountable to a council for his/her activities. The council will be made up of family doctors.

PHC teams will be given the opportunity to work independent from the polyclinics and establish private offices.

In rural areas, family doctors' teams will be located mainly at ambulatory clinics. The family doctor will be the manager of the team. The team will contract directly with the *marz* branch of the SHA.

Diagnostic laboratories and medical specialists will be paid for services according to separate contracts with the SHA based on reports from family doctor's team members.

For services outside the National Health Care System, the patient will pay himself, on the basis of a fee-for-service system.

6. Reform of the PHC System

6.1 PHC Providers - Present Infrastructure

There is a high number of potential PHC providers in all *marz* areas of the RA. In urban areas they are mainly employed at polyclinics, based on district (or territorial) health services provision. These providers are separate for adults and children. In addition to the therapist and pediatrician, the polyclinic staff is comprised of doctors of various specialties (cardiologists, neurologists, surgeons, etc.).

In rural areas PHC providers are employed at Rural Health Centers (RHC) and Feldsher Obstetrical Units (FOU). These facilities serve as separate stages of health provision for the rural inhabitants. FOU are more peripheral establishments, and employ feldshers (medical personnel with a four-year education from special medical colleges) and a midwife. The RHC is the main medical establishment in the rural area which, according to legislation, should have four doctors (therapist, pediatrician, obstetrician-gynecologist and dentist). In addition to these establishments, the rural population can also use the wide range of services provided by the local hospitals, which have a capacity of approximately 25-30 beds.

RHCs, according to Governmental decision, have State Enterprise Status. This status allows the RHC the opportunity to carry out activities which will build a foundation of necessary financial resources that may result in a more efficient and rational implementation of medical activities.

The distribution of doctors in the RA is unequal.

6.2 Transition Activities

6.2.1 Health care, social welfare and other relevant services will be reoriented in order to obtain maximum fulfillment from the activities of the family doctor. These activities will be directed towards solving the health problems of the family through community health promotion, disease prevention and treatment, rehabilitation and social assistance.

6.2.2 New approaches will be developed for the selection and distribution of health care providers. By optimizing the system, resources will become available that can be used for strengthening the PHC system according to need and demand. This process will also involve training programs in family practice medicine designed for doctors from different specialties to become family doctors. Additionally, PHC facilities will be provided with essential drugs, diagnostic and other necessary equipment.

To ensure the efficiency of PHC activities, it is necessary to work out a rationalization plan for the units that provide services (for example, the establishment of PHC facilities where needed; in the case of underutilized rural district hospitals, to reconstruct them into out-patient facilities or to join them to the *marz* hospitals).

In the future, it is planned to transform a certain number of FOU^s into offices for family doctors. The remaining FOU^s will be preserved, staffed by one public nurse. They will be responsible for answering health-related questions from the population of the *hamainks*, and accountable to the family doctor. FOU^s will provide some team services, ensuring a greater accessibility to services for the population of each *hamaink*. The staff of FOU^s will be paid from the budget allocated for *hamaink* health care. *Hamainks* will also participate in ensuring the ongoing activities of FOU^s.

6.2.3 With the aim of utilizing the limited national resources for medical assistance in a more effective and equitable way, these resources will be pooled together to finance the minimal Basic Benefits Package (BBP), which will be provided free of charge to the entire population in the RA.

The basis for the BBP will be the burden of disease in the RA, and the cost-effectiveness of the interventions.

6.2.4 A rational system for estimating and evaluating the economic cost of the health care system will be developed and implemented. The aim of the system will be to set up a direct link between the PHC providers' reimbursement and indicators of consumers' health.

6.2.5 PHC providers will be given training, re-training and continuous education.

6.2.6 An increase in burden of responsibility will be placed on the person, family and community for their own health.

6.2.7 Standards will be developed for PHC services.

6.2.8 Standards will be developed for the physical infrastructure of PHC units.

6.2.9 A stage-by-stage implementation plan for the introduction of family practice will be followed (see Annex).

Taking into account the variety in PHC infrastructure present in different *marzes*, it is obvious that introduction of family practice in each *marz* should be implemented in the most optimal way for the particular situation. Nevertheless, a number of common organizational aspects can be identified.

- Certain medical services currently provided by different specialists can be delegated to the family doctor. The specialists will be limited to the consultation and treatment of patients who need very specialized care due to complicated pathology or chronic diseases. This will result in a reduction of specialists at the primary level and, consequently, will free resources.
- Certain medical activities (preventive, out-patient, patient follow-up) that are currently performed by doctors can be delegated to medical mid-level staff who have received special professional education and are eligible to work independently in providing these medical services. This will result in a decreased demand for physician services. The ratio of doctors to mid-level personnel in the RA is 1:2.5 , though 1:4 is considered to be more optimal.
- Family doctors and general practice pediatricians are the only doctors who will have complete responsibility for the promotion of the patient's health.
- The *hamaink* will be responsible for providing the conditions necessary for the implementation of PHC services. *Hamaink* authorities will ensure the planning and organization of PHC activities in their district through the officials responsible for health care.

- Although family doctors can be located in any medical institution, polyclinics (in urban areas) and RHCs (in rural areas) are considered to be a more appropriate choice. In the near future family doctors may also be practicing at private facilities.

7. Integration of vertical programs

At present, several vertical programs (diarrhea, respiratory diseases, tuberculosis program, etc.) are implemented concurrently with PHC at all levels of the health care system. The majority of these vertical program activities will be transferred to family practice. Several sanitary-epidemiological programs will remain as vertical programs.

Strategy for the Introduction of Family Practice

Short-term strategy (Jan 1997 - Dec 1997); This time period is the preparation stage. Activities will include the following:

- development of an organizational-legislative base for the transition to family doctor practice;
- extended analysis of PHC services in the RA health care system; detailing a precise program for the transition to family medicine; development of the mechanisms for management and capacity building at each *marz*;
- selection of PHC providers to work in the sphere of family practice; organization of their training and re-training;
- preparation of training programs ;
- improvement of programs in family practice training, increased information, and other activities for the purpose of ensuring the authority of the family doctor;
- provision of information on reforms to raise awareness among medical staff and the population;
- development of incentives for PHC providers, especially in rural areas;
- development of a computerized information system network for family doctors;
- development of mechanisms for the introduction of the next 2 stages.

Mid-term strategy (1998 - 2000) This is the transition stage towards the introduction of family practice. The main goal of this stage is the transition of district therapeutic and pediatric services to the corresponding family practice services.

Structural and functional changes will occur at this stage. In addition, PHC teams will be recruited within the limits of existing possibilities.

Increase in the authority of family doctors will be achieved through an increase of salary and responsibility, and through the provision of adequate medical supplies and equipment, premises.

Individuals will be given a choice in the selection of PHC providers (family doctor with his/her team). If necessary, a consultation with an obstetrician-gynecologist and other specialists, or in-patient treatment will be provided. It will be essential that a patient be referred by a family doctor for consultations with specialists.

The activities of the PHC team will be implemented in polyclinics (for urban areas) and health centers or rural hospitals (for rural areas). In order to achieve this, and also to ensure family doctor, specialist-consultant, diagnostic and rehabilitation services, necessary changes in management structure and organization will be made.

Thus, the final results of this stage are :

1. The development of the principles of PHC organization at each *marz*.

2. The development of regulations which reflect PHC providers' (family doctor, general practice pediatrician, general practice nurse, midwife and other providers') rights and responsibilities.
3. The development of procedures and methodology to ensure links between PHC and other providers' medical and social assistance.
4. The development of procedures and methodology for the conduct of daily activities and quality assurance monitoring.

Long-term strategy (2000 -) This is the final transition stage for the introduction of family practice. The aim of this stage is the further development of family practice medicine and the final transition into family-oriented PHC.

Annex C

WORLD BANK SUPPORTED ARMENIA HEALTH PROJECT

PRIMARY HEALTH CARE COMPONENT

1. INTRODUCTION

The Government of Armenia and the World Bank are discussing a World Bank supported Health and Education Project. In this framework, the Armenian Ministry of Health (MoH) has prepared a proposal for an Armenia Health Project consisting of two components, a Primary Health Care (PHC) component and a Health Financing component. This paper contains the proposal for the PHC component, to be discussed with the World Bank Appraisal Mission in April 1997. The proposal is based on the PHC strategy paper, presented to the World Bank in February 1997.

In the context of this project, PHC can be considered as the equivalent of family medicine or general practice. In this document, these terms are used interchangeably.

The proposal was prepared by the PHC Working Group of the Ministry of Health, which has the following members:

- * Mr Ara Babloian, Minister of Health
- * Mr Derenik Doumanian, First Deputy Minister of Health
- * Ms Gayane Gharagebakian, Dept. of Reform Programmes Implementation and Monitoring of the MoH (secretary of the Working Group)
- * Mr Samvel Hovhannesian, Director of National Institute of Health (chairman of the subgroup for PHC training)
- * Ms Ofelia Injikian, Dept. of Maternity and Child Health of the MoH
- * Ms Tereza Khachatrian, National Institute of Health (chairwoman of the subgroup for strategy development)
- * Ms Nune Mangasarian, Dept. of Curative and Preventive Care of the MoH
- * Ms Ruzanna Mkhitarian, Head of the Dept. of Reform Programs Implementation and Monitoring of the MoH; at present: NIH
- * Ms Irina Poghosian, Dept. of Curative and Preventive Care of the MoH
- * Mr Romen Babloian, Vice-rector of the State Medical University
- * Ms Donara Hakobian, State Basic Medical College
- * Ms Medeya Vardanian, Dept. of Maternity and Child Health of the MoH

The PHC Working Group received technical assistance from TNO Prevention & Health (the Netherlands), represented by Kees Schaapveld. In 1996, the Working Group received technical assistance from RMC Consultants from Canada.

The present document gives an outline of the PHC component (chapter 2) and provides detailed descriptions of the three subcomponents to be implemented in the framework of this component (chapters 3-5).

2. OUTLINE OF THE PHC COMPONENT

2.1 Objectives of the component

The goal of the PHC component is to create favourable conditions for the introduction of family medicine in the Republic of Armenia. In the PHC strategy paper, it has been declared the planned activities on reorganization of the present health care services so as to give a more important role to primary care. To this end, existing primary care services in polyclinics, rural health centres and health posts must become distinct - as family medicine teams - from secondary and tertiary specialist care and be upgraded to a level compatible with international standards. Within the framework of the World Bank supported Armenia Health Project, the PHC component has the following objectives:

- * Retraining existing providers of primary care (therapeuts, general paediatricians, nurses, midwives) in the theory and practice of modern family medicine.
- * Teaching the principles of modern family medicine to all undergraduate medical and paediatric students.
- * Establishing a postgraduate course in family medicine.
- * Giving a selected number of newly established family medicine teams the physical surroundings and equipment they need to practice their skills.
- * Creating a system of standardizing family medicine by means of scientific guidelines (protocols).

2.2 PHC subcomponents and the summary of their activities

The PHC component consists of three subcomponents:

- PHC training subcomponent
- PHC development program subcomponent
- PHC guidelines subcomponent

2.3 Summary of the activities of the PHC subcomponents

a The retraining of all four categories of existing providers of primary care will be organised by the National Institute of Health (NIH). The NIH will provide theoretical and practical teaching in the NIH and in affiliated family medicine practices. It is expected that the first trainees can be admitted in September 1998.

b The NIH will also prepare a system of continuous education in family medicine for those who have been retrained and those who have received a regular postgraduate training in family medicine. Actual training activities in this field will only take place after the year 2000.

c The State Medical University (SMU) will create a department of family medicine in the medical and paediatric faculties. This department will design a curriculum in family medicine for undergraduate and postgraduate students. It is expected that the first undergraduate and postgraduate teaching can begin in September 1998.

d Medical College no.1 will adapt the training of nurses and midwives to the requirements of primary health care.

e PHC Development Program will be created in or near the Ministry of Health which will select a number of family medicine practices according to criteria to be developed. The premises where these family medicine teams are working will be rehabilitated and furnished according to need. The practices will receive a set of standard medical equipment and a computer. The PHC Development Program can start its activities soon after the beginning of the World Bank supported Armenia Health Project. Assistance to the selected practices can begin in the course of 1998. This program closely links to training program because rehabilitated and equipped facilities will become fields for training practice. [Duration of this subcomponent is to be discussed].

f A Working Group on PHC Guidelines will be established in the NIH soon after the beginning of the World Bank supported Armenia Health Project. In the course of 1998, this Working Group will begin the regular production and publishing of guidelines for family medicine. Active dissemination and promotion among PHC providers is part of the tasks of the Working Group.

2.4 Monitoring of the progress of the PHC component

The activities of the three subcomponents have been detailed in chapters 3-5. This makes it easy to evaluate their progress during the four years of the project. Major benchmarks in the PHC component of the World Bank supported Armenia Health Project are:

- * establishment of Family Medicine Chair at the NIH - for family physicians, paediatricians, midwives and nurses (premises, staff, equipment);
- * establishment of Family Medicine Chair at the SMU (premises, staff, equipment);
- * admission of the first trainees to the PHC retraining courses in the NIH in September 1998, followed by regular new courses afterwards;
- * starting the teaching of the principles of family medicine to undergraduate medical and paediatric students in the SMU after September 1998;
- * admission of the first students to the postgraduate course in family medicine in the SMU in September 1998;
- * starting the teaching of the principles of family nursing and midwifery to nursing and midwifery students after September 1998;
- * establishment of the PHC Development Program (premises, staff, board, equipment);
- * establishing the criteria for the selection of PHC practices by the PHC Development Program in the last quarter of 1997, to be followed by an invitation to the PHC practices to submit proposals;
- * beginning of the rehabilitation of PHC premises and provision of equipment in the second quarter of 1998; regular spending by the Program afterwards;
- * regular (monthly) production of PHC guidelines by the Working Group on PHC Guidelines after first quarter 1998.

The major activities and benchmarks of the PHC component are presented in the following time schedule:

activity N	1997		1998			1999			2000			2001				
	III	I V	I	II	III	I V	I	I	III	I V	I	I I	II	I V	I	II
<u>Training of PHC Providers</u>																
Establishment of Appropriate Chairs in SMU, NIH, SBMC, Provision of work conditions																
Training of trainers																
Training of providers																
<u>PHCDP</u>																
Establishment of the office, criteria, communications campaign																
Selection of facilities, implementation of the program for 70 PHC facilities																
<u>PHC Guidelines</u>																
Establishment of office and working group, provision of working conditions																
Development and dissemination of guidelines																

Annex D

Table 2

Measure	Indicator	Numerator	Denominator	Source of data	W
1. First contact care	Proportion of patients, having health problems, who applied at first to GP, when sought care from health providers.	Number of patients applied at first to PHC providers	Number of population in the list served by team having health problems and applied to health providers	Population	2 month to and 6 Program Implem
2. Comprehensive-ness	Proportion of diabetes patients having checked blood glucose level	Number of registered diabetes patients having checked for blood glucose level	Number of registered diabetes patients in serving population	Medical registers, records, Forms	2 month to and 6 Program Implem
3. Longitudinality	Proportion of patients who identified their regular source of PHC	Number of patients who identified their regular source of PHC	Number of population in the list served by team	Population	2 month to and 6 Program Implem
4. Comprehensive-ness	Proportion of diagnosed patients with eyes diseases without referral to specialist	Number of diagnosed patients with eyes diseases without referral to specialist	Number of registered eyes patients in serving population (includes patients applied to specialists)	Medical registers, records, Forms	2 month to and 6 Program Implem
5. Comprehensive-ness	Proportion of patients having minor surgery	Number of patients having minor surgery	Number of population in the list served by team	Medical registers, records, Forms	2 month to and 6 Program Implem
6. Coordination of care	Proportion of patients followed-up by GP after referral to specialists	Number of patients followed-up after referral to specialists	Number of referred to specialists patients	Medical registers, records, Forms	2 month to and 6 Program Implem
7. Continuity	Proportion of patients visiting for prophylactic check-up	Number of patients visiting for prophylactic check-up	Number of population in the list served by team	Medical registers, records, Forms	2 month to and 6 Program Implem

Annex E

Questionnaire

Location _____

Questionnaire # _____

Interviewer _____

Date of interview _____

I am an evaluator of Primary Health Care Development Program. I am interested in your health and your relationship with health facilities. And I am calling for your patience to help me answering the questions which I am going to ask you. Your personal experience and participation in this survey would make a valuable input in my investigation. The interview will take approximately 10 minutes.

Part A

Background information:

1. What is your date of birth?

____ / ____ / ____

month day year

2. What is your current address?

3. What is your highest educational degree completed?

- 1. school (8)
- 2. school (10)
- 3. college (2)
- 4. institute/university (5-6)
- 5. post. graduate
- 6. other _____

Total years _____

4. Do you work now?

- Yes
- No [skip to 6.]

5. a. Please specify where? _____
- b. What is your job title? _____
- c. How many years did you work in this job? _____

6. What is your marital status?

- 1. Single, never married
- 2. married
- 3. divorced

4. Separated, but legally married

5. Widowed

7. Please, specify the number of your family members.

8. What is the total monthly expenditure of your family?

1. below 10,000 dram

2. 10,000 to 40,000

3. more than 40,000

Part B

Utilization of PHC facility

9. Have you had any new health problems during the last 3 months ?

Yes

No [skip to 15.]

10. Have you applied to anybody for this problem?

Yes

No [skip to 15.]

11. To whom you applied for your problem?

Doctor

Nurse

Hekim [skip to 15.]

Relatives, friends, neighbors (not health providers) [skip to 15.]

Others, specify _____ [skip to 15.]

12. Where did you applied to health provider?

My polyclinic/ ambulatory

Other polyclinic/ ambulatory [skip to 15.]

Hospital [skip to 15.]

Other, specify _____ [skip to 15.]

13. To whom you applied at your polyclinic/ambulatory?

General Practitioner/therapeut [skip to 15.]

Other specialists, specify _____

14. What was the reason that you didn't apply to your general practitioner/therapeut?

Don't trust

Inconvenient location

Inconvenient working schedule

Cost

Don't consider relevant

- I did not live at that time here
- Other, specify _____

15. Have you had minor surgery manipulations, such as sutures, fractures immobilization, wounds debrided, etc., during the last 3 months?

- _____ Yes
- _____ No [skip to 17.]

16. Who performed the mentioned manipulations?

- General practitioner/therapeut
- General practice nurse
- Surgeon at the polyclinic
- Surgeon at the hospital
- Others, specify _____

17. Do you have hypertension ?

- _____ Yes
- _____ No [skip to 20.]

18. What was the highest level of upper blood pressure that you experienced during last 3 months?

- Less than 150
- 150 - 200
- 200 and higher

19. Have you called the ambulance for your hypertension during last 3 months?

- _____ Yes
- _____ No

20. Do you have diabetes ?

- _____ Yes
- _____ No [skip to 23.]

21. Have you been checked for your blood glucose level during last 1 month?

- _____ Yes
- _____ No [skip to 23.]

22. Who performed the test?

- General practitioner/therapeut
- General practice nurse
- Laboratory staff at the polyclinic
- Laboratory staff at the hospital
- Others, specify _____

23. Do you have children under age 14 ?

- _____ Yes

No [skip to **26.**]

24. Have your child /any of your children health problems related to eyes, nose, throat?

 Yes

 No [skip to **26.**]

25. Please, answer the following questions for your child/children with health problems related to eyes, nose, throat.

Child #	Did you applied to anybody for care?	If yes, to whom have you applied?
1.	<u> </u> Yes <u> </u> No	<input type="checkbox"/> General practice pediatrician <input type="checkbox"/> General practice nurse <input type="checkbox"/> ENT specialist at polyclinic <input type="checkbox"/> ENT specialist at the hospital <input type="checkbox"/> Others, specify _____
2.	<u> </u> Yes <u> </u> No	<input type="checkbox"/> General practice pediatrician <input type="checkbox"/> General practice nurse <input type="checkbox"/> ENT specialist at polyclinic <input type="checkbox"/> ENT specialist at the hospital <input type="checkbox"/> Others, specify _____
3.	<u> </u> Yes <u> </u> No	<input type="checkbox"/> General practice pediatrician <input type="checkbox"/> General practice nurse <input type="checkbox"/> ENT specialist at polyclinic <input type="checkbox"/> ENT specialist at the hospital <input type="checkbox"/> Others, specify _____

26. *

Thank you, it was very kind of you to help us.

* The continuation of questionnaire depends on other objectives stated in PHC Development Plans of facilities and will be designed for every facility separately.