An Assessment of USAID's Health Strategy in Armenia

Prepared Under a Contract with the
Population Technical Assistance Project

By

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Preface

This paper was prepared under contract to the Population Technical Assistance Project (POPTECH) with the purpose of advising the USAID Mission in Yerevan, Armenia, on its health sector strategy. The objective of the exercise was to assess USAID's assistance to the Armenian health sector. The report reviews the health component of USAID/Armenia's current five-year social transition strategy (FY 1999-FY 2003) and it is anticipated that the report will be used in designing the follow-on strategy (FY 2004-FY 2008). The report is intended to provide the analytical underpinnings for the Mission's health sector strategy planning and to offer a reference document for future activity development. It is also anticipated that the document will be useful to the Mission's government counterparts and other development partners.

The Assessment Team was headed by Robert Taylor, a specialist in health management, policy and reform, and included Capri-Mara Fillmore, a family physician and epidemiologist, and Tatyana Makarova, a specialist in health organization and finance. The team was provided able logistics and translation support by Shushanik Avagyan and Svetlana Mardanyan. The report reflects information gained by the team during a three-week visit to Armenia in late April and early May, 2002. The team had the opportunity to interview numerous individuals and to review an extensive list of documents, as detailed in the attached appendices.

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LIST OF EXHIBITS

Acronyms and Terms

Abt	- Abt Associates, a PADCO subcontractor in health
ACDCP	- Armenian Center of Disease Control and Prevention
AIHA	- American International Health Alliance, a USAID Cooperating Agency and a PADCO subcontractor
ASTP	- Armenia Social Transition Program (the name of the PADCO Contract)
AUA	- American University of Armenia
BBP	- Basic Benefits Package
CHI	- Compulsory Health Insurance, also MHI and NHI
CHSR	- AUA Center for Health Services Research
CRS	- Catholic Relief Services, NGO providing meals in schools
DHS	- Armenia Demographic and Health Survey 2000
FGP	- Family Group Practice
FM	- Family Medicine
FP	- Family Practice
FSU	- Former Soviet Union
GDP	- Gross Domestic Product
GOAM	- Government of Armenia
HMIS	- Health Management Information System
Marz	- Regional governmental division
MHI	- Mandatory Health Insurance, also CHI and NHI
MOH	- Ministry of Health
MOFE	- Ministry of Finance and Economy
MOSS	- Ministry of Social Security
NGO	- Non Governmental Organization
NHI	- National Health Insurance, also CHI and MHI
NHIAC	- National Health Information Analytic Center
NIH	- National Institute of Health
NSS	- National Statistics Service
PADCO	- Planning and Development Collaborative Inc. (Prime Contractor for the ASTP)
PHC	- Primary Health Care
SanEpid	- The Department of Hygienic and Infectious Disease Surveillance and/or one of its local reporting units
SHA	- State Health Agency
SOW	- Scope of Work
STP	- USAID Social Transition Program
TA	- Technical Assistance
UMCOR	- United Methodist Committee On Relief, NGO providing mobile clinics and other direct assistance programs
UNICEF	- United Nations Children's Fund
USAID	- United States Agency for International Development
WB	- The World Bank
WHO	- World Health Organization

I. Executive Summary

Armenia's health system is in transition – reflecting changes in society, the economy and government that began in 1991, when Armenia declared its independence from the Soviet Union. As other Soviet countries, Armenia's health system was centrally financed and managed, with the Ministry of Health overseeing an extensive system of hospitals and clinics. But after independence, faced with severe economic difficulty and a health system that was out-dated and over-staffed, the Armenian Government was no longer able to guarantee free health care for all. As public moneys for health diminished, the burden of financing health care began to shift to private citizens.

One result of the transition has been that Armenia has experienced little improvement in health status in recent years and several problem areas continue. In the 1980s, in the waning years of the Soviet Union, Armenia was reported to have the longest living people of all the Soviet republics. In the years immediately following independence, however, life expectancy in Armenia dropped slightly, although it has since recovered. Of particular concern, maternal and infant death rates remain high, due primarily to diminished access, the poor quality of health care services, and weaning infants too early. Cardiovascular disease has become the leading cause of death among those over 65 years of age. There has also been a disturbing increase in the incidence of antibiotic resistant tuberculosis. Smoking rates for Armenian men remain among the highest in the region and cancer is on the rise.

These changes in health status are rooted in the way health care in Armenia is financed, organized and delivered and have stimulated the Armenian Government to launch a major program of health reform. They are also the foundation upon which USAID's health strategy in Armenia is constructed.

The Government's health reform agenda has three major thrusts: improving access to primary health care services, improving health financing, and optimizing health facilities and personnel. With the support of USAID and other international donors, the Armenian Government has made good progress in initiating the reform process, but much remains to be done. At this stage of development, the following issues deserve particular attention by USAID if the Government's health reform agenda is to continue to make satisfactory progress:

1. Many Armenians are not accessing health services when they are needed because they can not afford the costs. Private out-of-pocket payments, both formal and informal, now account for 60% or more of all health expenditures. The poor, especially, bear a substantial burden of financing health care. As a foundation for planning and decision making, USAID should support a study of private payments and their impact on access and equity.

2. Advocacy for Family Medicine is weak. Family Medicine is a fundamental building block for strengthening primary health care but is not well understood, even within the Ministry of Health, where advocacy for family medicine should be centered, nor within the National Institute of Health, where responsibility rests for educating family practitioners. To help build understanding and advocacy for family medicine, USAID should sponsor study tours and hands-on training to expose GOAM leadership to family medicine training programs and practice sites.

3. The Family Group Practice pilot clinics will be watched with a combination of expectation and skepticism. Their success is critical to the acceptance and expansion of family medicine in Armenia. USAID should closely monitor the progress of the pilot clinics and supplement training and technical assistance as necessary to assure their success. The State Health Agency should be encouraged to provide financial incentives for FGP clinics.

4. Armenia's health system is chronically under-funded and the resources that are available are not used to advantage to help reshape the system. A Basic Benefits Package has been introduced but is too inclusive to adequately target limited public health expenditures. In addition, the State Health Agency is not able to exercise its discretion as the principal buyer of public-financed health care services. To support improvements in the BBP and SHA's role as a buyer, USAID should sponsor a study of service patterns, eligibility requirements, and payments.

5. With reform, people and institutions at all levels – national, regional, and local – are struggling to adapt to changing roles and new responsibilities. The impact of decentralization is still being felt among hospitals and clinics and within regional health authorities. The introduction of family medicine is beginning to impact on medical specialists throughout the health system. USAID needs to continue, even expand, its efforts to provide technical assistance and training aimed at strengthening the understanding and capacities of local institutions to deal with their changing roles.

Health reform in Armenia is at a critical point. Revolutionary changes have been introduced but are not yet established and are vulnerable to delay, set-backs, and even failure. Continuity of effort during this period is required if the momentum that has been established is to be sustained. Over the last few years, USAID and its contractors have developed good working relationships with the Ministry of Health and other Government agencies. They have established credibility as a knowledgeable and able source of support for the reform agenda. The principal thrusts of USAID's health activities in Armenia are on track and no dramatic changes are recommended. In essence, as USAID reexamines its health strategy for Armenia, it is encouraged to finish what it has started. And while systemic health reforms mature, USAID is also encouraged to continue to support activities - particularly reproductive health, child health, nutrition, and the growing threat of tuberculosis - that address the immediate health needs of those who are most vulnerable.

II. Armenia's Health System in Transition

Armenia's health system is in a state of transition – mirroring systemic changes that are now underway throughout the society, the economy and government. Change is increasingly evident in the way health care is financed, organized, and delivered. Shortly after declaring independence in 1991, there was a significant shift in health financing, away from government as the principal source of health payments, to out-of-pocket payments from private citizens. The Armenian Government, burdened with a health system that was over-built and over-staffed, and recognizing its inability to continue to guarantee health care for all its people, introduced an ambitious program of health reform. Programs were initiated to restructure the country's extensive system of hospitals and clinics, to strengthen primary health care and introduce family medicine, and to alter the role of the Ministry of Health. A Basic Benefits Package was developed, intended to target limited public funds to the most vulnerable, and the State Health Agency was created to serve as the principal buyer of public-funded health care.

As dynamic as these changes are, the health of the Armenian people, as reflected in health status indicators, has shown uneven and limited improvement in the last decade. A number of troubling health problems continue to be of concern, and others are emerging, that challenge the ability of the country's health system to respond.

While Armenia has accomplished a great deal in health reform, most of the reform initiatives are still in a state of development with much yet to be done. In that light, USAID is currently assessing its health strategy and programming to determine how it can best assist the Government of Armenia to further advance the health reform agenda.

A. Health System Financing and Organization

Reforms are already changing how Armenia's health system is financed and organized.

1. Health spending in Armenia

Estimates of health expenditures in Armenia vary widely, but probably total something over 25 billion dram (US$46 million) annually.[1] In a recent study, governmental expenditures for health accounted for about 28% of all health expenditures, with 60% coming from private out-of-pocket sources, and 12% from donors and other external sources.[2]

[1] Telyukov, Alexander, *Report No. 47: An Assessment of Health Financing Options for Armenia*, August 2001.
[2] Telyukov, *Report No. 47*, p.13.

As shown in Exhibit 1, below, the percentage of expenditures attributable to public, private, and donor sources varies based on whether actual governmental expenditures, or the obligated budget figures, are used. According to one study, actual spending for health in 2000, from all sources, accounted for only 2.4% of GDP, with public and donor sources together accounting for less than 1% of GDP.[3] Using updated census estimates of 3 million, from data released in 2002, per capita expenditures for health totaled over US$15 with public and donor sources contributing about US$6 of the total.

Exhibit 1: Health Expenditures in Armenia, 2000

Financial figures in ADM (Armenian dram) and US Dollars

	Obligated Budget	***Actual Expenditures***
Population of Armenia	3.8 million	3.0 million
GDP, 2000, AMD Billion	1,032.60	1,032.60
Total health expenditures, AMD Billion	34.97 (US$63 million)	25.34* (US$46 million)
As a % of GDP	3.4%	2.4%
Per Capita, AMD and (US$)	9,197 ($16.7)	8,447 (US$15.4)
Public Expenditures, AMD Billion	16.60 ($30.2 million)	6.97 ($12.7 million)
As a % a total health expenditures	47%	28%
As a % of GDP	1.6%	0.7%
Per Capita, AMD and (US$)	4,368 (US$7.9)	2,323 (US$4.2)
Donor Expenditures, AMD Billion	3.01 ($5.5 million)	3.01 ($5.5 million)
As a % a total health expenditures	9%	12%
As a % of GDP	0.2%	0.2%
Per Capita, AMD and (US$)	792 (US$1.4)	1,003 (US$1.8)
Private Expenditures, AMD Billion	15.36 ($27.9 million)	15.36 ($27.9 million)
As a % a total health expenditures	44%	60%
As a % of GDP	1.5%	1.5%
Per Capita, AMD and (US$)	4,042 (US$7.4)	5,120 (US$9.3)

Adapted from: Telyukov, Alexander, *Report No. 47: An Assessment of Health Financing Options for Armenia*, August 2001, Tables 1 and 2, pp.13 and14, with updates to reflect recent census data.

* Total health expenditures in Table 1, Report No 47, were shown as AMD 28.82 billion, which appears to be an error in addition.

These figures differ significantly from those quoted by the European Observatory. Their estimates, based on MOH, WHO and other sources, indicate that the state *budget* for health dropped from 2.7% of GDP in 1990 to a low of 1.3% in 1997, with an increase back up to 1.7% in 1999.[4] But *actual* expenditures by government have always fallen short of budget, by as much as 40-60%, supporting the possibility that actual public expenditures are less than 1% of GDP.

[3] Ibid, p.13.

[4] Hovhannisyan, Samvel, E. Tragakes, S. Lessof, H. Aslanian and A. Mkrtchyan, *Health Care Systems in Transitions: Armenia*, European Observatory on Health Care Systems, 2001. p.37.

Whether government expenditures for health are 1.7% or 0.9% of GDP, they are very low, ranging between US$4 and US$8 per capita per year. As shown in the preceding table, in the year 2000, the Armenian government dispersed only 42% of its obligated health budget. If fully funded, the state health budget would amount to about 11% of the total state budget.

Recommendation: The source and application of health expenditures in Armenia are changing and not well documented. A National Health Accounts (NHA) study, as now being considered by the Ministry of Finance, should be encouraged by USAID through the provision of funding and technical assistance. Whether a NHA study should be a periodic or routine exercise should be examined.

2. Private payments for health

With chronic under-funding by government, many of Armenia's hospitals and clinics have accumulated debt, primarily in the form of unpaid salaries. In addition, they have not been able to pay for needed maintenance on their buildings and equipment. Financially stretched, health service providers were authorized by law in 1997 to introduce a system of formal fees – with exemptions for selected vulnerable populations. Charges are based on a facility's cost estimates as long as they fall within limits set by the MOH. Typically, providers charge a registration fee and then specified fees for various services and supplies. In theory, drugs are provided free to covered patients but chronic shortages force patients to purchase drugs on the open market, a significant cost factor. In essence, much of the burden of financing Armenia's health system has been shifted from government to the people.

Formal fees provide health service providers with critically needed revenues that supplement payments from public sources and help cover current operating costs. But revenues have not been adequate to cover costs or to eliminate back wages. As a result, a system of informal or gratuity payments, a long-time tradition in Armenia, continues. Typically, gratuity payments are expected or even solicited from all patients – the poor, vulnerable, and the well-to-do - by doctors, nurses, and other health professionals as an essential supplement to their income.

As shown in Exhibit 1, above, private out-of-pocket payments (both formal and informal) now account for an estimated 60% of all health expenditures in Armenia, possibly more. Compared to other countries, the 60% figure is not particularly noteworthy. For example, in a 1997 study profiling thirty developing countries throughout the world, private financing for health ranged from a low of 15% to a high of 78%, averaging 50%, of all health expenditures.[5] What is important is the rapid shift in Armenia from public to private health financing and the inequities and allocative inefficiencies that have been introduced in the process. With no health insurance programs in place, virtually all private payments in Armenia are out-of-pocket. As discussed

[5] Taylor Associates International, *Private Hospital Investment Opportunities*, International Finance Corporation, 1997, p.19.

later in this report, the poor are especially hard hit, as evidenced by the number of those who are ill who do not seek health care because of the cost.

Recommendation: The amount of private payments for health, both formal and informal, and their impact on access, equity, and utilization should be studied in detail. In part, this effort can be incorporated into a comprehensive National Health Accounts study, as suggested earlier. But it is also recommended that the periodic household surveys, now conducted by PADCO, be expanded to examine these issues in greater detail.

3. Health System Organization

During the Soviet era, Armenia is said to have had one of the best developed health care systems in the Soviet Union.[6] At the time, Armenia was divided into 37 administrative districts, each with a hospital and associated polyclinics. Rural areas were served by networks of health posts and feldsher stations. Citizens registered with a local health institution and were assigned a named physician.[7] While local authorities were responsible for funding local health services, the bulk of the power for directing and financing the health system was concentrated in the state, with the Ministry of Health playing a central role in providing oversight and direction.

With independence, Armenia's administrative districts – along with their health facilities - were consolidated into 11 regions, including Yerevan and 10 marzes. As before, regional governments were assigned the responsibility of funding local health services although the Ministry of Health continued to exercise considerable control over the process. As shown in Exhibit 2, on the next page, virtually all the health facilities established during the Soviet era continue in operation today.

There is evidence that Armenia's health system is over-built and over-staffed. As shown in the following table, clinic visits and hospital utilization rates have dropped sharply over the last several years. Even before the drop in utilization, Armenia appears to have some, if not a dramatic, over-abundance of hospitals and doctors. As important as absolute numbers, however, but not evidenced in the table, may be disparities in capacity and staffing between urban and rural areas and in the mix of medical specialists, general practitioners, and family doctors.

In 1993, the organization of Armenia's health system began to change when state health care institutions (hospitals and clinics) became state health enterprises, or semi-independent units that could generate their own revenues.[8] In 1995 hospitals were permitted to provide private as well as state-funded services. And in 1998, with the creation of the State Health Agency, the role of regional governments as third-party payers was centralized.[9]

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[6] Hovhannisyan, p. 5.
[7] Ibid, p. 6.
[8] Hovhannisyan, p. 13.
[9] Ibid, p. 12.

Exhibit 2: Armenian Health Service Capacity and Utilization

	1985	*1991*	*1995*	*2000**	*UK*	*Canada*
Number of Hospitals	167	179	183	171		
Hospital Beds				23,169		
Hospital Beds per 1,000	8.36	8.46	7.62	7.7**	5.1	6.0
Hospital Admissions per capita	0.153	0.121	0.075			
Average Length of Stay (ALOS)	16.6	15.4	15.2		10.2	12.6
Occupancy Rate	86%	62%	40%	40%		
Number of Polyclinics	484	537	501			
Clinic Visits per capita per year	10.5	7.4	4.8			
Physicians per 1,000 population	3.8	4.1	3.4	4.3***	1.5	2.2
Nurses per 1,000 population	9.1	9.9	8.3	10.5***		

Source: Adapted from Annex 1: Armenia Health Sector Indicators, the World Bank. Figures for the UK and Canada are for 1995.

** Figures in this column are from the MOH, The Strategy of the Ministry of Health, (undated but probably 2000 or 2001), p.4*

*** Calculated on the basis of the 2000 census of 3 million.*

****Physician and Nurse ratios are for 1995 adjusted for census of 3 million*

The State Health Agency (SHA) was created to serve as the principal public buyer of health services in Armenia. As a buyer, the SHA is expected to contract with provider organizations and pay them for services defined in the Basic Benefits Package. At present, SHA is the conduit for 80% of all public moneys spent on health, excluding donor contributions. Based on the obligated health budget, SHA sets hospital rates for each diagnosis in the Basic Benefits Package of health services. It also sets per capita payment rates for clinics based on each clinic's costs and the population it serves. Hospitals are then to be paid monthly based on the number of defined services they provide to eligible (vulnerable) patients. Clinics also receive periodic payments based on their per capita rate.

Created as an independent agency, the SHA has recently been moved under the MOH organizational umbrella – undoing, at least in part, the separation of purchasing and provision established in 1998. It is too early to determine how the move will impact the role and functions of either SHA or the Ministry of Health.[10]

In this period of transition, the role of the Ministry of Health has changed significantly. Historically, the Ministry of Health has had the responsibility for guiding Armenia's health system - providing health policy development, planning, regulatory oversight, and monitoring – and that role continues. Since decentralization and the creation of state health enterprises, however, the MOH is no longer the country's major health provider. The Ministry retains responsibility for managing only a few tertiary and specialty hospitals operating in Yerevan. In addition, with the creation of the State Health Agency, the MOH lost much of its role in financing health services. The Ministry of Health still develops the annual health budget but the

[10] See Appendix B for more on the changing roles of the Ministry of Health and regional governments.

Ministry of Finance collects tax revenues and controls their disbursement. The Ministry of Health does retain the responsibility for developing national health policy and is the "ultimate arbiter in terms of medical education, licensing, regulation and setting standards."[11] In addition, the Ministry, through its San-Epid units, serves as the central collection point for epidemiological data.

4. Armenia's Health Reform Agenda

Beginning in the early 1990s, the Ministry of Health launched an ambitious program of health reform designed to improve access to health care by changing how the health system is governed, optimizing the nation's system of hospitals and clinics, strengthening primary health care and introducing family medicine, and altering how health care is financed.[12] Based on recent reports, the Ministry of Health is undertaking a number of activities to further advance the objectives of health reform, as summarized below:[13]

- Improve health system governance
- Improve health financing
- Increase accessibility to health care
- Improve medical education and research
- Improve the hospital system
- Assure the adequate supply of equipment and technology
- Increase the effectiveness of international cooperation in health care
- Improve the public health system
- Advance multi-sectoral cooperation in health

The GOAM has sought and obtained support for these reform programs from the donor community and significant progress has already been made – most notably the decentralization of health facilities, the establishment of training programs in family medicine, the creation of the SHA, and the design of a Basic Benefits Package. Still, these reform initiatives are in various stages of development and all will require continuing support and encouragement if they are to continue to advance. Obviously, the GOAM's health reform agenda is the foundation for what will become USAID's health strategy and program in Armenia.

B. Health Status of the Armenian People

Based on the best available data, life expectancy, infant mortality and nutrition have all shown some improvement since Armenia declared independence. In contrast, maternal mortality, the

[11] Hovhannisyan, p. 10.
[12] Ministry of Health, *Main Directions of Armenian Ministry of Health 1999-2002 Health Care Development Strategy*. MOH, 2000
[13] Ibid

incidence of TB, cardiovascular deaths, and abortion rates appear to be worsening. Some affluence-associated health indicators are also increasing - obesity, diabetes, and neoplasia rates, for example. Abortion rates, as well as rates of gonorrhea and syphilis appear to be starting to decrease. Armenia has had significant decreases in alcoholism, alcoholic psychosis, and substance abuse. Smoking rates among men, still among the highest in the Former Soviet Union, decreased sharply after independence, but are starting to rise again. Given Armenia's widespread poverty and generally decreased access to health care, these general, though mild, improvements in health status are surprising. Clearly there are factors that influence health other than the performance of the health system - possible Armenia's high level of education, moneys repatriated from relatives abroad, and other influences.

1. Life expectancy

In 1985, in the waning years of the Soviet Union, Armenia reported life expectancy of 72.9 years for its citizens, longer than any of the other Soviet republics.[14] After independence, life expectancy first declined slightly (to a low of 71.1 years in 1993), but then rebounded to 72.5 years in 1995 – continuing to climb until 1999 when life expectancy reached 74.7 years. Data for 2000 indicates life expectancy dropped again, back to 1995 levels – possibly due to a statistical anomaly.[15] Life expectancy would probably be increasing more rapidly if it were not for Armenia's high infant mortality rate and an increasing incidence of cardiovascular disease, especially among women (see below).

Estimates of life expectancy should be interpreted with caution, however. Life expectancy at birth is extremely variable. Low weight infants who survive less than seven days are often counted as miscarriages rather than live births, historically a common practice in the region. If they were counted according to international standards, life expectancy in Armenia would probably be lower than reported. If the DHS survey[16] is correct for infant mortality (see below), life expectancy would be adjusted downward by almost two years. (See Appendix C for how life expectancy adjustments might be calculated).

2. Infant Mortality

Infant Mortality, at 36.1 deaths per 1,000 live births, remains high, although somewhat improved over the last fifteen years. The trends reported in DHS-2000 may be the most accurate because they used the WHO definition of a live birth – a recall method where the mother is asked if the infant showed any sign of life.[17] According to the DHS survey, infant mortality rates have

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[14] Gomart, E., *Report on Social Assessment in the Health Sector*, AUA, as cited in *Country Papers: Armenia*, USAID, p. 49.

[15] Armenian Ministry of Health *2000 Annual Statistical Report. Health in the Republic of Armenia-2000*, Official Statistics Data, Yerevan.

[16] *Armenia Demographic and Health Survey 2000*, National Statistical Service (Yerevan), Ministry of Health (Yerevan), and ORC Macro (Calverton, Maryland), December 2001.

[17] See Appendix C for a discussion of how perinatal mortality and prematurity rates are calculated.

decreased in Armenia since the Soviet era – if somewhat erratically. [18] For the years 1986-1990, the infant mortality rate was 45.6 and by 1991-1995 had increased to 50.5, before dropping to present levels.[19]

The National Statistics Service also reports an improving trend in infant mortality, reporting a rate of only 15.6 deaths per 1,000 live births for the year 2000 – less than half the rate reported in the DHS survey and probably a significant under-estimation due to the continuing practice of classifying live born infants as miscarriages or stillbirths.

High infant mortality suggests a number of problems – in particular, early weaning and prematurity. Many Armenian mothers are reported to stop breast-feeding after only two months rather than the recommended six months, contributing to malnutrition and low immunity. Prematurity also suggests the need for improved care for pregnant women. Documented decreases in infantile acute respiratory and diarrheal diseases over the last 10 years probably explain most of the recent decrease in infant mortality.

Recommendations: Infant mortality should continue to be a significant concern in USAID's health strategy and programming. USAID should continue or expand its support for technical assistance and training that encourage the following activities:

- ***More accurate data collection - by supporting teaching clinics on the WHO definition of "live birth" at all maternity hospitals and departments.***
- ***The creation of Fetal Infant Mortality Review boards, where all infant deaths are reviewed at least annually. (see Appendix D).***
- ***Encourage longer breast feeding (see nutrition section)***
- ***Teaching obstetricians need to give corticosteroids to women with intractable premature labor to increase lung maturity of their babies.***
- ***The upgrading of neonatology services as needed.***

3. Maternal Mortality

Maternal mortality rates in Armenia are high, possibly as high as 48 deaths per 100,000 life births for the three year period 1999-2000. Estimates are extremely unstable, however, because of the small number of maternal deaths each year and varying definitions for live birth, as mentioned above. The maternal mortality rate in Armenia appears to have been at its lowest in 1991-1992, and since then has been sporadically increasing to its present level, the highest level in 15 years. For a discussion of maternal mortality data, and the data itself, see Appendix E, attached.

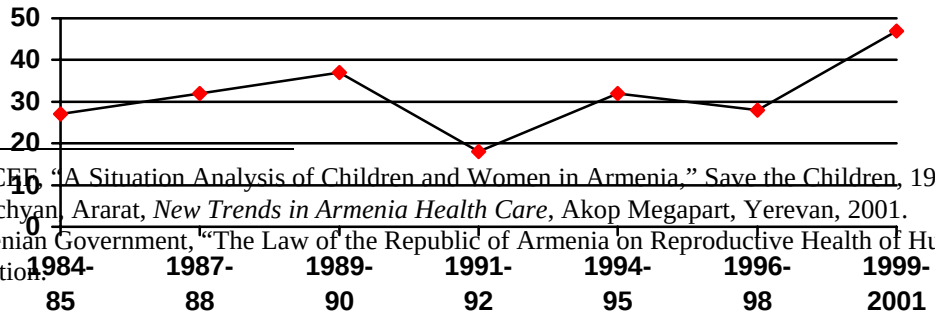
[18] *Armenia Demographic and Health Survey*, Table 9.1.
[19] For a more detailed discussion on infant mortality rate estimates see Appendix C.

The greatest cause of maternal mortality (1995-97) is classified as extra-genital diseases (28.9%), then hemorrhage, then hypertensive disorders, then abortion complications and sepsis (11.1% each).[20] The MOH 2000 Statistical Report states hemorrhage is the most common cause of maternal death, with miscellaneous unspecified complications the next most common, then ectopic pregnancies and abortions. Hemorrhaging is often worse among women who are anemic during pregnancy. One reference[21] shows a greater than 10% increase in pregnancy anemia in the last 10 years. The low rate of 2.6% pregnancy anemia (1988) would be questionable, however, for even the healthiest countries (if the women are greater than 3 months pregnant). The survey technique, gestational age, and numbers tested were not mentioned. Anemia often decreases in the first trimester of pregnancy because menses are not present and blood volume has not yet expanded. For example, a 1998 Italian Nutrition survey tested only a few more pregnant women but found 30% of third trimester women anemic, and an overall pregnancy anemia rate of 16%. The DHS-2000 survey found among a non-statistical sample of 169 pregnant women that 16% were anemic (all trimesters).

Abortions associated with high mortality rates were generally those done outside of medical facilities in locations with poor hygienic conditions. It is illegal in Armenia to get an abortion after 12 weeks of pregnancy except for medical/social reasons.[22] Some unreported maternal mortality, or those of unknown cause, may be related to this abortion law. Women also may seek abortions outside of the system because they cannot afford to pay for abortions performed in facilities. Obstetricians report that poor women sometimes purchase Methyltrexate over the counter in local pharmacies for self-induced abortions, which can lead to incomplete abortion and hemorrhage. The government of Armenia projects about 2.3 abortions during the average woman's lifetime, but the DHS found a lifetime average of 3.3. A 1997 Reproductive Health survey found that 51% of pregnancies ended in abortion, much higher than the rates reported by the GOAM (Appendix E). The 2000 DHS survey found 55% if the pregnancies in the preceding three years ended in abortion. In Kotayk and Armavir Marzs, the percent of pregnancies ending in abortion was 64%. Induced abortions are associated with 10-20% of maternal mortality (MOH Annual Health Statistics Report). DHS concluded that there was no significant change in rates of induced abortions in the last five years. It is unlikely that increased abortions, if indeed there is a trend, explain the increase in maternal mortality.

Exhibit 3: Trends in Average Maternal Mortality Rate in Armenia

Deaths per 100,000 live births



[20] UNICEF, "A Situation Analysis of Children and Women in Armenia," Save the Children, 1998, p.105.

[21] Mkrtchyan, Ararat, *New Trends in Armenia Health Care*, Akop Megapart, Yerevan, 2001.

[22] Armenian Government, "The Law of the Republic of Armenia on Reproductive Health of Humans", Article 11 on Abortion.

In Exhibit 3, above, 2-3 years are grouped together (depending on the number of years necessary to constitute more than 100,000 births) to smooth out maternal mortality rate trends. The sharp drop in the maternal mortality rate following independence may reflect a breakdown in the death reporting system. There appears to be a clear trend of increasing maternal mortality rate after 1992, but this could be related to immediate post-independence under-reporting, which was finally corrected. Nonetheless, the 2000 maternal mortality rates are the highest reported in Armenia in the last 15 years and give great cause for concern. Armenia has during all these 15 years a high rate of "other" category for cause of maternal mortality death. These deaths need to be fully investigated in order to institute preventive measures.

Recommendations: Maternal Health should continue to be one of USAID's principal programmatic efforts in health. USAID should support:

- ***Educational programs in handling emergency obstetrics (for all primary care providers) would help decrease maternal mortality.***[23]
- ***Widespread use of magnesium for pre-eclampsia and premature labor needs to be taught and practiced, with specific guidelines that can be used by non-obstetric providers.***
- ***Anemia screening and treatment, vitamin D injections, iodine (when not in the salt) are also needed during pregnancy.***
- ***Obstetrical services should be upgraded where needed.***
- ***Set up a Maternal Mortality Review Team (see recommendation in Appendix D).***

4. Fertility and Infertility in Armenia

Fertility rates in Armenia are low, an average of 1.6 births for the life of a woman (no information is available for men).[24] If reports of extraordinarily high infertility (28.5% of reproductive age women) are true, they are among the highest in the world. Although Armenia has some potential for increased population by repatriation, the low fertility rate causes concern among health planners. Such a low fertility rate means that Armenia's population will continue to decline even if outward migration were to stop. These rates are the same and higher than many Western European countries.

In 2000, despite the free availability of contraceptives, only 14.4% of women (22.3% of married women) used modern contraceptives. Abortion is used as a default contraceptive with the total rate of 2.6 (much higher than the total fertility rate). Many women have had 6 or more induced

[23] Based on observations by the assessment team, Armenian doctors lack basic skills in obstetrical emergency care. The U.S. has had an intensive 2-3 day course (Boston University, Family Medicine Program) in just this sort of care, but this educational program (similar to Advanced Cardiac Life Support by the American Heart Association) would have to be greatly adapted for the needs and the practical situation in Armenia. (There are also courses for midwives and communities developed by the American College of Nurse Midwives and UNICEF, respectively.)

[24] *Armenia Demographic and Health Survey 2000*.

abortions, particularly in: Gegharkunik (27% of women), Kotayk, Armavir, Tavush, and Aragatsotn. Armenia has an unusual population pyramid, where 5-year age intervals for women between 25-35 years is a lower percent of the population than women 35-55 years old, a factor that would contribute to low fertility rates.

The official rate of infertility in Armenia was 28.5% in 1997,[25] but if one adjusts for the more accurate recent census, that rate would be about 22% (still quite high). Dr. Abrahamian (Advisor to the Minister of Health on Reproductive Health and Director, Center for Perinatology, Obstetrics and Gynecology, Yerevan) reports that chlamydia rates were 40% in1997, which could not be confirmed. Dr. Babayan (Chief of Dermatology and Venereology at the State Medical University) is currently involved in a WHO survey which should give a more accurate prevalence estimates. If the chlamydia rates are as high as reported, this may partially explain the high infertility rate. Gonorrhea and postpartum or abortion infections also contribute to infertility. However, the data from the government of newly diagnosed infertile cases in no way suggests this high percentage of chlamydia is true (Appendix E). Because of expense, neither treatment nor testing for chlamydia is readily available in Armenia.

Recommendation: USAID, through PRIME, should address the infertility problem, considered so important by the GOAM.

- ***Support a study to more accurately estimate infertility rates. Male infertility should also be evaluated.***
- ***Provide technical assistance in the use of laproscopic treatment.***
- ***The development of clinical practice guidelines for infertility workup should be given priority – with an emphasize on affordable alternatives.***
- ***Presumptive routine treatment of all STI patients for chlamydia should be encouraged.***

5. Census-Adjusted Disease Trends in Armenia

Based on recent census figures, Armenia's population is closer to 3 million than the 3.8 million used in the Health Statistics Yearbook[26] to calculate disease incidence and prevalence. The accuracy of infant and maternal mortality rates, as discussed above, is also affected. As a result, actual rates for the year 2000 are 27% higher than reported. Exhibit 4, below, shows the trends in disease incidence and prevalence for major diseases from 1990 to 2000 with appropriate census-adjustments. Rates for intervening years should also be recalculated but it is not known how rapidly the 800,000 drop in population occurred.

Exhibit 4. Trends in Diseases Incidence in Armenia
Adjusted for Lower Census

[25] Mkrtchyan.
[26] Armenian Ministry of Health *2000 Annual Statistical Report. Health in the Republic of Armenia-2000,* Official Statistics Data, Yerevan.

Disease	*1990 Incidence/100,000 pop*	*2000 (Adjusted) Incidence/100,000 pop*
Tuberculosis	16.6	42.9
Pertussis	13.2	0.3
scarlet fever	16.0	14.7
Meningitis	0.95	0.5
Influenza	1940.8	1345.3
hepatitis B	22.3	4.1
Measles	24.7	0.5
Dysentery	41.3	25.8
Typhoid	1.1	0.5
AIDS	0	0.04
HIV carrier	0	0.47
Gonorrhea in women	24.9	32.9
Syphilis in women	2.9	9.0
All malignancies	145.1	180.7
Breast cancer (women)	36.3	44.6
Cervical cancer (women)	14.3	15.5
Alcoholic psychosis	0.8	1.7
Chronic alcoholism	11.3	6.5
Substance abuse	0.8	0.3
Diabetes mellitus	131.2	94.5
Cardiovascular disease	955.4	658.9

Source: Armenian Ministry of Health 2000 Annual Statistical Report. Health in the Republic of Armenia-2000, Official Statistics Data, Yerevan, and adjustment for census 2001 of 2000 data by multiplying rates by 1.27.

The Armenian Health Statistics Yearbook, 2000, shows decreasing incidence rates of pertussis, scarlet fever, meningitis, influenza, hepatitis B, measles, dysentery, and typhoid since the late 1980s, regardless of adjusting for the 2000 census. Most of these decreasing rates can be attributed to Armenia's excellent immunization rates. In 1998, vaccination rates for children under one year were 90.3% for diptheria and tetanus, 93.5% for measles, 95% for tuberculosis, 82.4% for pertusses, and 96.4% for poliomyelitis.[27] Drops in the incidence of infections without immunizations may be due to under-reporting because of lower utilization of the health care system. Documented decreases in infantile acute respiratory and diarrheal diseases over the last 10 years explain most of the decrease in infant mortality.

6. Infectious Diseases and the rise in TB

While vaccine-preventable infectious diseases in Armenia have decreased over the last ten years (Exhibit 4), the incidence of new cases of tuberculosis have tripled, probably as a result of antibiotic resistance and inadequate treatment. This trend of rapidly increasing TB rates presents one of the greatest risks to the future health of Armenia.

[27] WHO, Highlights on Health in Armenia, January 200. http://www.who.dk/document/e72377.pdf

TB causes more than half of all infectious disease deaths in Armenia.[28] Women of reproductive age are more likely to die of TB than childbirth.[29] The incidence of TB has almost tripled and the mortality rate (currently 5.2 per 100,000 adjusted population) has more than doubled in the last 10 years. The rise in both indicators is likely due to late diagnosis, increased resistance to antibiotics, missed diagnosis of antibiotic resistance, and poor availability of antibiotics needed for treatment. Presumably, less TB cases are now being treated successfully (88% in 2000[30]) than during the Soviet era when TB treatment protocols where more strictly enforced.

No information was available to the assessment team on current MDR (multi-drug resistant) TB in Armenia. However, neighboring Georgia (where TB rates started at a slightly higher level in 1990 but have not increased quite so rapidly since) has about 10% MDR TB rates.[31] Armenia is considered level three (expansion stage) of Directly Observed Treatment, Short course (DOTS) implementation, the WHO program to fight TB. Armenia qualifies for needing the DOTS-plus program (specifically for MDR TB), but since DOTS is used only in 39% of the TB cases, Armenia is not ready for DOTS-plus.[32] WHO, GTZ, and the Charles and Agnes Kazarian Memorial Fund (with Boston University) have provided anti-TB drugs and assisted with various other aspects of Armenia's TB Control Program. The International Committee of the Red Cross is helping on strategies for TB control in prisons (where TB rates are often 100 times higher) and has built a national TB reference laboratory in the State Tuberculosis Dispensary in Abovian.[33] For a more thorough discussion on DOTS, how Armenia is doing on implementing DOTS, the inherent limitations of DOTS (and DOTS-plus), and further justification of the recommendations below, see Appendix F.

Recommendations: Because of the threat from increasing rates of TB in Armenia USAID should closely assist Armenia in TB control, even though other donors may take the lead.

- ***USAID should support nationwide DOTS programming, including assurance of a constant supply of anti-TB drugs.***
- ***Support a system of directly observed prophylaxis INH to household contacts and active case finding.***
- ***To better document MDR TB rates, USAID should support testing a variety of populations such as: all TB patients not successfully treated, geographic samples, prisons and AIDS patients.***
- ***Encourage progression to DOTS-plus program (MDR TB treatment). Even though this is expensive treatment (approximately 100x more expensive than regular TB treatment), if left untreated we can only expect the problem to get worse and more***

[28] Armenian Ministry of Health *2000 Annual Statistical Report.*
[29] Ibid,. These numbers were then compared to the data on TB by age group in Armenia, found in: WHO Report 2002 Global Tuberculosis Control: Surveillance, Planning Financing.
[30] WHO Report 2002 Global Tuberculosis Control: Surveillance, Planning Financing. WHO/CDS/TB/2002.295 http://www.who.int/gtb/publications/globrep02
[31] National Tuberculosis Program of Georgia, brochure entitled: Tuberculosis Control in Georgia, 2002.
[32] WHO Report 2002 Global Tuberculosis Control.
[33] Armenia: Milestone in fight against TB. On the ICRC web site, dated 26 October 2001. http://www.icrc.org/icrceng.nsf/Index

expensive.
See Appendix F for a further explanation and discussion of these recommendations.

7. Sexually Transmitted Infections

As shown in Exhibit 4 (page 14), syphilis and gonorrhea rates have increased among women. Both appear to have reached a peak around 1995-1996, five to ten years after the Soviet partner tracing system was discontinued. Syphilis rates for women are about three times higher than in the late 1980s and 1990. Syphilis rates in Armenia have always been lower, and rate increases in the early 1990s were much lower, than most of the CIS.

Acute gonorrhea appears to have increased over the last 10 years, but has decreased since its peak in 1995-1996.[34] The excruciating pain from *untreated* gonorrhea - which progresses to salpingitis - means these women would all seek care. We can be fairly certain that the increased rates of salpingitis (almost two-fold in ten years) are not an underestimate because of lack of health care access.[35]

The incidence of HIV in Armenia is poorly documented, but available data do not suggest a serious HIV problem in Armenia, at least not yet. With a reported rate of 0.45 cases per 100,000, incidence appears to be low and there does not appear to be an increased rate of newly diagnosed HIV cases over the last five years.

All data needs to be considered in light of the number of HIV tests actually done (and trends need to be determined by repeated testing over years). Doctors in rural areas reported they do not test for HIV or there is no capacity to test pregnant women, although the government says it is free and has tried to require the tests for military recruits. The MOH has a goal to test the entire blood supply, but so far only two-thirds of the supply is tested for HIV because testing resources are so limited.

HIV statistics are reported by the Armenian National Center for AIDS Prevention (NCAP), which has its own website (www.armaids.am) and the country's one HIV reference laboratory. NCAP, using sentinel surveillance, reports that Armenia has had 185 cases with positive HIV blood tests. Half acquired the disease from intravenous drug use (IDU), and 20 are known to have died. It is believed that some IDU infections are attributable to Armenian workers who migrate, predominately to Ukraine and Russia, and then return to Armenia. Some HIV cases may have left Armenia, of course, and some are entirely anonymous or may have died.[36] In comparison, MOH data, gives a total of 66 incident cases of HIV and AIDS together through the year 2000.[37] It is unclear which of the 66 are replicate patients who have gone from HIV to AIDS. Since most HIV cases have been picked up from the State Medical College's

[34] Armenian Ministry of Health *2000 Annual Statistical Report*
[35] Babayan, Karen, Chief of Dermatology and Venereology at the State Medical College and Dispensary.
[36] Grigoryan, Samuel, Director of the National Center for AIDS Prevention, Yerevan.
[37] Armenian Ministry of Health, *2000 Annual Statistical Report*.

Department of Dermatovenereology (approximately 75-80% of the cases) the chief of this department questions the NCAP's number of 185 and the claim of 50% being IDU acquired.

NCAP receives support from UNDP, UNICEF, UNFPA, OIS, MSF and the Soros Foundation. In turn, NCAP gives some funds to two local non-governmental agencies, AIDS Prevention, Education and Care (APEC) and AFFHA, a local NGO, which targets youth prevention. APEC has established good contacts in the IV drug-using (IDU) population by offering them assistance and directing them to helpful doctors. APEC also has a hot-line for HIV and AIDS information which started in February, 2002. They are the only group known to offer assistance to HIV/AIDS patients in Armenia, but report working with only 10-15 IV drug users with HIV, which either brings to question the 185 number, or the 50%, or both. The male:female ratio of 3:1 among persons who are HIV+, and the likely overestimate of IDU as the exposure, suggests that homosexual transmission is probably underestimated. (It should be noted that the male:female ratio is based on sentinel surveillance of risk groups, not on a national survey.) No medicine is currently available for AIDS patients, which makes it more difficult to track cases.

Recommendation: Although HIV is not a pressing priority in Armenia health, USAID should support a program to regularly survey risk-prone population.

- ***Either military recruits or every pregnant woman are likely populations to be surveyed. But if pregnant women are surveyed, medication for preventing transmission to the newborn is morally required - at current rates, only 0-2 pregnant women would be expected to be HIV positive per year.***
- ***Increasing STI rates emphasize the importance of Family Physicians being able to screen (and have materials to screen) for these diseases, especially for pregnant women.***
- ***Programs to strengthen HIV/AIDS education and prevention activities should also be encouraged.***

8. Chronic, non-communicable, and life-style related diseases

Cardiovascular diseases are the leading cause of hospitalization and mortality in Armenia. Comparing incidence and mortality rates, for both cardiovascular disease and diabetes, it is clear these diseases are worsening due to lack of access to health care.

Cardiovascular Disease. Cardiovascular disease is the leading cause of death for those over 65. Cardiovascular disease incidence rates appear to be decreasing, but mortality rates for this disease are increasing: up from 309.8 deaths per 100,000 population in 1990 to 439.9 in 2000 (census adjusted). Increasing mortality, compared to decreasing morbidity, infer inadequate access to care – the sick do not seek treatment until it is too late. According to WHO, premature (0-64 years) mortality rates of cardiovascular and ischemic heart diseases, and cerebrovascular disease rates, even when adjusted, are lower in Armenia than most other countries in the NIS although higher than for Europe.[38] In Armenia, cardiovascular diseases account for 34.8% of

[38] Armenian Ministry of Health *2000 Annual Statistical Report*

deaths among 0-64 year olds and 66.2% of persons over 65 years.[39] An increasing percent of Armenians are disabled due to a cardiovascular event or problem, from 16.3% in 1985 to 22% in 1998.[40] Cardiovascular disease is a disease for which both treatment and prevention are well known. Investment in adequate treatment and prevention programs would yield positive results.

Diabetes and Obesity. Armenia has several negative health indicator trends that reflect an increase in diseases of affluence: increased rates of obesity, increased rates of diabetes, and increased rates of specific malignancies. Deaths from diabetes have increased three-fold in the last 10 years (calculated from the 2000 Statistical Report as 42.2 per adjusted 100,000 population). The DHS Survey found 27% of Armenian women overweight and another 14% obese, using the BMI cut-off.

Mental disorders and substance abuse. Rates of mental disorders are reported to have decreased since the Soviet era, but in most cases this is probably due to people not seeking care because of the costs. Diseases that are difficult to ignore, such as alcoholic psychosis, have increased since the Soviet era and then leveled off. WHO reports that Armenia is "among the countries with a relatively low level of alcohol consumption."[41] The rate of substance abuse (drugs and chronic alcoholism) is reported in the Health Statistics Annual, 2000 to have decreased since Soviet times, even after adjusting for the current census. Screening for depression is rarely done, although the amount of stressful changes Armenians have lived through, including lack of social security, would increase depression in any population. The US Preventive Task Force summarized all available evidence on depression screening and found it useful as long as followed by treatment - medicine and/or counseling – resources not readily available in Armenia. But perhaps an affordable, culturally acceptable approach to treatment can be developed for Armenia, such as social support, healthy lifestyle, and follow-up.[42]

Smoking. A 1998 survey[43] found that 69% of men and 6.2% of women smoke. In 1990, the number of cigarettes consumed per population was almost two times higher in Armenia than any country in the European Union or the CIS. There was a sharp drop in cigarettes per population immediately after Armenia's independence, 1991 and 1992, but the overall rate has remained high with mild increases in recent years.

Mortality from lung cancer among 0-64 year olds was below the NIS average in 1999 and has remained approximately the same since 1990 (about 22 or 23 deaths per 100,000 population).[44] Armenia does have a higher percentage of hospitalization due to diseases of the respiratory system than the average in Europe (10.7% of all hospitalized patients in1999).[45]

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[39] Ibid

[40] Mkrtchyan.

[41] WHO, Highlights on Health in Armenia, Using these graphs than adjusting for 2000 census

[42] Pignone MP, Gaynes BN, Rushton JL, Burchell CM, Orleans CT, Mulrow CD, Lohr KN Screening for depression in adults: a summary of the evidence for the U.S. Preventive Services Task Force. *Ann Intern Med.* 2002 May 21;136(10):765-76.

[43] UNDP, 2000 Armenia: Common Country Assessment.

[44] WHO, Highlights on Health in Armenia. Using these graphs than adjusting for 2000 census

[45] Ibid.

The National Tobacco Control Program (their website: www.tobaccocontrol.am) is a fairly recent creation. Legislation does ban direct tobacco advertising on TV and radio, but not billboards, and smoke-free buildings do not exist. Health warnings are posted on tobacco products. There are a few NGOs in Armenia that work to reduce smoking.

Malignant Neoplasms. Armenia has a higher percentage of deaths by malignant neoplasm (25%) than the average for the European region (23%), among people less than 65 years old.[46] Furthermore, malignant neoplasm deaths have increased by about 20% since 1990.[47] Of particular concern is the fact that the mortality rate from breast cancer among females 0-64 years old has almost doubled since 1990 and is higher than any of the other NIS countries and higher than the European Union average.[48] Cancer survival depends on early diagnosis, chemotherapy, and surgery but Armenia does no cancer screening and has no chemotherapy capabilities.

Recommendations: As noted, several prevalent diseases are impacted by poor access to health care. USAID should continue its support of systemic changes that will improve access. In addition, USAID can:

- ***Assist in supplying working blood pressure cuffs and stethoscopes. (Most American Medical Schools have a stethoscope donation program.)***
- ***Support the training of trainers who can train doctors and nurses nationwide on proper techniques for blood pressure monitoring. (The American Heart Association has a certification program on taking blood pressure.)***
- ***Promote a consistent nationally-useful clinical practice guideline for treating hypertension and diabetes. Encourage knowledge of these guidelines for licensing and re-certification.***
- ***Develop clinical guidelines and training programs for depression screening (with valid treatment/counseling available).***
- ***Help ensure availability of low cost hypertensive medications.***
- ***Help promote laws to decrease smoking, including increased taxing of tobacco.***
- ***Support public health education on smoking, diet, exercise and other life-style factors affecting health.***
- ***Encourage awareness of obesity as a problem in Armenia and promote low-fat foods.***
- ***Support an early breast cancer screening program, and the development of standards for chemotherapy treatment, possibly determined by age.***

9. Nutritional status

Four nutrition surveys have been done since 1994 and generally show a decreasing percentage of acutely malnourished (wasted) children in Armenia and no significant change in stunting. There is evidence of continued malnutrition in the weaning age group, where breast feeding is abruptly

[46] Ibid,
[47] MOH, Health Statistics Yearbook, 2000 calculation of mortality rate taking into account the census population.
[48] WHO, Highlights on Health in Armenia.

stopped and babies are shifted to cow's milk at 2-3 months. Rickets has been a problem in the past, and has not been addressed.

Anthropometry of children. The earliest available nutrition data was collected by the Instituto Nazionale della of Nutrizione – Italy in May-June 1998 and measured 3,152 children nationwide. This study found that 4.2% of children were wasted and 12.2% were stunted. However, this study was weighted to include about half refugees. If the refugees are excluded, 3.8% were wasted with 13.0% stunting.

The second nutritional survey of Armenia was conducted by the World Food Program (WFP) in September, 2000. It also included a significant number of refugees (though the data are not separated). In this survey, the number of children measured was not published, although 3,900 households were interviewed, averaging 4.2 household size. The percent under 5 years is not available, but probably less than1000 children were included in the study. Wasting malnutrition percentages were not published in the WFP report, because WFP learned that the DHS survey had much lower rates of malnutrition and thought their study had a sampling error. The WFP's unpublished report cites a rate of 10.3% wasting among children less than 5 years old. Stunting malnutrition was found in 22% of these children.

The third nutritional survey was the DHS survey conducted in November, 2000, which measured 1,463 children less than 5 years. Wasting was evident among 2.3%, and stunting was evident among 15.5% of the children with some variation among marzes. By definition, wasting and stunting is above the level expected if more than 2.3% of children's weight-for-height or height-for-age fall below the cut-off of two standard deviations below the reference median.[49] For the 6-24 month old age group wasting was about twice the expected level. Stunting, for children less than 5 was more than 6 times the expected rate. For a discussion of the importance of better nutrition to the weaning age group and concerns about lack of information about seasonal variations in malnutrition, see Appendix G.

Breast feeding. Early wasting among Armenia's infants can probably be attributed to the early cessation of breast feeding. The percent of women initiating breast feeding at birth in Armenia is again now up to 1990 levels (due to a UNICEF supported "Baby Friendly Hospital" program), but the duration of breast feeding is much shorter than at that time. Most babies are being weaned from breast milk at 2-3 months of age (only 33.8% of infants are exclusively breast fed in this age group), whereas the WHO recommendation is to exclusively breast feed until 6 months. Even worse, because of lack of money for formula, most Armenian infants are being weaned to cow's milk. The use of cow's milk is a major contributor to the 48.2% anemia among children 6-11 months old. Cow's milk causes anemia because infants under 12 months have sensitivity to cow's milk protein which almost universally irritates the immature intestine causing bleeding. Anemia is associated with increased susceptibility to infectious disease and decreased concentration for learning. The problem of insufficient duration of breast feeding urgently needs to be addressed by the USAID PRIME program - which would mean extending the age of intervention for infants to at least 6 months (instead of the current plan to follow infants up to 3 months old). The public health, health promotion message needed for breast

[49] Keller, W., and C.M.Fillmore, WHO Statistics Quarterly, 1982.

feeding Armenia is: “Mom’s milk only 5-6 months and supplement mom’s milk with solid food after 5-6 months. Cow’s milk before age 12 months causes anemia, infection, and decreased learning.”

Other indicators of malnutrition. The Italian nutrition survey of 1997 reported BMI below 18.5 (malnourished) in women as 5%, but the DHS-2000 survey showed a decrease in this percent malnourished to 3.5%. While anemia in pregnant women has decreased slightly, reported anemia for children 6-59 months increased between the 1997 and 2000 surveys. Rickets by biochemical confirmation was determined in 4% of young children in 1997. No study of rickets has been done since then, but since no program addresses this problem, the percentage is unlikely to have improved. High levels of iodine deficiency goiter show that Armenian soil is low in iodine, 40% in women of reproductive age had palpable goiters in 1997. Thanks to the USAID-UNICEF salt ionization program, 82% of households with children have adequately iodized salt (DHS-2000), compared to only 70% in 1997.

Recommendation: USAID should continue and expand its support of programs designed to improve nutrition, including extended breast feeding.

- ***Seasonal variations in malnutrition needs to be re-investigated in the poorest marzes as the WFP study suggests it may be significant.***
- ***USAID supported nutrition programs need to target the weaning age groups (6-23 months) which has the most malnutrition. School age children are never as malnourished as the weaning age group.***
- ***Weaning food supplements have proven successful for this vulnerable group, because adults and older children think of it as “baby” food and do not eat it. Supplements can be enriched with iron and vitamins A and D relatively easily.***
- ***Extend the PRIME target age group to get the infant through the weaning period, at least until 12 months.***

10. Health status and access to care

Several measures of health status indicate that Armenians are not accessing health care services when they are needed. As noted earlier, low incidences of cardiovascular disease and diabetes, when compared to high mortality for both diseases, indicate people are not seeking care until it is too late. Similar problems are also reflected in the low number of antenatal visits by pregnant women. In contrast, based on the high percentage of children who have health cards and the high immunization rates, children are being brought in for needed health services.

Antenatal visits. Although each pregnant woman is entitled to four free antenatal visits, only 64.7% of pregnant women in Armenia have four or more, with rates almost two times higher in

urban versus rural areas.[50] In the last five years, women from Gegharkunik, Aragatsotn, Vayots Dzor and Lori (in that order) were least apt to have antenatal care. The median time of first antenatal visits was 3.8 months gestational age.[51] Lack of pregnancy tests kits could partially explain this late start, as would saving the four free antenatal visits until later in pregnancy. A late start in care is known to increase the risk of premature birth and early infant mortality. Deliveries in the hospital occur in 91.3% of childbirths (83.9% in rural areas, and 98.6% in urban areas).[52] More than 40% of women from Gegharkunik had births at home in the last five years, the next in order of frequent home births were Aragatsotn, Shirak, Ararat, and Armavir.[53]

Children with health cards. 94.4% of rural and 92.2% of urban children under five years old have health cards.[54] A slightly increased number of health cards among the rural children probably reflects access to feldshers (rural nurse midwives), despite less hospital births in rural areas. Data show that vaccine coverage has been about 18% better among 12-23 month old children in 2000 than among 36-47 month old children[55] – the improvement would coincide with the UNICEF vaccination program. Urban-rural differences in vaccine coverage are less than age group differences (2.2% difference versus 18% difference).[56]

Visits by women. Among the 54.5% of women who reported they had a medical problem in the last year, only 26.7% visited a health professional. Those marz's with the lowest proportion of visits among women reporting they had a medical problem in the last year (calculated from DHS Table 13.1) were Shirak (where less than half of ill women sought medical care), Kotayk (where mistrust of doctors was higher than in any marz), Aragatsotn, Armavir, and Lori (where 56% of ill women seek medical care)[57]. The four most[58] common reasons for not seeing a health professional when sick were: lack of money (approximately 15 times the next most common answer), lack of time, family objections, and not trusting doctors (in that order). Financial reasons, rather than geography, is the most commonly stated reason for not seeing a doctor, even in Gegharkunik, which is very rural.

Recommendations: Constraints on access are a major issue facing Armenia's health system. As stated repeatedly, USAID should continue its support of programs designed to increase access. The following sections provide additional background, and further recommendations, on how access can be improved.

[50] National Statistic Service {Armenia}, Ministry of Health {Armenia}, and ORC Macro. 2001. Aremia Demographic and Health Survey 2000. Calverton, Maryland: National Statistical Service, Minister of Health and ORC Macro.
[51] Ibid.
[52] Ibid.
[53] Ibid.
[54] Ibid.
[55] Ibid.
[56] National Statistic Service et al
[57] Ibid.
[58] Ibid.

III. Health and USAID's Social Transition Program

As the health reform agenda advances, the Armenia Government and USAID are reassessing their health strategies and programs to address changing needs. Most of the health reforms that are now underway are systemic changes, altering how the health system is structured and financed with the intent of gaining longer-term improvements in health status. But in the short term, while systemic changes take shape, additional efforts are being made to address the immediate health needs of the Armenian people, particularly the most vulnerable.

A. USAID's Health Objectives in Armenia

At present, USAID does not have an explicit health strategy for Armenia. Rather, its strategic objectives in health are incorporated, along with social sector programming, into the Social Transition Program (STP). Before STP was established, USAID efforts in health were focused primarily on Congressionally mandated programs (reproductive health, etc.) and humanitarian aide. While continuing these mandated programs, USAID is now giving greater attention to longer-term development efforts, to rebuilding a social safety net that will help ensure that all Armenians have access to adequate and affordable health care, food, and shelter.[59] STP has three broad objectives: to mitigate the adverse social impacts of the transition, to strengthen and make sustainable key social and health systems, and to provide urgently needed services to the most vulnerable in selected regions. In the health sector, STP sets out three strategic objectives:

1) Increase access to, and the quality of, primary health care services in selected regions. Programmatic activities are designed to support legislative and policy reforms which promote community-based primary health care programs; assist in the development of a referral system and network of PHC service providers, both public and private, including NGOs; and strengthen the GOAM's capacity to plan, monitor, and evaluate health programs.

2) Establish the foundations for implementing a sustainable health insurance system. Programmatic activities are designed to help enact the legal and policy reforms that support such a system, increase the government's capacity to administer the program, and increase citizen awareness of the government-supported health insurance program.

3) Address the immediate health needs of vulnerable groups. Programmatic activities are designed to provide mobile health services, nutrition, reproductive health, and

[59] USAID, Social Transition Program, The USAID/Armenia Program 1999-2003.

other services. The initial focus has been on providing services in the Lori, Shirak, Yerevan, Syunik and Gegharkunik regions.

In pursuing these objectives, USAID's program has included six major components: health sector reform, the development of health policy and a legal framework that supports reform, health partnerships, development of a network of NGOs (a project now ended), reproductive health, the provision of health assistance, and conducting a demographic and health survey (DHS).

For much of its health program – primarily health reform related activities – USAID has entered into a contract with the Planning and Development Collaborative, Inc. (PADCO) to manage what is called the Armenian Social Transition Program (ASTP). PADCO has sub-contracts with Abt Associates for health program activities, the American International Health Alliance (AIHA) for training, the QED Group for monitoring and evaluation, and AMEG for equipment procurement. The major thrust of ASTP is health sector reform and includes activities in the following areas:

- Improving access to primary health care;
- Developing a practice model and training programs for family medicine/primary care;
- Supporting the MOH's plan for optimizing health facilities;
- Reforming health finance;
- Creating an effective health management information system; and
- Developing a personal identification system for improving how health services are targeted.

For USAID's other health programs - principally reproductive health, health partnerships, and health assistance - USAID works with a number of organizations, including PRIME, AIHA under a regional cooperative agreement, the United Methodist Committee On Relief (UMCOR), Catholic Relief Services (CRS), and the NGO Center.

B. Improving Access to Quality Primary Health Care

A centerpiece of Armenia's health reform agenda, and a core component of USAID's health program, is improving access to quality primary health care services. In addition, the introduction of family medicine has been adopted as the principal, although not exclusive, way of strengthening primary health care.

Armenia's health system, like health systems throughout much of the world, has become overly dependent on hospitalization and sub-specialty medicine. Changing the balance - placing greater emphasis on primary health care and family medicine - has been advocated by the United Nations for several decades as the most efficient and cost effective way to make quality health care accessible to the people. More recently, the World Health Organization concluded that

family medicine doctors are the best trained to provide primary health care, especially when assisted by nurses and community health workers.[60]

Primary health care is also seen as both a means to greater health system efficiency and a contributor to economic growth. The World Bank has noted that, "Developing countries as a group could reduce their burden of disease by 25 percent – the equivalent of averting more than 9 million infant deaths – by redirecting, to public health programs and essential clinical programs, about half, on average, of the government spending that now goes to services of low cost-effectiveness."[61] Furthermore, the World Bank points out that, "Good health…is a fundamental goal of development as well as a means of accelerating it."[62] The report sites a study of seventy countries that found that child mortality is a highly significant predictor of economic performance. In essence, better health means more rapid economic growth – and the road to better health is primary health care and family medicine.

Unfortunately, many Armenians are not able to access health care when they need it and efforts to strengthen the availability and quality of primary health care services, including the introduction of family medicine, are still in the formative stages.

1. The need to strengthen advocacy for family medicine

Although family medicine was introduced to Armenia eight years ago, the concept is still not well understood, even within the Ministry of Health, where advocacy for family medicine should be centered, or within the National Institute of Health, where the responsibility rests for educating family practitioners. Now, as pilot Family Group Practices are launched and family practitioners begin to be introduced into Armenia's health system, strong and informed advocacy is essential. Strong advocacy is also needed to overcome the natural resistance among traditional medical sub-specialists to the introduction of family medicine and its likely impact on the way they practice medicine and earn their living.

Unfortunately, few medical professionals in the country have been trained in family medicine, have practiced as family physicians, or have had more than cursory exposure to others who have. Few individuals have an internalized understanding of what is really involved in being a family physician or what is required to train one. Those who advocate the introduction of family medicine do so based on their theoretical understanding of the concept and rely on the advice of donor-sponsored outside experts. As a result, internal advocacy for family medicine is weak and vulnerable to misdirection, setbacks or disappointments.

Recommendation: USAID should support additional training and technical assistance designed to increase the understanding and advocacy of Family Medicine training and

[60] World Bank. *World Development Report 1993: Investing in Health*, 1993
[61] *Ibid.*, p.iii.
[62] *Ibid,*, p.21.

practice.

- ***USAID should sponsor a working tour of US family medicine training programs and practice sites for key leaders, and their principal associates, from within the Ministry of Health and the National Institute of Health.***
- ***Selected individuals should be placed in US training and practice sites for a week or more to gain greater depth of understanding of family medicine concepts and practices.***
- ***USAID should sponsor local, in-country, seminars on topics selected from the growing list of clinical practice guidelines. Medical specialists and general practitioners, as well as family practitioners, should be invited. Wherever possible, family practitioners should serve as faculty for such seminars in order to increase their visibility and credibility.***

2. Strengthening family medicine training

Even though the concept and practice of family medicine are not well understood among Armenia's health authorities, programs to retrain doctors now in practice (Terapefts, Ob/Gyns, Pediatricians, and other medical specialists) and to prepare medical students as family practitioners have been designed and are now operational. As a result, these programs are primarily didactic, relying heavily on lectures, and do not incorporate the hands-on experience and direct patient contact known to be essential in preparing skilled family practitioners.

The National Institute of Health (NIH) is the principal center for the education of health manpower in Armenia – including the preparation of family doctors and nurses. Founded ten years ago, the NIH has replaced the Institute of Continuing Education that existed during the Soviet system that required doctors to receive one month of continuing education every 5 years in order to maintain their license. The NIH has eight departments, including the department of Family Medicine with three "chairs" or divisions - Family Medicine, Family Nursing, and Narrow Specialties in Family Medicine. NIH has four postgraduate education programs in family medicine, including:

- A two-year (post medical school) residency program.
- An eleven-month retraining program for Terapefts (general practitioners). (A program of longer duration, with weekend study modules, is being considered to make it easier for doctors to retain their practices while they go through retraining).
- Short term, six to eight-week, continuing education programs.
- A six-month training program for family nurses.

In addition, since 2000 the State Medical University (SMU) has offered a two-year residency in family medicine.

So far, eighty-one doctors have completed the family medicine retraining program and fifteen have completed a two-year residency. One hundred are currently enrolled. Forty-one nurses have started the six-month training program and 120 are expected to graduate by May 2003.[63]

[63] National Institute of Health, interview, May, 2002

Unfortunately, all of the Family Medicine (FM) training programs (for doctors and nurses) rely too heavily on theoretical lectures and textbook readings and do not provide adequate clinical, hands-on experience.[64] For example, 25 of the NIH's 60 medical subspecialty chairs have training blocks (usually a week or two), when FM residents are sent to hospitals and hospital specialty clinics, under the supervision of a medical specialist. Residents are not allowed to touch patients, however, and are given lectures instead. The World Bank has acknowledged that, "Current FM education programs in Armenia produce graduates who are unable to perform many of the tasks and procedures that are fundamental to the practice of family medicine."[65] The problem is two-fold:

1) There is a lack of clinical outpatient sites where patient-centered, hands-on training can be provided. To a degree, the pilot Family Group Practice sites, now in development with USAID support, can serve this purpose, but more will be needed. In addition, the physicians who make up the group practice team will need additional training if they are to serve as effective teachers of FM students and residence. Under PADCO's direction some training is now being provided, but more will be required.

2) There is a lack of clinical practice guidelines, or standards of care, needed to structure both family medicine education and practice. So far a few clinical guidelines have been developed, with USAID support, but the process of developing others needs to be better coordinated and production of additional guidelines accelerated.

Recommendation: USAID should encourage NIH to introduce greater patient-centered training for family doctors.

- ***USAID, through PADCO, should continue to encourage coordination in the development of clinical practice guidelines, and accelerate their development wherever possible.***
- ***The capabilities of the pilot Family Group Practice clinics to serve as training sites should be re-evaluated and, if necessary, additional resources provided to train team members as teachers.***
- ***USAID should encourage NIH to make further cuts in the production of sub-specialist medical students and residents, so that more specialists are not added to the already over-supplied health system.***
- ***See Appendix J, attached, for suggestions on a "Step-by-Step Process for Strengthening Primary Health Care and Introducing Family Medicine."***

[64] In 1920, in America and Great Britian, Dr. William Osler brought medical students to the patient's bedside, revolutionizing medical education.

[65] World Bank, Aide Memoire, March 9-19, 2001, p. 3.

3. Pilot Family Group Practices

The pilot clinics now in development are intended to demonstrate and refine a model of Family Group Practice and are at a critical stage of their development. Their success will influence how well and how quickly the innovation of family medicine will be adopted by Armenia's health system.

USAID, through PADCO, is supporting the development of two Family Group Practice (FGP) pilot clinics: Polyclinic #1, in Vanadzor, Lori Marz; and Polyclinic #17, in Yerevan. Polyclinic #4, also in Vanadzor, has been consolidated into Polyclinic #1 as the result of the MOH optimization program. The development of other clinics, although technically not pilot clinics, has been supported by the American International Health Alliance (AIHA) in Vanadzor, Sevan and Yerevan. There are also about 70 rural family medicine clinic facilities being constructed in Armenia under the current World Bank loan program.

While acknowledging their differences from pilot FGP clinics, the experiences of the AIHA sponsored clinics are worth noting. Based on visits to the AIHA supported clinics, it is clear that the staff involved (all levels of doctors, nurses, pharmacists and assistants) are generally proud and happy about their experience with this program. AIHA concentrates on improving the work environment (clean, orderly, and recently painted), basic equipment (used, but modern, provided by Carelift as well as an open computer facility) and training personnel. AIHA has supplied central heating to two polyclinics, possibly the only clinics outside of Yerevan with central heating. For staff development, AIHA sponsors travel (including international visits to partner institutions and conferences) and multiple educational classes for doctors and nurses. Clinical training is usually specialty-specific. The primary care focus is new and to date there are no active US Family Physician Departments partners. AIHA clinics had the best pharmaceutical supply of any clinics visited, especially medication for partner-chosen projects and treatment guidelines. Each AIHA partner clinic has ongoing and regular training of all levels of staff. The guideline-directed continuous quality improvement system observed at Polyclinic #5, related to hypertension treatment guidelines, is probably the only such program in Armenia.

While their accomplishments are commendable, AIHA partnership projects have been supported by generous funding and are not always practical for countrywide application. AIHA is able, for example, to provide staff with frequent opportunities for travel and training – expensive benefits not available to the typical clinic. In clinical areas also, expensive options have been introduced that may not be affordable elsewhere. For example, Armenian physicians do few Pap smears because they do not have the supplies, money or the expertise to do them. Papanicola staining costs approximately 10-100 times what the stains cost for the Giemsa stain, a procedure that had been used in Soviet countries for years. In fact, the cost of a Papanicola stain is equivalent to the per capita cost budgeted by Armenia annually for health. American pathologists generally only know Papanicolou staining, so Sevan Polyclinic staff have been trained and use only this more expensive staining procedure. Granted it is an easier to read, clearer stain, but countries that pay attention to costs, such as Ukraine, are instituting visual inspection and on-the-spot liquid nitrogen freezing to overcome the deficiencies of the Geimsa stain.

Importantly, in the pilot FGP clinics, PADCO's training programs are particularly well appreciated by the physicians involved. That said, the assessment team visited a training course that PADCO stated was part of "cross-training" terapefts and pediatricians in both Polyclinic #17 and Polyclinic #1, but which did not appear to be consistent with a goal of Family Group Practice. Unfortunately, at the time of the assessment team's visit, there was little evidence that efforts were being made at the pilot clinics to help create the pleasant ambiance or the staff buy-in of the AIHA-sponsored clinics. In fact, the director of Polyclinic #1 complained that they provide PADCO with free office space but get nothing in return. Appropriately, since the assessment team left Armenia, PADCO has begun painting Polyclinic #1. At Polyclinic #17, renovation of the facility is to be addressed under the World Bank loan.

Polyclinic #17, where the first Family Group Practice is just now getting ready to see its first patients – due to delays in rehabilitation that is being supported by the WB loan and the need to strengthen the clinical training of its family medicine trainers/providers. The clinic currently has too many specialists and primary care physicians, so doctors come into the clinic in three 3-4 hour shifts. When reconstruction starts there will be even less room for doctors to practice. Additionally some of the staff are currently in the one year Family Medicine Re-training Residency and are expected to return.

Both PADCO-assisted pilot clinics suffer from the same chronic under-funding as other clinics throughout Armenia. Payments from the State Health Agency are regularly skipped or delayed and many clinic staff are owed back pay. The imminent launch of the Family Group Practice model is very visible, high-risk, and not yet proven. Stakeholders may support the FM concept, in part because of anticipated benefits to themselves, but at the same time are very aware of the potentials for significant on-going problems. There must be sufficient resources in place to make health services and working conditions at least a little better at these pilot clinics than in the past.

Recommendation: The success of the pilot Family Group Practice is a revolutionary concept in Armenia and will need strong support. Early setbacks, which are inevitable with innovative programs, may be interpreted harshly by skeptics.

- ***PADCO needs to put more effort into developing a more enthusiastic and tolerant base of support among clinic management and staff.***
- ***SHA needs to make any special financial concessions that might help assure the success of the pilot programs. Paying back pay, paying on time, incentive payments for primary care procedures, and other options should be considered.***
- ***Open enrollment at FGP clinics would be helpful, with advertising to promote the advantages of attending a FGP clinic. A demand for regular whole-household preventive care would help teaching practices. (See Appendix J: A Step-by-Step Approach, #5.)***

4. Emphasizing PHC and altering the mix of medical practitioners

Understandably, strengthening primary health care and introducing family medicine threaten Armenia's traditional health practitioners, both hospital-based medical specialists and Terapefts (or Therapists) who provide general medical services primarily in rural clinics. The over-abundance of medical practitioners of all types, and their traditionally low pay, must give all doctors some apprehension about the reforms that are taking place and how they will fit into the new system.

Dating back to the Soviet era, Terapefts have been trained as either adult-only or pediatric-only General Practitioners and are expected to treat only a narrow spectrum of illnesses, referring more complex cases on to various specialists. Because Terapefts typically practice in isolated areas they are often required to provide services for which they have little or no training. In contrast, a well-trained family doctor can adequately diagnose and treat more than 90% of patients who seek medical attention. With access to a patient prior to a disastrous medical occurrence - leading to hospitalization and/or surgery - the family physician can decrease the cost of medical care by utilizing evidence-based preventive measures. Consider the medical costs of smoking in the Armenian population, for example. When a smoker is hospitalized for a cardiovascular problem, the damage is already done. The primary care doctor is able to offer repeated reminders of the need to quit smoking and can offer methods to help cessation. Such an approach has been found to be the "best practice" for decreasing smoking.[66] The family physician can also provide secondary prevention services, such as monitoring blood pressure and controlling diabetes and asthma. A well-trained primary physician can prevent diabetic coma or status asthmaticus and their resulting expensive hospitalizations or death. Although Armenia needs to make the necessary investment, such as making available medicine for secondary prevention, eventually family medicine preventive care will cut health care costs.

There are, of course, large numbers of Terapefts currently in practice throughout Armenia. Whatever their training, they are often the first line of health care available to many citizens – and will remain so well into the future. Appropriately, Terapefts have been the principal candidates for the 11-month long family medicine retraining programs conducted by the National Institute of Health.

Primary health care and family medicine can also be seen as a threat to the traditional hospital-based practices of Armenia's medical sub-specialists. But not all primary care services need to be, or realistically can be, provided exclusively by family doctors. For the foreseeable future, Armenia's health system will continue to be dominated by already practicing medical sub-specialists. Every effort needs to be made to extend to these practitioners the benefits of training in new clinical practice guidelines, orienting them to the concepts of primary health care, and improving the quality of their practices. Even in the long run, Armenia's health care system will always require quality hospital facilities and an array of competent medical sub-specialists – just not in the numbers that are now available.

Recommendation: USAID should continue to support strengthening Primary Health Care

[66] US Task force on Preventive Medicine.

and introducing Family Medicine. These long-term initiatives will ultimately improve both access to, and the quality of, health care services. In addition, USAID should consider how the principals of primary health care can be further extended to the broader community of medical practitioners.

- ***USAID should continue to encourage the retraining of Terapefts and other doctors in family medicine – it enhances their skills and encourages their support for reform.***
- ***USAID should sponsor educational seminars on clinical practice guidelines as they are developed for family medicine, inviting general practitioners and sub- specialists, as well as family doctors to attend.***
- ***Enhance the reputation of Family Physicians by widely using them for updating the knowledge of adult and pediatric GPs.***

5. Licensing and Accreditation

The Government of Armenia has made a few preliminary efforts to develop programs for licensing and/or accrediting health practitioners, medical facilities, medical education programs, pharmacies and pharmaceutical production, but much remains to be done. In September 2001, the National Assembly enacted a general law on licensing professionals of all kinds and, at the request of the Ministry of Health, the ASTP has drafted two normative acts to begin implementation of the procedures required for licensing health professionals.

In February 2002, PADCO held a seminar in Yerevan on "Principles of Licensing & Accreditation in the International Environment," with invitations extended to representatives of the Ministry of Health, National Institute of Health, State Health Agency, Family Medicine Training Center, State Medical University, State Nursing College, and SanEpid. Representatives of the USAID Mission, PADCO, and the World Bank were also present.

Shortly after the conference, PADCO published "Recommendations for a Strategy to Implement Licensing and Accreditation in Armenia."[67] The report defines licensing and accreditation as follows:

> *Licensing* – the process of judging a health professional or health care facility against a set of minimum standards needed to practice or operate safely. Licensing is mandatory and is usually subject to periodic renewal and sometimes re-examination.
>
> *Accreditation* – the process of external evaluation of health facilities or programs according to a set of standards on procedures, physical structures, administrative and financial processes, and outcomes that are related to the quality of care or medical education. Accreditation is voluntary.

[67] PADCO, *Report No. 62: Recommendations for a Strategy to Implement Licensing and Accreditation in Armenia,* USAID, March 2002.

The report recommends that the Ministry of Health create working groups to develop physician/nursing licensing and medical facility accreditation systems and education curricula for physicians, nurses, and pharmacies. The creation of licensing center with the MOH was also recommended. Action on the report's recommendations is pending.

Certification, which defines advanced levels of professional training or specialization – in terms of medical residency activity, time spent at various activities, setting of learning activities and qualifying examinations - goes well beyond the requirements for licensing and accreditation and is outside the scope of Armenia's current capacity.

Recommendation:

- ***Licensing and accreditation initiatives should continue to be pursued with the MOH taking the lead role with USAID's encouragement and support.***
- ***Examples from the U.S can be tapped through PADCO's consultants and/or AIHA's academic partners; at least one other donor country or WHO should be approached for additional examples.***
- ***The Armenian professional associations should be involved in this process, and mentored in their role.***
- ***Licensing and accreditation change as medical knowledge evolves, the goal should be to eventually have professional associations take over this function with input by MOH.***

C. Health Financing Reform

Armenia has already introduced a number of significant reforms that impact directly on how health care is financed, although much remains to be done. Many people are still not accessing health care when they need it because of the costs. And further, Armenia is not yet using its limited financial resources to full advantage to advance the health reform agenda. In particular, neither the Basic Benefits Package nor the State Health Agency – two significant reform initiatives – is being administered in a way that fulfills its potential. In addition, conditions are not in place that would support establishing Mandatory Health Insurance.

1. Private payments and their impact on access

Armenians are not accessing needed health care services – in large part because they can not afford the costs. The need to pay for care is probably an important contributor to the drop in clinic visits and hospital utilization rates since independence (see Exhibit 2, in the preceding section). Direct evidence of the impact of cost on access comes from a November 2001 survey where 65% of households stated that at least one member of the family experienced a medical

problem in the previous six months but that 46% of those had not consulted anyone about it.[68] Of those, 82% cited the high cost as the major impediment.[69] Among those considered impoverished, about 55% of the total population, over 90% cited cost as the major deterrent to seeking health care. Even among the better off, 50% mentioned costs as their principal reason for not seeking health care. In the same survey, 19% of households reported not being able to afford prescription medications.

The survey also noted that the amount spent on any given illness was high and varied widely, with a median expense of 7,000 drams ($12), an amount equal to or exceeding the monthly income of 30% of the population. While out-of-pocket costs appear to burden all but the most wealthy, the poor are disproportionately discouraged from accessing health care as compared to the more well to do. These findings were re-enforced by the Demographic and Health Survey 2000 (DHS) which notes that among the 54.5% of women who had a medical problem in the preceding year, only 26.7% visited a health professional.

While distance and the cost of transportation were also cited as deterrents to seeking health care, these factors appear to be relatively less important than the cost of health services themselves. In the November 2001 survey, 8% mentioned lack of transportation as the reason they did not seek health care when it was needed and 12% that health services were too far away.

As noted earlier, out-of-pocket payments – both formal and informal - now account for 60% or more of all health expenditures. Revenues from formal fees, charged for services not covered by the Basic Benefits Package, are intended to supplement revenues from public-sources allocated by the State Health Agency. But even in combination, these legitimate revenues have not been adequate to cover costs and many hospitals and clinics have accumulated significant debt, primarily in the form of unpaid salaries. In field interviews by the assessment team, some medical providers reported they had missed 15 months of pay since the end of 1999. In early May 2002, several doctors and clinic staff reported that, so far for the year, they had been paid for only two of the four months they had worked.

Low salaries are known as the most significant factor supporting a system of informal payments – a condition exacerbated when wages go unpaid for long periods. It is not surprising that Armenia's long tradition of informal gratuity payments continues. Informal out-of-pocket payments no doubt help sustain the health system during times of failing governmental support. They supplement meager salaries and they create a market of sorts, even if perverse. However, informal payments are assessed against all patients. The people the government most wants to protect, the poor and vulnerable, are especially burdened.[70] In addition, while the revenues generated by informal payments benefit individual employees, they do not provide financial support for provider institutions or for betterment of the health system. They foster corruption and undermine governmental priorities. Government employees are encouraged to seek under-the-table, unrecorded, payments that avoid taxation.

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[68] PADCO, *Report No.70: The Armenian Social Transition Program Third Survey on Public Use of, Knowledge of, and Perception of Social Services,* USAID, March 2002

[69] Ibid

[70] Belli, Paolo, *Ten Years of Health Reforms in the ECA Region: Lessons Learned and Options for the Future*, The World Bank, May 2000. pp.23-27

Recommendations: Patient charges, both formal and informal, are restricting access to health care. To help address the problem, USAID should consider supporting the following initiatives:

- ***As recommended earlier in this report, USAID should support a National Health Accounts study – including documentation of the scope of private payments for health, both formal and informal.***
- ***USAID should sponsor a patient flow study that follows patients through the health system – from their first encounter and through various stages in the referral network – documenting diagnoses, financial requirements, and treatments received. The analysis of improved data may lead to new or refined initiatives to address access.***
- ***USAID should continue to encourage the GOAM to reduce the accumulated arrears in back wages now carried by many hospitals and clinics and to regularize payments from the State Health Agency.***
- ***In the short term, while systemic changes take shape to improve primary health care and restructure the health system, USAID support for programs that address the immediate health needs of the most vulnerable, and those least able to access needed health services, should be continued, possibly expanded.***
- ***The percentage of households that reported someone ill that did not seek health care because of the cost is useful as baseline data but probably not as a performance indicator. It is unlikely that USAID activities will have any measurable impact on this measure during the life of the project, although they should in the longer-term as family medicine becomes more dominant. Changes in this performance indicator are dependent on widespread financial reforms (such as lowering user fees) or significant improvements in Armenia's economy, neither of which is likely to happen in the near-term.***

2. Basic Benefits Package

Recognizing its inability to financially support all health services, the GOAM introduced the Basic Benefits Package (BBP) in 1998 with the intent of providing selected services free-of-charge to targeted, vulnerable, segments of the population. In practice, however, the Basic Benefits Package is too broadly inclusive and too under-funded to fully achieve its purpose.

When the BBP was developed, about 100 diseases and medical condition were evaluated using disability-adjusted life years or DALYs.[71] In the DALY methodology, as developed through a collaborative effort between Harvard University and the World Bank, each medical condition is evaluated on the basis of the loss of productivity due to disability or premature death. In theory, DALYs lend an objective measure to help prioritize what diseases should be funded from governmental sources. In reality, objectivity is often compromised in defining coverage - for any number of political and practical reasons. So it is with Armenia's Basic Benefits Package.

[71] The World Bank, *World Development Report 1993*, p.213.

Unfortunately, the BBP has become too inclusive and the utility of determining DALYs has been obscured.

Under Armenia's BBP, everyone is entitled to free primary care provided by general practice physicians and free hospital care for selected diseases such as gonorrhea, syphilis, TB, and other diseases with social implications. Vulnerable groups - including the disabled, war veterans, children, families with four or more children, and others – are eligible to receive free hospital care and free outpatient medicines and diagnostic tests.

One intent of the BBP is to promote outpatient care versus hospitalization, but in application the program is not consistent. In some cases, the BBP encourages hospitalization for conditions - such as strep throat and flu, for example - that are more appropriately treated on an outpatient basis.

Recommendations: The Basic Benefits Package has considerable potential as a way of targeting the application of limited governmental funds. USAID should continue to support efforts to strengthen the BBP and its application:

- ***USAID should support a study of the impact of the Basic Benefits Package, as now administered, to determine how it might be adjusted to more effectively target limited governmental funding to improve access to essential health services.***
- ***Recommendations should be developed which better balance projected costs with anticipated revenues by prioritizing covered services and assuring that services are provided in the most appropriate setting.***

3. State Health Agency

With about 80% of the GOAM health budget now being processed through its channels, the State Health Agency can exercise considerable influence in shaping the health system of the future. SHA authorizes payments to hospitals and clinics for publicly-funded health services, as defined by the Basic Benefits Package. As an independent buyer, SHA can, at least in theory, be selective in the health services it buys and the institutions it chooses to pay. So far, however, SHA has been constrained in exercising its potential. Currently, it is not able to exclude or favor any health service provider on the basis of the need for, or the quality of, the services provided.

Based on the obligated health budget, SHA sets hospital rates for each diagnosis in the Basic Benefits Package of health services. It also sets per capita payment rates for clinics based on each clinic's costs and the population it serves. Hospitals are then to be paid monthly based on the number of defined services they provide to eligible (vulnerable) patients. Clinics are also supposed to receive periodic payments based on their per capita rate. But, for several years, the obligated health budget has not been fully funded and SHA has never been able to meet its commitments to health service providers. Often, providers receive no payment for several months out of the year.

When funds are short, which they typically are, SHA has not used the funds that are available to reinforce stated health objectives or to influence provider behavior. SHA does appear to prioritize payments when there is a budget shortfall – but favoring ER and hospital services, rather than primary health care and clinics. It has been reported that emergency services are paid because they need to purchase fuel, from the private sector, or they cannot provide emergency transport. Hospitals are paid because they incur debt to state-owned utility companies. In the meantime, clinics in rural areas go without heat throughout the winter.

Admittedly, the SHA is hampered in fulfilling its role as a buyer. Under current conditions, it must pay any provider that offers its services and cannot eliminate a provider on the basis of quality or redundancy. So far, SHA has not attempted to exercise its powers or to use its growing database to persuade policy makers that it can do more to shape the health system. Potentially, the SHA can exert considerable influence, such as:

- Give first priority to paying primary care providers;
- Provide financial incentives that encourage Family Group Practice;
- Prioritize diagnostic services included in the Basic Benefits Package and pay providers for those services before paying for other services;
- Alter payments or eliminate providers identified by the MOH as redundant facilities in the restructuring program;
- Implement quality improvement programs, including financial incentives, which encourage providers to improve their performance.

In order to exert its powers, SHA needs the authority to do so.

Recommendation: The potentials of the State Health Agency to influence the structure of Armenia's health care system should be studied.

- ***USAID should assist SHA in studying the impact of its current health services purchasing practices and help develop recommendations for adjustments and future developments.***
- ***USAID should encourage SHA to regularize its payments to health service providers. Consistent monthly payments, even at a lower level to reflect actual GOAM funding, would allow hospitals and clinics to plan more realistically.***
- ***USAID should encourage the GOAM to pay off the arrears owed to health workers for back wages. Relieved of their outstanding debt, hospitals and clinics could better adjust their operating costs to reflect ongoing revenues.***

4. Mandatory Health Insurance

Mandatory Health Insurance (MHI) has been proposed by the Ministry of Health as a way to ensure a sustainable, predictable, and adequate source of financing for Armenia's health system

– a proposal that has received support from USAID. PADCO has helped draft legislation to introduce mandatory health insurance although it has not yet been adopted.[72] As envisioned, MHI would be introduced in stages, with advancement to each stage based on the accomplishment of predetermined criteria. The conditions that need to be in place in order for MHI to proceed, as identified by PADCO, include:

- A database of all working Armenians has been created and is updated monthly;
- The State Health Agency has created, and received approval of, a reimbursement schedule;
- There are no arrears in SHA payments to providers for the preceding year;
- Actuarial projections have been prepared that show revenues will be adequate to cover projected payments;
- The SHA has created a system of contracts and procedures to cover eligible reimbursements;
- A State Social Insurance Fund has been created with a separate account for the deposit of dedicated payroll contributions;
- Financial procedures have been designed, tested, and approved;
- Operations of the State Mandatory Health Insurance Fund are subject to independent audit; and
- The State Budget shows appropriations to pay for health care that are no smaller than the previous year's appropriation.

It is clear that Armenia is not yet at a point where MHI can be implemented – and it will be several years before it is. The economy is still weak, employment in the formal sector is low, and wages are depressed. Appropriately, the Ministry of Finance and Economics is reluctant to impose any new taxes on a population that is already burdened.

While MHI must wait for conditions to improve, the GOAM can take other steps to strengthen its "insurance function." MHI is an insurance *scheme* and as such is only one means toward strengthening the GOAM's insurance *function.* There are other alternatives. At present, all the insurance functions are in place in Armenia, they are just not as strong as required. There is a defined population to be served (as provided in the Basic Benefits Package), a list of defined covered services (again as provided in the BBP), a means of selecting and paying providers (the State Health Agency), a system of providers (hospitals and clinics), and a source of supporting revenues (now the general tax base). As discussed earlier, a number of these functions – most notably the BBP and SHA - can be strengthened without resorting to MHI. Further optimization of hospitals and clinics will also have impact. At a minimum, current revenues can be better utilized while improved sources are developed.

Recommendations: Conditions are not favorable in Armenia for the introduction of Mandatory Health Insurance, and are not likely to be for years to come. In the meantime, USAID should shift its support from establishing MHI to efforts to strengthen the GOAM's insurance functions.

[72] PADCO, *Draft: Report No 77: Draft of Law to Introduce Mandatory Health Insurance*, USAID, April 2002.

- ***As recommended earlier, USAID should support strengthening the Basic Benefits Package to more narrowly define covered services and population eligibility.***
- ***USAID should support efforts to strengthen the role of the State Health Agency as a discriminating buyer of health services.***
- ***USAID should continue its support the MOH's restructuring program, with the aim of developing a more efficient system of quality health providers.***

D. Health System Restructuring

The restructuring or "optimization" plan adopted by the GOAM is considered a central element of the Ministry of Health's reform strategy, but the plan is still in an early stage of implementation.[73] Supporting the restructuring effort is, and will continue to be, key to USAID health programming effort in Armenia.

Conceptually, the MOH's optimization plan sets out a comprehensive systems view of restructuring that matches health resources with health needs. The plan emphasizes the need to alter the balance between primary and secondary care, to define how medical solo and group practices are structured, to determine the kinds of diagnostic and therapeutic equipment needed, to examine the potentials for merging or consolidating hospitals and polyclinics, to determine the ratio of medical specialists to population, and to adjust the kinds and numbers of doctors produced by medical schools.

The first stage of restructuring, the decentralization of hospitals and clinics, began in1993. The goals of optimization however, to reduce the over-abundance of hospitals and staff, have not yet been realized and much more needs to be done. Important financing reforms that can help reshape the health system have been introduced, although their potentials have not yet been realized. In addition, the policy, legal, organizational, and functional arrangements that currently constrain the health system's ability to grow and change are being updated, although here too, additional work remains to be done.

1. Authorities and Responsibilities after Decentralization

The first phase of Armenia's restructuring program was to decentralize – a major reassignment of responsibility for the bulk of secondary hospitals and health clinics formerly under the direction of the Ministry of Health. The MOH divested ownership of these "health enterprises" to marz and local authorities while the institutions were given greater autonomy and were expected to become financially self-sufficient. The MOH retained responsibility for only a few tertiary hospitals and specialty institutions located in Yerevan.

[73] Ministry of Health, *The Strategy of the Ministry of Health*, Yerevan, Republic of Armenia.

After decentralization, marz and local authorities were given little instruction or training on how to deal with their new obligations. The terms of ownership and the limits of their authority are yet to be defined. In addition, most do not have any financial resources or internal capability they can use to either support or influence the health providers now under their direction. Payments authorized by the SHA, for example, go directly from the Ministry of Finance and Economy to hospitals and clinics, bypassing marz and local authorities who have little meaningful input into the process. In essence, marz-level authorities currently serve as intermediaries for the central MOH and have little discretionary power.[74]

Decentralized health enterprises do not have the tools or the expertise they need to deal with their expanded responsibilities. Many have been left with deteriorated buildings and outmoded and inoperable equipment. Many are burdened with excessive numbers of personnel and are restrained in their abilities to cut back. With chronic under-payments from government, health enterprises are not able to pay personnel on time and have accumulated substantial arrears. Global budgeting has allowed institutions some flexibility but revenues are insufficient, or so irregular, that they can not cover recurrent operating expenses let alone finance needed equipment and capital improvements.

Recommendation: With decentralization, hospitals and clinics were expected to become more autonomous and self sufficient but they do not have the facilities, equipment, skills, knowledge, financing, and legal backing needed to implement their new roles. Local authorities, in the marzes and municipalities, are not prepared to assume the responsibilities imposed on them with decentralization.

- ***USAID should support an exercise to define the responsibilities and authorities of local and regional governments and the hospitals and clinics that were decentralized. Issues of ownership, budget and finance, employment, debt retirement, and capital financing should be addressed.***
- ***USAID should support training programs designed to strengthen the capacities of local governments and health enterprises to deal with their new responsibilities.***

2. Rationalizing Health Services, Facilities and Staff

A major goal of restructuring is to rationalize Armenia's over abundance of health facilities and personnel. Armenia has between 8.3 and 10.5 nurses, and between 3.4 and 4.3 doctors per 1,000 population (see Exhibit 2 earlier in this report), approximately 75% more than necessary based on target ranges suggested by WHO. So far, there have been few, if any, doctors who have been unemployed during optimization, and only a few nurses. The number of hospitals, at 7.7 beds per 1,000 population, is somewhat high compared to western countries, but not out of range. The geographic distribution of hospitals and their service profiles are probably of greater concern than their absolute numbers.

[74] Read more in Appendix K.

A word of caution, however. Based on PADCO's experience in Lori Marz where they developed a statistical base of health facilities and personnel, official hospital bed numbers, even the number of hospitals, may not be accurate. The number of health employees is assumed to be more accurate.

Recommendation: USAID programming, by strengthening primary health care and introducing family medicine, may ultimately have an impact on Armenia's over abundance of doctors and nurses. But the rationalization of existing facilities and personnel is essential if these reductions are to be realized.

- ***USAID should encourage the National Institute of Health to cut back further on the numbers of students it accepts for non-family medicine education programs.***
- ***USAID should expand its health resources database, as piloted in Lori Marz, to better catalog and track hospitals, clinics, equipment and personnel throughout the country.***
- ***The demand for health services needs to be better documented. USAID should support a national study of health services demand, documenting population demographics, health needs, and how patients access the health system***

3. Optimization, the next World Bank Loan

The next World Bank loan, now being developed with the MOH, will pursue new efforts in restructuring and offers an opportunity for USAID to provide technical support. In the next few months, the MOH will begin working with the World Bank to define the terms of a $30 million loan designed to support optimization. About $13 million will be for health. A $450,000 Japanese grant will finance the technical assistance needed to define the terms of the loan. The loan provides an opportunity to refine the restructuring concept and devise a framework and implementation plan that can include a comprehensive array of parameters. The loan presents the opportunity for a renewed commitment to rethink and redo optimization.

The MOH has said it would like to complete planning for the new WB loan before March 2003, while a friendly National Assembly is still in office. The World Bank does not expect, however, to take the loan agreement to its board before mid-2003. The MOH may have to seek support from the new legislature, but if they are successful they will then have the support of those in power rather than of those recently out of power. Realistically, new decisions about restructuring are almost two years away. In the interim, USAID can play an important role by being involved at the earliest stages of loan negotiation. USAID can provide TA and expertise in preparing the database needed for decision-making, building on the model developed by PADCO in Lori Marz.

Recommendation: Negotiations now underway, between the MOH and the World Bank, on a loan that will focus on implementing optimization plans, particularly at the tertiary level. USAID, through its contractors, can play an important collaborative role in supporting these

negotiations.

- ***USAID should continue its supporting role in the development of the next World Bank loan – especially the development of a data base on health facilities and their utilization, as done in Lori Marz.***
- ***USAID should continue to support development of the policy and legal framework that supports restructuring.***

E. Policy and Legal Framework for Health Reform

The development of health policies and a legal framework that support health reform is a central part of USAID's programmatic effort in Armenia and has been a major thrust of PADCO's work since the inception of their contract. PADCO reports that, when they began work, they assumed that the health policies needed to support health reform were largely in place. They found, however, that many of the policies were poorly developed and did not provide the guidance needed to shape legislation. As a result, PADCO devoted considerable time over the first two years of their contract revisiting and strengthening a number of health policies, this time, they claim, with greater dialogue among affected stakeholders, greater transparency in the process, and more substance in the resulting policies. As a result, PADCO has produced 77 major reports covering both social and health related policy issues, with 38 addressing issues related to health. Some of the principal reports include:

- A legal analysis of issues related to the organization and delivery of health care in Armenia;
- An analysis of the GOAM's capacity to implement social and health sector reforms;
- Procedures for the collaborative development of Health Management Information Systems and required software;
- Recommendations for developing a Policy Resource Center in the Ministry of Health;
- A functional analysis, redesign, and operating plan for Polyclinic #17 in Yerevan;
- An assessment of health financing options;
- Recommendations for a strategy to implement licensing and accreditation;
- Several household surveys on health and social issues; and most recently,
- A draft law to introduce Mandatory Health Insurance.

In addition to numerous formal reports, PADCO has also produced a large number of workplans, concept papers, training programs, and presentations. While the quality of individual documents is high, so many have been produced that it is difficult to sort through which documents are most relevant. PADCO has expressed concern that producing the 79 deliverables prescribed in their contract has, at times, overwhelmed the capacity of the MOH to absorb the materials.

Importantly, as PADCO points out, it is the process of developing each policy paper that is more critical than the paper itself. When produced, the paper should document the understandings and commitments that have been reached through a collaborative process. If policies, or papers, are developed in haste or in too great a volume, the intended commitment of participants is minimized or diffused. The level of understanding and buy-in, and the momentum for implementation, are highest at the time immediately following discussion and negotiations.

Recommendation: Creating the policy and legal framework that support health reform is a critical and ongoing activity that requires USAID's continuing support.

- ***PADCO officials feel that they have been successful in creating a firmer policy foundation for health reform. But there is concern that much of PADCO's good work will be lost simply in the volume of papers it has produced if sufficient effort is not now put into implementation.***
- ***PADCO should be encouraged to develop a prioritized list of all health policy and legislative initiatives, developed and pending, documenting their current status and planned activities.***

F. Health Management Information Systems

Improving the quality and use of health information is, and will continue to be, an important part of USAID's health programming agenda in Armenia. In 1996, the Ministry of Health, recognizing the need for improved data, created the National Health Information Analytic Center (NHIAC) for reporting of official morbidity and mortality data, the collection and analysis of data on health care indicators, and management of the health information system. More recently, PADCO has begun working with the Ministry of Health to develop a plan to create a more comprehensive Health Management Information System (HMIS). The HMIS plan, described in a thoughtful report, sets out a three phase process to be implemented over several years.[75] The plan provides an assessment of current sources and uses of information, documents existing computer resources and software applications, and evaluates the human resources available to support the system. The plan also sets out technical specifications for the system.

At present, the HMIS plan is still in an early stage of its development. In a related effort, the Armenia Demographic and Health Survey 2000 (DHS), the first statistical report of its kind in Armenia, was recently produced and published with USAID's support and assistance. In another related initiative, a National Health Accounts study is being considered.

1. Improving health management indicators

[75] PADCO, *Report No 42: Plan of Program to Enhance Health Information Systems in Armenia*, USAID, July 2001.

A critical component of the HMIS plan is determining what information is needed to support health policy development and management decision-making. Accordingly, PADCO, in conjunction with the Dutch consulting firm TNO, developed a report, and conducted a workshop, recommending a process for selecting appropriate indicators that will help guide management decisions in health.[76] Workshop participants reached several important conclusions:

- WHO "Health for All" indicators were found to be useful. Adopting WHO standards will ultimately bring Armenia's data collection practice into conformity with international standards.
- An excessive number of data reporting forms are currently used to gather data from health care facilities. Some of the forms can be eliminated or consolidated.
- The MOH needs to be more timely in distributing information on legal, financial, and administrative decisions to service providers.
- The flow of information in the health system is one-way, from the bottom to the top. There is little opportunity for discussion or feedback.
- The quality of data must be improved. Data collection methodologies need to be improved, forms redesigned, and people trained.
- Patient information is not communicated between health care professionals and provider institutions.
- The recording of infant deaths is not consistent with international standards and must be corrected (a factor also noted by the assessment team).
- A database on diagnostic equipment, facilities and costs needs to be developed (similar to what PADCO developed in Lori Marz).
- The SHA database on pharmaceuticals needs to be made available to health care providers.
- The MOH should work collaboratively to access data needed from other governmental agencies and outside sources.

Recommendation: The workshop on health management indicators was an important step in developing a more responsive, reliable and useful health management information system for Armenia. The decisions reached at the workshop deserve active follow-up and should continue to be supported by USAID.

2. Demographic and Health Survey

With USAID assistance, the Armenia Demographic and Health Survey 2000 (DHS), was published in January 2002. The report is based on a national household survey and other data sources and reports findings on fertility, contraception, abortion, infant and child mortality, maternal and child health, nutrition of women and children, HIV/AIDS and sexually transmitted infections, and adult health. The DHS report is a worthy first effort.

[76] PADCO, *Report No 64: Improving Health Management Indicators for Armenia*, USAID, December 2001.

Recommendation: USAID should continue to provide technical assistance to help further improve data collection processes and strengthen Armenia's internal capacity to interpret the data for policy development and decision-making.

3. National Health Accounts

The Ministry of Finance is considering conducting a National Health Accounts (NHA) study to better document the source and application of health care financing – an effort that deserves USAID support. As noted elsewhere in this report, much more needs to be known about both public and private health financing if appropriate planning and budgeting decisions are to be made. A NHA study can be conducted as a one-time exercise, supported by technical assistance, and repeated in the future as needed to update information. Or, National Health Accounts can be established as an integral part of an ongoing data gathering system – a process that requires building the needed organization and technical capacity, probably within both the Ministries of Finance and Health.

Recommendation: USAID should work with the Ministry of Finance and the Ministry of Health to help determine how a National Health Accounts study might be best organized and conducted.

4. The capacity to analyze available data

As recognized in the HMIS plan, the usefulness of improved data depends on the ability of the MOH, SHA, and others to analyze and apply the information in policy-making, planning, and regulation.

At present, the capacity of the Government of Armenia to manage a comprehensive Health Management Information System, and to use the resulting data, is very limited. One problem is a shortage of computers to assist in data collection and processing – a problem that is being addressed with the support of a World Bank loan. Training personnel is also a concern and is being addressed by PADCO under the ASTP contract. Even with this donor support however, the MOH has a minimal cadre of personnel, and limited funds, to provide the ongoing support needed to maintain the program. It is likely that the MOH will need continuing support if the HMIS is to develop further.

Recommendation: Building the capacity of the Ministry of Health, and other state agencies, to be able to manage the HMIS, analyze data, and apply the results will be one of the most

significant challenges in implementing the HMIS Plan. USAID's programming should continue its support for capacity building in the next contract iteration.

G. Capacity Building

Capacity building is central to USAID's programmatic efforts in Armenia. Establishing a policy and legal framework supporting health reform can be viewed as an important aspect of capacity building, as can efforts to develop a more comprehensive Health Management Information System. But as recognized by USAID, in addition to strengthening these technical capacities, attention also needs to be directed to the development of human capital.

People and institutions that will direct and manage Armenia's emerging health system need the tools, understanding, and capacity to successfully fulfill their changing responsibilities. Armenia's health reform agenda introduces numerous changes, a mirror of the dynamic transition being experienced in all aspects of society. Institutions and people throughout Armenia are struggling to adapt to the new social order. Governmental agencies, such as the Ministry of Health and the State Health Agency, are struggling to define their roles in a substantially revised health system. Divested hospitals and clinics are struggling to cope with their greater autonomy.[77] As primary health care and family medicine take hold, Armenia's doctors are expected to cast off long established traditions and adopt new modes of practice. People are no longer able to depend on governmental support for health services but do not yet have the means or the inclination to fend for themselves. People need new skills, capabilities, attitudes, and tools if they are to deal constructively with evolving demands, expectations, and opportunities.

Recommendation: If the potentials of Armenia's changing society, and its changing health system, are to be realized and sustained, people and institutions need to be motivated to change, to gain a sense of ownership, to be committed to the new social order.

- ***USAID should continue its emphasis on training and capacity building, targeting especially the agencies, institutions, and health professionals that will reshape Armenia's health system.***
- ***Particular emphasis should be given to strengthening the capacities of the MOH and the SHA to plan, organize, and manage Armenia's health care system.***
- ***Training programs in health management, leadership, communication, teamwork, planning, finance, decision-making, and quality assurance are all available through USAID sources.***
- ***Wherever possible, practical training, using hands-on experiences and proven adult-learning techniques, should be used rather than lecture –based educational programs. Active participation is key to effective learning.***

[77] See Appendix B for more on the changing roles of the Ministry of Health and regional governments.

- ***In addition to training, USAID should assure that the processes of policy development, program planning, data analysis, and decision-making are as collaborative and participatory as possible.***

H. Reproductive Health (PRIME)

As noted earlier, maternal and infant mortality rates in Armenia are high and issues of maternal and child health will require continuing attention for years to come. The PRIME II project, with support from USAID, is responsible for developing and implementing, in coordination with PADCO, a reproductive health program to improve the access and quality of reproductive health services in Armenia, specifically antenatal, intrapartum, postpartum, and newborn services. Programming efforts are targeted to Lori Marz and its referral hospital in Yerevan. The program has two principal initiatives:[78]

- The development of a comprehensive, multisectoral policy on reproductive health.
- The development and presentation of training programs for reproductive health providers – primarily feldshers, nurses and midwives assigned to rural health posts, and family medicine practitioners.

While still in development, PRIME's initiatives have the potential for improving maternal and child health, at least in the target areas.

PRIME II is the third in a series of USAID supported reproductive health programs in Armenia. The earlier programs, though successful in evaluating attitudes towards reproductive health and in delivering information about contraceptives to women, were not well accepted by some in the Armenian medical community, a few highly visible politicians and segments of the media. Given the rapidly decreasing population of Armenia, the low fertility rate of Armenian women, and the fact that the MOH believes Armenia has among the highest percent of infertile women in the world, it is not surprising that a family planning program might be viewed with suspicion by the Armenian government. Superficially, family planning appears to have the goal of decreasing the birth rate, not decreasing maternal mortality, in a population of women depending on abortions as primary contraception. This perception will continue to cause problems in the future if reproductive health programs do not buy goodwill by addressing the infertility problem – training on infertility assessment and treatment and assisting the government to more accurately determining infertility rates.

The most recent, PRIME II, program takes a gentler, and no doubt more politically acceptable, approach to family planning by providing a comprehensive reproductive health education program for primary care providers. Of all the programs supported by USAID, perhaps because of its narrow scope, PRIME's program documents appear to have better prepared and analyzed background information and better formulated goals and objectives. The background

[78] PRIME II, *Improving the Quality of Maternal and Newborn Care*, Program Document, June 2001-September 2003, InTrah.

information will be further improved by the epidemiological analysis of the health status (infant mortality and maternal mortality) discussed in Appendix D, attached.

PRIME's success in Armenia may be constrained because of three potential problems:

- By regulation, only OB/Gyn medical practitioners are allowed to prescribe contraceptives and insert IUDs. Although one ministerial decree listed family planning as part of the work of Family Physicians, it does not specify which methods or rescind the previous regulations. As might be expected, OB/Gyn physicians are motivated by the income they receive from abortions. If other health professionals get legal rights to prescribe contraceptives, they may be further motivated to do abortions.

- While contraceptives are currently free (thanks to UNFPA), charges are made for unnecessarily required Pap and blood tests. In Armenia, insertion of an IUD requires an ultrasound, a practice not required elsewhere. Many poor women who really need these services will not benefit from them.

- Sustainability is threatened as soon as current free contraceptive supplies are finished. Apparently, the GOAM does not plan to supply them and most women do not have money to purchase both contraceptives and the pre-contraceptive tests.

Recommendation: Reproductive health is an important issue in Armenia and the PRIME program deserves continuing USAID support. To strengthen its effort, PRIME should consider the following:

- ***The use of the Under Five Mortality rate as a performance indicator hides the age group most in need of intervention. It would be better to look separately at infant morality rates and the 1-4.9 year child mortality rates. The PRIME II program is designed to follow newborns no longer than 3 weeks. To increase the chance of improving the infant mortality part of this indicator, PRIME should increase intervention until the infant is at least 6-11 months old. The program will have no impact on child mortality if it focuses on older children (1-4.9yr old). Including this age group in the indicator only dilutes the ability to detect an improvement due to the program.***
- ***Given the 4% estimate of rickets in young children, the practice of vitamin D injections during pregnancy is recommended (at least in the rainy, cloudy and cold seasons).***
- ***The use of iron supplements to delay or prevent anemia, and the use of magnesium and cortisone for pre-eclampsia and protection of the lungs of babies expected to be preterm should be stressed.***
- ***The use of modern contraception as a performance indicator is an appropriate measure for the PRIME program.***
- ***PRIME is beginning by targeting 45 feldshers, nurses, and midwives in Lori Marz for training. Consideration should be given to extending these offerings to other***

regions at the earliest opportunity.

I. Meeting Immediate Health Needs

While health reform initiatives advance, USAID has recognized the need to provide short-term assistance to help meet immediate health needs – such as the programs directed by the United Methodists Committee on Relief and Catholic Relief Services, reviewed below. USAID should continue to support a balance of programs that support system change and those that meet more immediate health needs.

1. United Methodists Committee on Relief

United Methodists Committee on Relief (UMCOR), an international NGO, receives support from USAID for the provision of mobile health services in eight rural communities in Gegharkunik Marz. The area is lightly populated, including refugees, and the communities served by the mobile units do not have health facilities in place. UMCOR has a specially equipped ambulance with a staff that includes a terapeft (therapists), pediatrician, gynecologist, and lab technician. The mobile unit conducts a five hour clinic, every two weeks, in each community it visits.

In addition to providing mobile clinics, UMCOR has trained about 240 community health educators to provide health education in their communities, distribute information on primary health care, healthy child development, and teach first aide. UMCOR is considering extending mobile services, and the training of community workers, to other communities to the west of the areas currently served in Lori Marz.

In eleven communities that do not have a local source for drugs, UMCOR is helping villagers establish drug revolving funds – much like the revolving drug insurance funds established in Georgia and other countries, and by Oxfam in Armenia. If an individual elects to participate in the plan, they are required to pay a small monthly fee. Proceeds are used by the plan to purchase commonly used drugs. Members are then eligible, depending on the rules, to either receive drugs free or purchase drugs from the plan at a discount. Plans are designed to be self-perpetuating. UMCOR is planning to expand the program to a total of 16 villages.

UMCOR also provides small grants to local NGOs to provide school-based health education. Mission Armenia, a local NGO and UMCOR grantee, operates 18 soup kitchens and five clinics targeting the elderly and the very poor. They provide in-home care, medical and social services to elderly who are in non-institutionalized settings. UMCOR also provides cafeteria services for university and vocational students.

Recommendation: The programs operated by UMCOR appear to be meeting immediate

health needs and should continue to receive support from USAID. The following additions and adjustments are offered for consideration:

- ***The mobile clinic idea may be a good permanent alternative to fixed-facilities for providing health services to these sparsely populated remote communities, and to similar communities in other rural areas. If SHA funding becomes more reliable, a low cost alternative might be to locate a family doctor in the area, purchase an automobile, and compensate the doctor for travel expenses to cover the territory.***
- ***The drug fund idea has potential in other rural villages throughout Armenia and expansion of the program, once it's been evaluated and proven effective, should be encouraged.***

2. Catholic Relief Services

Catholic Relief Services (CRS), with the support of USAID funding, is helping meet the nutritional needs of children through its school feeding program. CRS provides five basic services that CRS sees as highly integrated – nutritional services to school children, the reconstruction of school cafeteria facilities, public health education for parents, and building the capacity of local NGOs to carry on the work. Armenian Caritas, a local NGO, is CRS's implementing partner through a sub-grant.

CRS provides about 11,500 meals monthly to school-age children in forty schools in three marzes. Only schools with active parent councils are eligible to participate in the program and parent involvement through volunteer work is required. School attendance is required in order to participate in the program although the rules do not need to be tightly enforced - school attendance is traditionally valued. A five-day menu is planned with a targeted caloric intake of from 30 to 50 percent of daily requirements.

Recommendation: The CRS program appears to be of value as a means of supplementing the nutrition of school-age children. As such, a measure of the number of meals served is an appropriate performance measure.

- ***As designed, however, the CRS school feeding program will not have any impact on decreasing anemia among 0-5 year old children, the performance measure used to monitor this program. Anemia among infants is better addressed through prolonged breast feeding and other measures targeted to this vulnerable segment of the population. Either the CRS feeding program should be altered, another program developed that targets anemia, or another performance measure selected - or all three.***

J. AIHA Partnerships in Health

USAID maintains a regional cooperative agreement with the American International Health Alliance (AIHA) health partnership program.

The partnership program dates back to the early 1990s when AIHA began to match hospitals in Armenia, and in other FSU countries, with partner institutions in the United States. The current program, begun in 1999, shifts the emphasis from hospital-based partnerships to primary health care. AIHA sponsors exchanges among the staff of the partnered institutions – organizing educational seminars, conferences, and other training programs - designed to promote collaborative program planning and the strengthening of local capabilities. While each partnership is free to develop its own specific program, efforts usually address one or more of the following issues: improving access, improving the quality of care, improving efficiency and effectiveness, the promotion of quality primary health care, or issues of women's health or child survival.

Starting in 1999, AIHA has supported five institutional partnership programs in Armenia, one of which has now been discontinued. The partnerships include the following:

1) ***Lori Regional Health Administration, Lori Region/UCLA Medical Center, Los Angeles.*** Established in June 1999, the program has given priority to the development of clinical guidelines for the management of hypertension and thoracic pain in a primary care setting. The partnership has also provided training on various primary care topics, held two annual health fairs for local residents, and organized a conference on primary health care attended by 175 doctors, nurses and dentists. The partnership has reorganized and now operates in Polyclinic #5 in Vanadzor.

2) ***Gegarkunik Regional Health Administration, Gegharkunik Region/Care New England Medical Center, Providence, and the National Perinatal Information Center, Providence, Rhode Island.*** Established in August 1999, the goal of the program is to establish the Sevan primary care system as a model in the region. The partnership has provided training, renovated or upgraded three clinics, and developed an agreement with Eruboni Medical Center in Yerevan to provide cytology and gynecological training.

3) ***Armavir Regional Health Administration, Armavir Region/ University of Texas Medical Branch, Galveston, Texas.*** Established in August 1999, the partnership has provided training for clinic personnel, produced a series of television "spots" on public health topics, conducted a baseline survey of health status, and developed a disaster relief plan for the marz.

4) ***Armenian-American Mammography University Center, Yerevan/Armenian-American Cultural Association, Washington, DC.*** Established in March 2000, the partnership has focused on breast cancer; established a state-of-the-art women's diagnostic center for mammograms, cytology, and other gynecological services; and has renovated a satellite clinic in Gavar, in Gegharkunik Marz. A new Learning Resource Center was established at AAMUC, an annual walk for breast cancer is sponsored by the Center, and several radio and television programs promoting breast health have been conducted.

5) ***National Institute of Health, Yerevan/University of Alabama, Birmingham, Alabama.*** Established in August 1999 and was discontinued in 2001, the focus of the partnership had been on health management education. Workshops on management, organization, ambulatory care administration and other topics were conducted for university faculty, students, nurse educators, and health professionals. A session was also held on how to form a professional association.

AIHA has a number of "cross-partner" activities that impact on all AIHA partner programs, including those in Armenia. The programs include:

- An infant survival program aimed at establishing evidence-based birth and neonatal resuscitation practices.
- A primary health care and quality improvement program to promote the delivery of comprehensive, evidence-based primary care and health prevention/promotion services. A significant effort in Armenia has been the development of clinical practice guidelines.
- A women's health program to provide comprehensive, cost-effective, and evidence-based primary care services to women and to promote replication of program models.
- An emergency medical services program designed to reduce morbidity and mortality rates caused by emergencies by enhancing the skills of first-responders and medical professionals.
- A nursing leadership and skills development program to increase the quality of nursing care and establish nursing as an effective and independent profession.
- An infection prevention and control program to develop national infection control programs.

AIHA also sponsors special events for partnership participants, such as international conferences, workshops on nursing, training on adult-learning techniques, management workshops, and other events. For 2002, seventeen such events are scheduled.

AIHA's partnership model has been criticized for being too expensive to be broadly replicable. Partner institutions receive infusions of training and technical support. Facilities are cleaned and renovated. Medical equipment is upgraded, often through donations of used equipment from America. Individuals are offered opportunities for paid international travel and are exposed to the best practices of American institutions. Whether the partnership model is replicable or not, AIHA program participants are optimistic and enthusiastic, their capacity is greater because of the training they receive, their work environment is improved, and the quality of the services they provide is better. The question is not whether AIHA's approach works (it does), but whether the same ends can be achieved in other programs, such as the pilot FGP clinics, through less expensive means.

Recommendations: USAID should continue the AIHA partnership program in Armenia through the regional cooperative agreement.

- ***USAID should discuss with AIHA how the benefits of its partnership programs, especially***

its cross-partnership activities, can be extended to non-partner institutions.

- ***AIHA's training programs have particular potential for reaching and benefiting a broader audience, even though efforts to do so under the PADCO contract have been frustrating.***

K. Private Sector and NGO Development

As described in a Ministry of Health strategy paper, the private sector is beginning to play an expanded role in Armenia's health care system.[79] In health financing, private payments are already significant. In health service delivery, nearly all pharmacies, some dental facilities, a few pediatric polyclinics, and a handful of small hospitals are now operated privately. There are also about 2,500 Non-Governmental Organizations (NGOs) of all types registered in Armenia although only a few are active. Less than fifty NGOs are known to be providing health-related services (by law the are not allowed to provide *clinical* services).[80]

Expanding the private sector's role is seen by the MOH as a positive development that would help address five objectives:

1) Improve health financing by generating funds from the private sector while reducing informal gratuity payments;
2) Increase efficiency through improved management of material, human and financial resources;
3) Expand the array and quality of available medical services through competition;
4) Improve working conditions for health workers; and
5) Expand consumer choice.

The Ministry of Health strategy paper uses the word "privatization" to represent the idea of moving toward greater private sector involvement. Technically, "privatization" refers to the conversion of public owned resources to private ownership – only one of several approaches to increasing the private sector's role, which might also include: contracting for health services, lease and rental arrangement, subsidies, and regulations that encourage private enterprise. These and other possible relationships between the public and private sectors are briefly described in Appendix H, attached.

The MOH has said it plans to determine if any of the hospitals and clinics that were decentralized is a candidate for privatization. Criteria for privatization would include: the capacity of the facility, occupancy, level of technical equipment, profile of activities, location, the condition of its facilities, staffing, the availability of investors, and the availability of competition. But under present conditions, where most health facilities need renovation and new

[79] Ministry of Health, "The Need for Privatization of Health Care Facilities," *The Strategy of the Ministry of Health*, Yerevan.

[80] PADCO, *Report No 22: Assessment of the Capacity of Non-Governmental Organizations in Armenia to Support AST Pilot Projects*, USAID, February 2001.

equipment, it is unlikely that many, if any, publicly owned hospitals or clinics will be seen as promising candidates for privatization.

It is more likely that small private doctor's offices will begin to emerge independently, principally in more affluent neighborhoods. In fact, it is surprising that so few private doctors' offices have been organized. Usually, doctors in public employ are quick to set up private practice after-hours to supplement poor wages. It may be that the established system of informal gratuity payments (which are not taxed) discourages doctors in Armenia from setting up formal private practices (where their income becomes taxable). In essence, a doctor can run a private practice in the hospital, during normal work hours, using hospital equipment and supplies. There is little incentive for a doctor to incur the expense of setting up an outside office or suffer the inconvenience of seeing private patients after-hours.

Non-Governmental Organizations (NGOs) also have the potential to play a greater role in health care. USAID, through PADCO, is attempting to strengthen the role of the private sector, particularly the capacity of local NGOs working in primary health care (and the social sector). USAID has been supporting the Armenian Assembly of America's NGO Center, and other NGOs, through the following activities:

- Supporting community initiatives in the regions affected by the 1988 earthquake;
- Improving the legal and regulatory environment for the delivery of health (and social) services;
- Advancing civic participation in decision-making;
- Introducing a NGO small grants program for policy research on key primary health care issues;
- Training and capacity building, including management training and technical assistance.

NGOs are already providing non-clinical health services, and their roles are expanding even though their potentials are still not fully recognized by government. According to a recent PADCO study, NGOs offer a number of advantages over governmental agencies: they are not bound by restrictive rules and regulations, the are more flexible in determining who they can serve, and they have greater flexibility in hiring staff and in using volunteers.[81] In addition, some international NGOs can apply their experience in other countries to the needs of Armenia. The PADCO study suggests a number of activities to strengthen collaboration among NGOs and government, including:

- Build relationships among NGOs and local government counterparts;
- Leverage the international experience of NGOs to application in Armenia;
- Publicize successful examples of NGO/Government collaboration;
- Strengthen the existing capacities of NGOs to provide training and technical assistance;
- Involve the International Center for Not-for-Profit Law in developing the legal framework supportive of NGO/Government collaboration; and
- Develop a campaign to educate the public to create support for health reform.

[81] PADCO, *Report No 26: Procedures for Building Collaboration Between the GOAM and NGOs Under the Armenia Social Transition Program*, USAID, March 2001.

Recommendation: While NGO development has not progressed much beyond the PADCO concept paper, the groundwork has been laid for future advancements.

- ***USAID should continue its efforts to strengthen NGO capacities.***
- ***USAID should work with the MOH to determine what policy and legislative initiatives are needed to encourage the development of the private health sector. Several options are summarized in Appendix H.***

V. Toward an Explicit USAID Health Strategy for Armenia

Even though USAID does not yet have an explicit health strategy in Armenia, its health program activities are on track and do not need major redirection. In fact, maintaining the continuity and momentum of current activities is vital. Any dramatic shift in course or emphasis could weaken the gains that have been made and restrain further progress. As noted throughout this report however, and summarized below, USAID's efforts in health can be further strengthened by introducing a few additions and adjustments. In doing so, USAID needs to continue to balance its support for long-term systemic changes with meeting more immediate health needs. USAID should also continue to work closely with other donors, using its comparative advantage to greater benefit.

A. Balancing Systemic Change and Meeting Immediate Health Needs

Initially, USAID's role in Armenia was to provide humanitarian aide. More recently the emphasis has shifted to development – encouraging systemic change while still addressing the immediate needs of people in distress. Maintaining a balance between system change and immediate need is desirable. While many health reform issues will require long-term strategies of intervention there are, as noted in the earlier discussion of health status issues, vulnerable groups that suffer because of the system's inability to respond to their needs. But short-term programs should not be burdened with long-term expectations of sustainability and replicability.

System changes – such as the introduction of family medicine, restructuring health facilities, and financial reforms – are inherently long-term efforts. They require the development of a foundation of supporting policies and legislation, changes in the organization and management of institutions, and changes in how money is gathered and dispensed. People and institutions need to alter both their attitudes and behaviors in order to adapt successfully to the new order. Changes need to become sustainable and the internal capacity of agencies strengthened so they become independent of outside assistance.

Programs designed to meet immediate needs are usually short-term but may be extended for a longer period if a critical need persists. In Armenia, USAID's short-term programs are designed to address critical health needs in selected locations. As such, they need to mobilize quickly and target recipients efficiently. They do not need to be burdened with the expectations usually imposed on systemic change. UMCOR's mobile clinic program in Gegharkunik for example, as discussed above, is designed to reach rural villages not served by fixed-facility clinics. The program has been criticized because it may excuse health authorities from their responsibilities to build and staff clinics in the locations served. But building clinics in those sparsely populated areas may never be an affordable option and mobile clinics may be a preferred solution.

Admittedly, the mobile clinic program, if it is to be sustained long term, will ultimately require government intervention. But the short-term goal is to meet the immediate health needs of the communities served.

Recommendation: In short-term health programs, the critical need of the targeted population outweighs concerns that the program may foster dependency. Certainly, plans should be in place for the systematic phase-out of short-term programs or their orderly transfer to an internal agency. But, short-term programs do not need to be self-sufficient nor sustainable. Nor do they need to be designed as pilot programs that can be replicated in other locations. The principal criteria they must meet are that they reach their targeted population, they provide an effective intervention, and they are cost efficient. Designing short-term programs to support, or at least be consistent with, longer-term efforts, is commendable, but secondary to their purpose.

B. Donor Coordination and USAID's Comparative Advantage

The need for greater coordination among major donors is a recurring theme in nearly all developing countries, and Armenia is no exception. There are numerous organizations and agencies, both local and international, that provide donor or charity supported services in Armenia, but only a few target health-related projects. Ideally, USAID's health strategy, and its programmatic efforts in health, should reflect its particular capabilities, it comparative advantage in relationship to other donors.

1. Donor Coordination

USAID and the World Bank are the two largest donors in the Armenia with specific programs in the health sector. Among other donors who are active in health care are:

- Japan – providing grants to NGOs for medical equipment, current health priorities, and technical assistance (supporting development of the next World Bank loan).
- The Canadian International Development Agency (CIDA)
- The Italian Government – for health facilities
- UK Department of International Development – provides support for UNHCR, WFP and IFRC programs.
- Danish Government – training family practitioners and planning for restructuring.
- Germany – health related activities.
- European Union/TACIS – training and capacity building for public officials and legislation development (not specifically health).
- UNICEF – health and nutrition.
- UNDP – National Strategy for HIV/AIDS prevention
- UNFPA – reproductive health and HIV/AIDS

- World Health Organization
- The Soros Foundation
- Swiss Agency for Development and Cooperation – introducing occupational therapy in rehabilitation medicine.
- Jinishian Memorial Foundation – school meal programs, nutrition in pregnancy, dental hygiene, and vision.

As discussed elsewhere in this report, a number of NGOs, some of which provide non-clinical health-related services with the support of donors and/or private charities, are also active in Armenia.

While their methodologies differ, USAID and the World Bank in particular have parallel interests in Armenia, especially in primary health care and family medicine. It is not uncommon for their programming efforts to over-lap, even conflict with one another on occasion. In the early stages of the current USAID program, for example, PADCO found it had been contracted to do work with the Ministry of Health that had already been done under the World Bank program. Another difference is that the World Bank compensates local, non-governmental, people who participate in its working groups – often at rates well above local pay scales. USAID does not pay any local participants (except employees) – a policy not always understood by people who may be involved in both World Bank and USAID programs.

Currently, USAID Mission staff and contractors enjoy a good working relationship with World Bank staff. They have worked together successfully on the development of the Health Management Information System and the rescue of SHA's financial information system. They also have been coordinating their efforts to support the development of Polyclinic #17 as a pilot site for Family Group Practice.

Collaboration requires frequent meetings and give-and-take on the roles to be played by all donors. In Armenia, donor agencies currently meet monthly – a forum that has proven helpful in providing overall coordination. In addition to this general coordination meeting, however, donors need to work closely together at the specific program level. For example, USAID will help develop the database needed to support development of the next World Bank loan aimed at optimizing tertiary hospitals in Yerevan.

2. USAID's Comparative Advantage

Compared to other donors in Armenia, USAID has several advantages:

a) USAID is a major donor. USAID has large sums of money to devote to its programmatic efforts. Currently in Armenia, USAID is spending $40 million over five years on health related activities. As a result, USAID's voice can be heard at the highest levels of government.

b) USAID is good at providing technical assistance and training. USAID is able to mobilize TA quickly. It has technical support contractors already in place that can recruit and

mobilize technical experts on short notice. In Armenia, USAID, through its contractors, has already done a great deal to lay the policy and legal foundations for health reform. In other countries, and beginning now in Armenia, USAID has sponsored training courses on a wide range of subjects for a host of different audiences.

c) USAID has extensive worldwide experience. It has piloted projects on nearly every aspect of health reform in numerous locations. USAID has been a major actor on health reform issues in nearly every former Soviet country. It knows the region and the issues.

d) USAID can be flexible and responsive. While it may have a consistent overall strategy in health, it can be flexible in how this strategy is pursued in each country. USAID has the ability to quickly mobilize technical assistance to respond to an immediate need – a point illustrated with PADCO's response when the State Health Agency's database crashed.

e) USAID has extensive international experience in policy and legal framework development that it can draw on.

USAID's also has some weaknesses:

a) USAID is not able to support major capital investments for facilities and equipment. Such investments are better handled by donor grants and loans.

b) USAID does not adequately evaluate its many pilot programs and draw from them lessons learned and best practices. Because USAID works primarily through contractors its institutional memory is weak. Lessons learned and best practices are often buried in consultant reports, like this one and the numerous PADCO reports, that are not well catalogued nor easily accessed by mission staff.

c) USAID mission staff can be overly dependent on contract managers and external consultants. Mission staffing is often thin and individual officers must divide their time among competing priorities. In some cases mission staff are generalists and do not have specialist training in health issues, especially more sophisticated issues such as health financing or mandatory health insurance.

d) No matter how much it does, USAID can never provide enough continuing education on health issues for its mission staff. It is difficult for independent health professionals to keep abreast of ever-changing issues and probably impossible for mission staff. USAID can not do enough to expose its mission personnel to learning from its own experience let alone broader issues.

Recommendation: In developing a health strategy for Armenia, USAID should continue to concentrate on activities it does best – providing technical assistance and training.

C. A Proposed USAID Health Strategy and Program

USAID's health program activities in Armenia have laid the foundation for systemic changes that are still in development. Pilot Family Group Practice clinics are about to open their doors to their first patients. Clinical practice guidelines are in the formative stage and hold promise for shaping how family medicine will be practiced in Armenia. Numerous policy papers have been drafted that await further development and implementation. A draft law on Mandatory Health Insurance has just been published. As these efforts advance they will need increased attention. No thought should be given to abandoning them or introducing new initiatives that would distract energies from their support.

Not wanting to stray from USAID's current course, the following statements of health strategy and strategic objectives are proposed for USAID's consideration.

Proposed USAID Health Strategy for Armenia

USAID health strategy is to work with the Armenian Government to improve health status by introducing systemic reforms that improve access to quality primary health care, while alleviating the immediate health needs of the most vulnerable.

Proposed Strategic Objectives in Health

1) ***Increased access to, and the quality of, primary health care services through the introduction of family practitioners and family medicine group practice and the restructuring of Armenia's health system.***

2) ***Improved equity of access to health care by decreasing the burden of financing health care that now falls on the poor and vulnerable.***

3) ***Strengthened capacities of governmental agencies, public and private institutions, and individuals to define and adopt new roles and responsibilities that support the objectives of health reform.***

4) ***Improved health status by providing health services to those with immediate health needs.***

These objectives are consistent with USAID's current efforts in health but differ in a few important ways. There is no reference here to "shifting the emphasis from hospital care and specialty medicine." Rather than tacitly opposing hospitals and medical specialists, this strategy statement recognizes that they will in the future retain an important role in Armenia's health system. In fact, as noted earlier, the needs of hospitals and medical specialists have been neglected. While not a priority for USAID's direct intervention, except possibly in training and

capacity building, USAID should support the efforts of others to bring hospitals and medical specialists into the reform effort.

The proposed strategy statement also provides important flexibility that will be needed if USAID is to respond to developments and opportunities not now anticipated. While no dramatic changes are anticipated in the thrust of USAID's health programming, in the next round of contract negotiations, contractual terms should allow room for adding unanticipated deliverables. As stated earlier, in pursuing systemic reforms, USAID should put a particular emphasis on training and capacity building, while continuing efforts to develop supporting health policy and legislation.

As noted in the review of health status indicators, there are a number of pressing health issues that are not being adequately addressed. USAID should expand its efforts to provide health services to those in immediate need, including mandated imperatives. If new programs, as well as current efforts, are not burdened with the need to be sustainable or replicable, more of their energy can be devoted to providing needed services.

Strategic and programmatic recommendations, as developed throughout this report, are summarized below.

1. Access to Quality Primary Health Care

Increased access to, and the quality of, primary health care services through the introduction of family practitioners and family medicine group practice and the restructuring of Armenia's health system.

a. Strengthening Primary Health Care and introducing Family Medicine
   - USAID should consider how the principals of primary health care can be further extended to the broader community of medical practitioners.
   - As the foundation for designing a primary health care network, USAID should sponsor a study of how patients flow through the health system - documenting how they enter the system, how they access primary care services and pharmaceuticals, and how they access secondary and tertiary care when needed. Referral patterns and the factors that hinder or enhance access should be identified. The roles played by medical generalists and specialists, and how they interact, should be documented.

b. Family Medicine Training
   - Assist the MOH in defining what a family practitioner is to do (a model of family practice for Armenia) as the foundation for the accelerated development of clinical guidelines and the revision of curricula for graduate and post-graduate training of family practitioners.
   - The development of clinical practice guidelines should be encouraged, and accelerated wherever possible.

- Seminars on clinical practice guidelines should be offered as they are developed for family medicine, inviting general practitioners and sub- specialists, as well as family doctors to attend.
- NIH should be encouraged to introduce greater patient-centered training for family doctors. Training opportunities should be offered to NIH leadership and faculty where they can observe and participate in patient-centered training.
- Further cuts in the production of sub-specialist medical students and residents should be encouraged, so that more specialists are not added to the already over-supplied health system.

c. Family Group Practice Pilot Clinics
   - Special attention should be given to assuring the success of the pilot Family Group Practice clinics. Their success will have a significant influence on how well the transition to a family medicine model progresses.
   - The capabilities of the pilot Family Group Practice clinics to serve as training sites should be re-evaluated and, if necessary, additional resources provided to train team members as teachers.
   - USAID should encourage Family Group Practice pilot clinics to offer open enrollment to entire families. Pilot clinics would be better able to encourage family members to make appointments for preventive care.
   - SHA should be encouraged to make special financial concessions that might help assure the success of the pilot programs. Paying back pay, paying on time, incentive payments for primary care procedures, and other options should be considered.

d. Licensing and Accreditation.
   - Efforts to introduce licensing and accreditation and other quality assurance programs should be continued.
   - The Armenian professional associations should be involved in this process, and mentored in their role.
   - Licensing and accreditation practices mature as medical knowledge evolves, the goal should be to eventually have professional associations take over this function with input by MOH.

e. Restructuring the Health System
   - Strengthening primary health care and introducing family medicine, will ultimately have an impact on Armenia's over abundance of doctors and nurses. But the rationalization of existing facilities and personnel is essential if these reductions are to be realized.
   - The demand for health services needs to be better documented. USAID should support a national study of health services demand, documenting population demographics, health needs, and how patients access the health system.
   - PADCO should expand its health resources database, as piloted in Lori Marz, to better catalog and track hospitals, clinics, equipment and personnel throughout the country.

- USAID should continue its supporting role in the development of the next World Bank loan on restructuring tertiary hospitals.

f. Private Sector and NGO Development
   - USAID should work with the MOH to determine what policy and legislative initiatives are needed to encourage the development of the private health sector.
   - USAID should continue its efforts to strengthen NGO capacities.

2. Improving Equity through Financial Reforms

Improved equity of access to health care by decreasing the burden of financing health care that now falls on the poor and vulnerable.

a. The impact of cost on access
   - The amount of private payments for health, both formal and informal, and their impact on access, equity, and utilization should be studied in detail. In part, this effort can be incorporated into a comprehensive National Health Accounts study, an effort that should be encouraged. But it is also recommended that the periodic household surveys, now conducted by PADCO, be expanded to examine these issues in greater detail.
   - The percentage of households that reported someone ill that did not seek health care because of the cost is useful as baseline data but probably not as a performance indicator. It is unlikely that USAID programming efforts will have any measurable impact on this measure during the life of the project. Changes in this performance indicator are dependent on widespread financial reforms or significant improvements in Armenia's economy, neither of which is likely to happen in the near-term.

b. Basic Benefits Package
   - USAID should support a study of the impact of the Basic Benefits Package, as now administered, to determine how it might be adjusted to more effectively target limited governmental funding to improve access to essential health services.
   - Recommendations should be developed which better balance projected costs with anticipated revenues by prioritizing covered services and assuring that services are provided in the most appropriate setting.

c. State Health Agency
   - USAID should continue to encourage the GOAM to reduce the accumulated arrears in back wages now carried by many hospitals and clinics.
   - USAID should assist SHA in studying the impact of its current health services purchasing practices and help develop recommendations for it becoming a more selective buyer.

- USAID should encourage SHA to regularize its payments to health service providers. Consistent monthly payments, even at a lower level to reflect actual GOAM funding, would allow hospitals and clinics to plan more realistically.
- Using the SHA database, USAID should help design a payment formula for SHA that provides incentives to primary care providers, especially Family Group Practices.
- Explore how capital can be raised to finance the renovation and equipping of primary care facilities. A national guarantee loan program, with capital provided by donors, is one possibility. A small loan program, made available to primary care physicians wishing to establish private practices, is another.

d. Mandatory Health Insurance
   - Conditions are not favorable in Armenia for the introduction of Mandatory Health Insurance, and are not likely to be for years to come.
   - In the meantime, USAID should shift its support from establishing MHI to efforts to strengthen the GOAM's insurance functions.

3. Policy Development and Capacity Building

Strengthened capacities of governmental agencies, public and private institutions, and individuals to define and adopt new roles and responsibilities that support the objectives of health reform.

a. Strengthen advocacy for Family Medicine
   - USAID should support additional training and technical assistance designed to increase the understanding and advocacy of Family Medicine training and practice.
   - USAID should sponsor a working tour of US family medicine training programs and practice sites for key leaders, and their principal associates, from within the Ministry of Health and the National Institute of Health. Selected individuals should be placed in US training and practice sites for a week or more to gain greater depth of understanding of family medicine concepts and practices.
   - USAID should sponsor local, in-country, seminars on topics selected from the growing list of clinical guidelines. Medical specialists and general practitioners, as well as family practitioners, should be invited. Wherever possible, family practitioners should serve as faculty for such seminars in order to increase their visibility and credibility.

b. Strengthen institutional capacities at national, local and institutional levels
   - Particular emphasis should be given to strengthening the capacities of the MOH and the SHA to plan, organize, and manage Armenia's health care system.
   - With decentralization, hospitals and clinics were expected to become more autonomous and self-sufficient but they do not have the facilities, equipment, skills, knowledge, financing, and legal backing needed to implement their new

roles. Local authorities, in the marzes and municipalities, are not prepared to assume the responsibilities imposed on them with decentralization.

- USAID should support an exercise to define the responsibilities and authorities of local and regional governments and the hospitals and clinics that were decentralized. Issues of ownership, budget and finance, employment, debt retirement, and capital financing should be addressed.
- Training programs in health management, leadership, communication, teamwork, planning, finance, decision-making, and quality assurance are all available through USAID sources.
- Wherever possible, practical training, using hands-on experiences and proven adult-learning techniques, should be used rather than lecture –based educational programs. Active participation is key to effective learning.

c. Health Management Information System

- The workshop on health management indicators was an important step in developing a more responsive, reliable and useful HMIS for Armenia. The decisions reached at the workshop deserve active follow-up and should continue to be supported by USAID.
- USAID should continue to provide technical assistance to help further improve data collection processes and strengthen Armenia's internal capacity to interpret the data for policy development and decision-making.
- Building the capacity of the Ministry of Health, and other state agencies, to be able to manage the HMIS, analyze data, and apply the results will be one of the most significant challenges in implementing the HMIS Plan.

d. Policy and Legal Framework

- Creating the policy and legal framework that support health reform is a critical and ongoing activity that requires USAID's continuing support.
- PADCO should be encouraged to develop a prioritized list of all health policy and legislative initiatives, developed and pending, documenting their current status and planned activities.

e. American International Health Alliance

- USAID should continue the AIHA partnership program in Armenia through the regional cooperative agreement.
- AIHA's training programs have particular potential for reaching and benefiting a broader audience, even though efforts to do so under the PADCO contract have been frustrating. USAID should discuss with AIHA how the benefits of its partnership programs, especially its cross-partnership activities, can be extended to non-partner institutions.

4. Meeting Immediate Health Needs

Improved health status by providing health services to those with immediate health needs.

a. Maternal Health
   - Educational programs in handling emergency obstetrics (for all primary care providers) would help decrease maternal mortality.
   - Widespread use of magnesium for pre-eclampsia and premature labor needs to be taught and practiced, with specific guidelines that can be used by non-obstetric providers.
   - Anemia screening and treatment, vitamin D injections, iodine (when not in the salt) are also needed during pregnancy.
   - Obstetrical services should be upgraded where needed.
   - A Maternal Mortality Review Team should be set up

b. Child Health
   - Encourage more accurate data collection - by supporting teaching clinics on the WHO definition of "live birth" at all maternity hospitals and departments.
   - Assist the MOH in setting up Fetal Infant Mortality Review (FIMR) boards at the marz level.
   - Encourage longer breast feeding, until 6-12 months, including education on appropriate weaning foods.
   - Teach obstetricians to give corticosteroids to women with intractable premature labor to increase the lung maturity of their babies.
   - Upgrade neonatology services as needed.

c. Tuberculosis
   - Because of the threat from increasing rates of TB in Armenia, USAID should closely assist Armenia in TB control, even though other donors may take the lead.
   - USAID should support nationwide DOTS programming, including assurance of a constant supply of anti-TB drugs.
   - Support a system of directly observed prophylaxis INH to household contacts and active case finding.
   - To better document MDR TB rates, USAID should support testing a variety of populations such as: all TB patients not successfully treated, geographic samples, prisons, and AIDS patients.
   - Encourage progression to DOTS-plus program (MDR TB treatment). Even though this is expensive treatment (approximately 100x more expensive than regular TB treatment), if left untreated the problem will only get worse and more expensive.

d. Reproductive Health
   - USAID, through PRIME, should address the infertility problem, considered so important by the GOAM.

- Support a study to more accurately estimate infertility rates. Male infertility should also be evaluated.
- Provide technical assistance in the use of laproscopic treatment.
- Development clinical practice guidelines for infertility workup – with an emphasis on affordable alternatives.
- To increase the chance of improving the infant mortality, PRIME should increase intervention until the infant is at least 6-11 months old.
- Given the 4% estimate of rickets in young children, the practice of vitamin D injections during pregnancy is recommended (at least in the rainy, cloudy and cold seasons).
- The use of iron supplements to delay or prevent anemia, and the use of magnesium and cortisone for pre-eclampsia and protection of the lungs of babies expected to be preterm should be stressed.
- The use of modern contraception as a performance indicator is an appropriate measure for the PRIME program.

e. Cardiovascular Disease and Diabetes
   - Assist in supplying working blood pressure cuffs and stethoscopes.
   - Support the training of trainers who can train doctors and nurses nationwide on proper techniques for blood pressure monitoring.
   - Develop clinical practice guidelines for treating hypertension and diabetes. Encourage knowledge of these guidelines for licensing and re-certification.

f. Health Promotion
   - Support public health education on smoking, diet, exercise and other life-style factors affecting health.
   - Help promote laws to decrease smoking, including increased taxing of tobacco.
   - Encourage awareness of obesity as a problem in Armenia and promote low-fat foods.
   - Support an early breast cancer screening program, and the development of standards for chemotherapy treatment, possibly determined by age.

g. Nutrition
   - USAID should continue and expand its support of programs designed to improve nutrition, including extended breast-feeding.
   - Seasonal variations in malnutrition needs to be re-investigated in the poorest marzes as the WFP study suggests it may be significant.
   - USAID supported nutrition programs need to target the weaning age groups (6-23 months), including education on appropriate weaning foods.
   - Weaning food supplements have proven successful for this vulnerable group, because adults and older children think of it as “baby” food and do not eat it. Supplements can be enriched with iron and vitamins A and D relatively easily.

h. United Methodists Committee on Relief

- The programs operated by UMCOR appear to be meeting immediate health needs and should continue to receive support from USAID.
- The mobile clinic idea may be a good permanent alternative to fixed-facilities for providing health services to sparsely populated remote communities.
- The drug fund idea has potential in other rural villages throughout Armenia and expansion of the program, once it's been evaluated and proven effective, should be encouraged.

i. Catholic Relief Services
   - The CRS program appears to be of value as a means of supplementing the nutrition of school-age children. As such, a measure of the number of meals served is an appropriate performance measure.
   - As designed, however, the CRS school feeding program will not have any impact on decreasing anemia among 0-5 year old children, the performance measure used to monitor this program. Anemia among infants is better addressed through prolonged breast feeding and other measures targeted to this vulnerable segment of the population. Either the CRS feeding program should be altered, another program developed that targets anemia, or another performance measure selected - or all three.

D. Organization and Management of USAID's Health Program

Even in summary, as presented above, USAID's health activities in Armenia are extensive, interdependent, and complex – and understandably difficult to manage. Health programming is made additionally complex because of its integration with social programming under USAID's Social Transition Program. Admittedly, the health and social sectors are intertwined and developments in one sector are often affected by developments in the other. But together in one program, and managed under one large contract, they create a combination that is daunting in concept and challenging in execution.

For much of its health programming – primarily health reform related activities – USAID has entered into a contract with the Planning and Development Collaborative, Inc. (PADCO) to manage what is called the Armenian Social Transition Program (ASTP). PADCO's principal competencies are in the social sector. To assist with health-related activities, PADCO has sub-contracts with Abt Associates, a firm specializing in health issues; the American International Health Alliance (AIHA), for training in Lori Marz; the QED Group, for monitoring and evaluation; and AMEG, for equipment procurement. For USAID's other health programs - principally reproductive health, health partnerships, and health assistance - USAID works with a number of organizations, including PRIME, the American Alliance for International Health (AIHA) under a regional cooperative agreement, the United Methodist Committee On Relief (UMCOR), Catholic Relief Services (CRS), the NGO Center, and Save the Children.

The complexities of managing the large and complex ASTP contract are evident. To their credit, members of the PADCO team are intelligent, experienced, and energetic and appear to

understand the complexities of what they have undertaken. At the same time, PADCO, Abt and AIHA each have their own areas of expertise and quite different programmatic approaches and organizational cultures. There have been continuing strains among the players that could negatively impact on their performance. PADCO has had to devote continuing attention to managing these differences and creating harmonious working relationships.

For the next iteration of its health programming activities in Armenia, USAID should consider its contracting alternatives.

a) The ASTP contract can be extended, or renewed, essentially as it is. The contract will be large and complex but continuity is better and integration of social and health programming is assured. This approach is familiar to USAID Mission staff and may be easier to manage.

b) Health reform activities can be isolated from social programming under a separate contract. AIHA would continue to be managed under a regional cooperative agreement and separate contracts would continue as needed with PRIME, UMCOR, CRS, and others. USAID's managerial burden might increase but Mission staff could more easily focus on health issues.

c) All health activities, both health reform and other health programs, could be combined under one contract. The exception might be continuation of the cooperative agreement with AIHA. Compared to option (b), this approach might simplify USAID Mission staff's management responsibilities but might also distance them from programmatic efforts.

Recommendation: The PADCO contract should be extended or renewed. Continuity is critically important to maintaining momentum in the development of Armenia's health reform agenda. Efforts to strengthen primary health care, to launch pilot Family Group Practice clinics, and to build on the foundation of policy initiatives that has been established, will all require continuing attention. PADCO and its subcontractors have built an understanding and commitment to the success of these programs and their continued involvement would be a significant benefit.

APPENDICES

A. The Soviet Legacy and Health Status in Armenia

During its years as a Soviet republic, Armenia maintained a relatively strong economy and its people were known to be among the most educated and longest living people in the Soviet Union. Consistent with Soviet policies, Armenia considered health care a public responsibility. Universal access to health care, financed by the state, was a major goal. From the 1940s until the mid '70s, Armenia and other socialist republics achieved better health outcomes than other countries with similar levels of income, due in part to strong public health measures such as compulsory childhood immunization. Beginning in the late '70s, however, health status indicators for the socialist republics showed no further improvement and adult health indicators started to worsen.[82] In the transition years, as the Soviet Union collapsed and Armenia and other newly independent states struggled to gain their footing, health status indicators throughout the region continued to stagnate and in some cases, as in the Russian Federation, deteriorate even further.

With the collapse of the Soviet Union in 1991, Armenia declared independence and shortly thereafter its industrial base collapsed and economy crashed. The Soviet-style, centrally-directed economic system broke down and widespread poverty ensued. Armenia and Azerbaijan declared an uneasy cease-fire in 1994 but by then the economies of both countries were already crumbling. Armenians speak of the winter1995-6 as being their hardest time after the collapse, when so many of the trees were cut to supply heat, as no energy was available. Even today, Armenia and Azerbaijan continue to suffer because of their inability to make any substantial progress toward a peaceful resolution.[83]

In the wake of the Soviet collapse, Armenia inherited a health system that was over-staffed, out-dated (by Western standards), and inflexible. Free from Soviet protection and its economy in ruins, Armenia's government was no longer able to maintain the system or guarantee free health care for all its people. The country's economy and its health system continue to struggle and the results can be seen in the health status of the Armenian people.

Life Expectancy in the Soviet Union

From 1985 to 1987, life expectancy in the Russian Federation appeared to be on the rise, increasing from just under 68 years to 70 years, most likely from a reduction in deaths from accidents and violence, alcohol related causes, heart disease, and pneumonia, especially among those aged 40-45 years. But as the Soviet Union collapsed, these gains were lost as life expectancy dropped markedly. By 1994, life expectancy in the Russian Federation fell to 64 years, down nearly 6 years from its 1987 high. At the time, an authoritative panel of

[82] Belli, Paolo, *Ten Years of Health Reforms in the ECA Region: Lessons Learned and Options for the Future*, The World Bank, May 2000, p. 3.
[83] Armenia, *The World Fact Book*, Government Guide, AOL.

demographers reported that Russian men lived 15-17 years less than men in Western Europe while Russian women lived 7-10 years less.[84] Life expectancy rates in many Eastern European and former Soviet Union countries are compromised: they should be about 0.5-4 years shorter, according to how severe the under reporting of infant mortality (see next section). For example, if a country reports a 72 year life expectancy but 2% (20 per 1000 births) of the infant deaths are not reported, in that birth cohort (life expectancy at birth) the corrected life expectancy would be 72,000/1020=70.6 years.

While the drop in life expectancy in Russia was particularly dramatic, it was indicative of a trend occurring at the time throughout Eastern Europe and the Former Soviet Union (FSU). With the exception of Slovenia, the Czech Republic and Poland, life expectancy either stagnated or worsened everywhere in the region during that period, the leading cause of death being cardiovascular disease.[85] In Eastern Europe, ischemic heart disease, cerebrovascular disease and lung cancer accounted for a third of total years lost. Death by injury and alcohol related self-poisoning were also common. In contrast, in the Central Asia region, communicable diseases, perinatal, and maternal causes constituted 53 percent of the total burden of disease.[86] (Burden of disease is based on the evaluation of disability-adjusted life years or DALYs.[87] In the DALY methodology, as developed through a collaborative effort between Harvard University and the World Bank, each medical condition is evaluated on the basis of the loss of productivity due to disability or premature death.)

Issues of Women and Child Health

In the decade following the Soviet Union's collapse, female death rates from cardiovascular disease increased and still remain significantly higher than rates in the European Union (98 per 100,000 in the FSU compared to 33.1 per 100,000 in Europe).[88] There have been sharp increases in lung cancer among women, due to increased smoking. Throughout the region there are inadequate screening and prevention programs for cervical and breast cancer. Abortion remains the dominant method of birth control with the average woman living in the FSU experiencing three abortions during her fertile life, with even higher levels in some areas. The abortion rate in Armenia, for example, was 627 per 1,000 live births in 1995. In the same year, in neighboring Azerbaijan, the highest rate in any country was reported a staggering 2,199 abortions for 1,000 live births.

Although there has been some improvement over the last decade in maternal and infant mortality rates in the Former Soviet Union, overall rates remain high, but with considerable regional variation. Maternal mortality averaged 41 deaths per 100,000 live births in FSU countries, with a low of 17 per 100,000 in Lithuania, to 44 per 100,000 in Kyrgystan, up to 96 per 100,000 in Tajikistan. In Eastern Europe, Romania had 67 deaths per 100,000 while Bulgaria had 10.43 and

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[84] Presidential Commission on Problems of Women, Family, and Demography, 1997, *The Current Mortality Situation of the Population of Russia*, as cited by Belli, P, The World Bank.
[85] Belli, Paola, pp.4-5.
[86] Ibid, p.5.
[87] The World Bank, *World Development Report 1993*, p.213.
[88] Ibid, pp. 6-7.

Hungary 12.58 per 100,000. In 2000, Armenia's maternal mortality rate was reported in 2000 to range from 52.5 to 81.7 maternal deaths per 100,000 live births, which would be one of the highest in the FSU.

Relatively good performance in the FSU's officially reported infant mortality rates have not been confirmed by survey-based evidence and by other closely related indicators. The Soviet Union officially reported most infant mortality in the first 6-7 days of life as miscarriage. As a result, even today, infant and child mortality data in many of the Eastern European and former Soviet Union countries are under-reported. The under five mortality rate in Russia, for example, is three to four times higher than in developed countries and has worsened considerably over the last decade. In addition, in the Caucasus and Central Asia, the cases of undefined diarrhea disease, meningitis, infectious mononucleosis, rubella and influenza have sharply increased, an indication that infant mortality rates have probably deteriorated rather than improved.

Lingering issues of lifestyle and nutrition

There is strong evidence that lifestyle factors – alcohol and tobacco consumption, diet, stress and lack of exercise – account for changing patterns of mortality and morbidity throughout the FSU, including Armenia. A 1997 WHO study estimates that one-quarter of all worldwide deaths attributable to tobacco occurred in former Soviet countries. Middle aged men in the region were twice as likely as those in Western Europe to die of tobacco-related causes. In 1995, tobacco caused an estimated 41 percent of all deaths among men aged 35-69 years. Sharp fluctuations in alcohol consumption during the period make it difficult to identify trends, but in a 1997 study of disability-adjusted life years, or DALYS, alcohol was ranked second only to tobacco as the leading cause of lost years of healthy life.[89]

The impact of nutrition on health status in the FSU has been poorly studied but three aspects of the issue were noted in a World Bank study.[90] Under-nutrition is becoming a problem for poorer and more vulnerable segments of the population; micro-nutrient malnutrition is evident in iron and iodine deficiencies; and over-nutrition of high caloric, fatty foods could explain the relationship between income per capita and adult male mortality rates.

[89] Murray, Christopher, and Alan Lopez, "Global mortality, disability, and the contribution of risk factors: Global Burden of Disease Study," The Lancet, v.349, May 17, 1997, pp. 1436-42. As cited in Belli, Paola, p.9.

[90] Belli, Paola, p. 10.

B. Changing Roles at National and Local Levels of Government

Health system became part public administration decentralization process in mid 90s. Decentralization in Armenia has obtained both functional and geographical forms, and has been associated with political decentralization for attaining representative democracy. Decentralization has performed in several types, including strengthening lower levels of the health system; local government; more autonomous institutions; establishment of executive agencies (SHA); and introduction of non-government service providers.

Three levels of governance were introduced in administrative reform: national, marz, and local. National level in health is represented by the MOH, marz level is represented by the Governors as owners of public facilities, and marz health department as administrative units in cages of health system issues. Heads of local governments represent local level.

The respected responsibilities of the three levels of health administration are formulated in the boxes below as they are stated in GOA regulatory and legal documents.

Box 1: MOH Responsibilities:[91]

a) Elaboration and implementation of state health care programs;
b) Population's primary and specialized health care;
c) Drafting legal acts related to health care;
d) Financing organizations and institutions under the MOH;
e) Licensing of medical and pharmaceutical activities;
f) Centralized procurement of drugs and medical equipment;
g) State registration of drug and control of its quality.

Box 2: The Governor (Marzpet) carries out in the sphere of health care[92]**:**

a) Implements public health care programs, organizes the activities of health care facilities subordinated to the marz, ensures the provision of free health care services to the population as envisaged by the law, controls whether the performance of private health care facilities is consistent with the legislation;

b) Undertakes and implements epidemiological and quarantine measures, undertakes sanitary-hygienic measures with the purpose of preventing infectious and mass non-infectious diseases and poisonings;

c) Supports to the public sanitary-epidemiological service in controlling water supply of the communities, sanitation of dwelling houses, schools and other places;

d) Manages construction, maintenance and utilization of health care facilities subordinated to the marz.

[91] From the Charter of the MOH, see "Legal Analysis: Issues Related to Organization and Delivery of Health Care in Armenia", ASTP, PADCO, November 2000, p. 6.
[92] Para 1.17 from the Decree

Box 3: Activities of the Community Health in the sphere of health care, physical training and sports[93]

In the above-mentioned fields the Community Head performs the following function delegated by the Government:

- Support to the sanitary-hygienic, epidemiological and quarantine measures undertaken by health care entities.

In the above-mentioned fields the Community Head has the following optional responsibilities:

- Maintenance of sanitation and better health of the environment;
- Contributing to the development of physical training and sports in the community, constructs playgrounds and other sports facilities, creates recreation zones.

Only national level (MOH) has definite roles are in: health policy, health system strategic development, regulation, drug policy and management. MOH's financial means for carrying out defined roles are MOH operational budget and MOH's authority in decision-making regarding health system budget planning, resources allocation, and price regulation.

Marz level governance is one for operationalizing national health programs. Additionally, marz have great degree of responsibility in controlling epidemiological situation, especially communicable diseases.

Budget process does not ally with decentralization of health management to marz level, what makes this level of governance of weak sustainability. There are no marz level health budgets in the state finance system, and marz have no decision in resource allocations. Within such financial structure, the central government has to commit to equalization of resource allocation across marz and al least delegate to marz level some role in justification of health resource request according to demographic, epidemiological and technological needs and specifics in health care.

Present financial mechanism determines marz dependence on the central funding (MOFE) in ability to convert its authority for health system oversight into effective practice. Hence, marz governments and their health department have mainly administrative tools in executing oversight and management roles. Marz health departments act as intermediates for MOH in carrying out central government policies and regulations. Being separated from purchasing function, marz associate their power in governance with ownership authority. However, if privatization of health institutions will largely evolve, marz will require more regulatory power to represent population interests in health sector.

As a matter of fact, it is questionable if marz represents a sustainable governance level, and if a new cycle of public administration reform that is currently emerging would or would not address this issue and in what particular way.

Local (community level) governments in contrast with marz collect local taxes and other revenues, and have own budgets. This ability to combine decision-making with financial means make local governance operationally strong. However, there is an opinion that community

[93] Article 35 from the Law on Local Governance

governance level is of too small scope and is of very low capacity as represents relatively small populations.

A different aspect of decentralization is process of autonomization of health facilities. The decentralization effort removed all but a few tertiary facilities from the MOH management (?) and transferred ownership authority to marz-level departments of health and local authorities. Institutions gained greater autonomy but also became more responsible for their own financial sustainability. They were not given the knowledge or tools to successfully fulfil their new responsibilities.

The legal framework also needs to be in place to support decentralized authority. Functional decentralization did not occur in conjunction with legislative power transferred to regional levels (no National Assembly at marz level), what is understandable for a relatively small country like Armenia. Legal framework should provide for marz government authority to make decisions and take responsibilities for population health through active involvement in at least resource allocation. By now, funding from SHA is based on centralized decision line (MOFE –MOH - SHA), and in absence of practices in contract negotiation, marz is left fully excluded from funds allocation towards populations and providers in their jurisdictions.

The decentralization program in Armenia can best be described as divestiture and abdication. Secondary hospitals and clinics were essentially cast adrift by the Ministry of Health. Many were left with poorly maintained facilities and inoperable equipment. They were saddled with debt and left to gather much of their own financial resources. Local governmental authorities, at the marz and municipal levels, were given no instructions, authorities, or finances to help them understand or fulfill their new responsibilities. At present, there is no balance between national and local levels.

C. Problems with Infant Mortality, Perinatal Mortality, and Prematurity Data

Conflicting definitions of live birth in Armenia over the years makes the reported infant mortality rate unreliable. Under the Soviet system, if a low birth weight baby died during their first 6 days of life, the baby was classified as miscarried. Since 1995 some of the OB/Gyn Departments have tried to correct the definition of live birth so that it matches that of the World Health Organization (WHO) which considers a live birth any infant who has any sign of life (a breath, heartbeat or movement of voluntary muscles). The changed definition is not yet practiced nationwide. For example, the director of Yerevan's Obstetrics and Perinatalogy Hospital has ordered the reporting of live birth any infant over 500 grams which has taken a breath, but feels that some doctors out of laziness incorrectly report the newborn as less than 500 grams because they do not want to be bothered with an autopsy. The Director of Maternity at the Number 1 Hospital Complex, Vanadzor, waits until infants less than 1000 grams have survived 6 days before reporting the birth as "live," apparently unaware that the definition has changed. Since facilities and equipment for infant resuscitation are limited (no surfactant or parenteral feeding is available and pre-delivery corticosteroids are never used) it would be rare for one of these babies to survive. As an example, Lori Marz Maternity had a bluish and clearly dehydrated 2-day old blue 900gm baby in the nursery which was not registered and looked like it would not survive. The baby was not sucking and the hospital had no infant gastric tubes, breast pumps or infant formula, let alone total parenteral nutrition.

The DHS recall method for infant mortality would most likely lead to a slight underestimate of the number of live infants since mothers are often not very aware of what happens in the delivery room and fathers are not present, and memory of events declines over the years. A greater underestimate would be expected for the most distant time (1986-90) due to recall being poorer in the more remote past. If anything, the improvement would be even greater than reported. The Armenian Ministry of Health infant mortality rates are much lower and appeared to have leveled off at about 15-16 deaths per 1000 live births, but reviewing this data the leveling off is from an increasing rate of early neonatal deaths (0-6 days).[94] The increase in the previously unreported neonatal deaths reflects the beginning of correcting the definition of live birth, so the leveling off trend is an artifact, whereas the true trend is decreasing infant mortality.

Perinatal Mortality and Prematurity

Perinatal mortality (the sum of stillbirths and deaths in the first 6 days per 1000 pregnancies of 7 months or more – an excellent measure of prenatal care) at Erubouni Hospital, a graduated program of AIHA, dropped from 24 perinatal deaths per 1000 pregnancies in 1995 to 11.2 in 2001. During this time period Erubouni has an intensive prenatal, antenatal, and obstetrical delivery training intervention (with education and equipment from AIHA). Erubouni probably has the lowest perinatal mortality in Armenia. The National Statistics Service and the MOH report approximately stable rates of perinatal mortality during this same 7-year period, between

[94] WHO, Highlights on Health in Armenia, 2001 and Health Statistics Annual, 2000.

15.6 to 16.3 and between 22.9 to 23.7 per 1000 pregnancies, respectively.[95] The DHS-2000 survey reports an average rate of 28.9 in the five-year period of 1995-2000. Neonatal deaths in the same survey were 26.2 per 1000 live births for the previous ten years. Erubouni Maternity Hospital could be a model for what the entire country can achieve, but now that it is a private hospital much of its recent improvement in decreasing perinatal mortality may be associated with the socioeconomic status of the patients served.

Prematurity is another indicator associated with infant mortality and quality of prenatal care. The GOA gives a 8.4% prematurity rate (an increase from 6.3% in 1990, less than United States), but this number is unlikely to be accurate because of the poor reporting in the first 6 days of life. Dr. Abrahamian (Obstetrician and Director of the Center of Perinatology, Obstetrics and Gynecology) suspects that low birth weight and prematurity is closer to 20%, but it unclear how this much miscounting could be done. The 1997 Italian survey reported 7.8% of births were babies less than 2.5 kg. The DHS-2000 survey obtained information on birth weight on 95.7% of births (births at home are less apt to have weight measured); this survey estimated 6% low birth weight births (which is a lower percent than in United States). Six or 7.8 percent seems too low given the high infant mortality of Armenia; perhaps this is partially explained if Armenian has a low percent of small-for-gestational-age babies. In general small-for-gestational-age babies, stressed in the womb such as by under nutrition or nicotine exposure, survive better than premature low birth weight babies. Information about level of maturity is not available in Armenia. In any case, with such disparities in low birth weight estimates, no clear trend in birth weight can be ascertained.

[95] Mkrtchyan, Ararat, *New Trends in Armenia Health Care*, Akop Megapart, Yerevan, 2001. Table 1.22.

D. Fetal-Infant Mortality Review and Maternal Mortality Review Teams

Each Marz Health Department could use help in setting up its own fetal-infant mortality review (FIMR) system, which are becoming more and more common in American and Western Eurpean Health Departments. (FIMRs in the US have an semi-annual national meeting in Washington DC around August, it might be helpful to send an Armenian doctor(s) to this meeting.) FIMR, correctly done, uses a continuous quality improvement approach, in which the object is not to punish or penalize but to try to make the system easier for the best infant survival, by examining case reports and doing additional interviewing. It should be an educational process, done on a regular basis, such every month or two. Reporting Marz information to the Ministry, perhaps in an annual meeting is an important way of communicating the problems in the regions and getting local and national health workers to work and think together on a common problem. However, caution and education, perhaps facilitation is necessary to teach the non-confrontational approach to solving these problems—a system that would be quite foreign to Soviet trained medical doctors and department heads. AIHA might consider an urban Health Department exchange with a Marz Health Department to help something like this get started.

One way to improve quality control (and data) in obstetrical care is to develop a Maternal Mortality Review Team, similar to the FIMR discussed above, in which all maternal deaths are fully investigated. Romania has such a system in place run by the oblast/government Health Promotion Office (the former SanEpid). Since Armenia only has 8-28 maternal deaths per year, a national Maternal Mortality Review Board could be formed, meeting 2-4 times per year. Membership might include district and local doctors doing delivery, OB/GYN nurses and midwifes, a few of the best Obstetricians in the country, and perhaps some international NGO Family Medicine or Obstetricians who are familiar with this process. The object of such a review board is to practice continuous quality improvement around obstetric care. For example, with each case members of the Board would gather information collected from the woman's family and hospital or ER records. They would then make recommendations on how to avoid similar deaths in the future. The object is not to condemn or punish for malpractice but to determine ways to institutionalize improvement and decrease maternal mortality. The Fetal Infant Mortality Review is a more common public health team in the western countries and could be instituted at the Marz level in Armenia – they often review cases with obstetric problems.

E. Data on Maternal Mortality and Infertility

For 2001, eight maternal deaths were reported. These numbers, having low absolute values, make maternal mortality rates quite unstable and a trend difficult to detect. The best estimates of Armenia's maternal mortality is a three-year average, which would include over 100,000 live births. The maternal mortality rate would still be high, about 46 per 100,000 for 1998-2001. If trends for maternal mortality are determined by averaging 2-3 years so that at least 100,000 live births occurred, then it would appear that there was a sharp decline in maternal mortality immediately after independence (1991-92), which does not seem likely, and a trend of increasing maternal mortality since then. (See data from the Exhibit, below.) If the 2000 data point was dropped, it would appear that maternal mortality rate has stabilized in the last 7 years. However, since maternal mortality is more likely underestimated than overestimated, dropping this data point does not seem reasonable.

Exhibit: Trends in Maternal Mortality, Abortions and Infertility in Armenia

Year	*Number of Maternal Deaths*	*Number of Live Births*	*Number of Abortions*	*Number of Newly Identified Infertile Women*
1984	26	79,767	33,383	
1985	18	80,306	33,896	
1986		81,192		
1987	32	78,492		
1988	22	74,707	29,628	
1989	26	75,250	27,220	
1990	32	79,882	28,307	799
1991	18	77,825	30,418	
1992	10	70,581	30,049	
1993	16		29,723	
1994	15	51,143	33,636	516
1995	17	48,960	33,388	565
1996	10	48,134	25,869	542
1997	17	43,929	19,035	553
1998	10	39,366	14,747	527
1999	11	36,502	12,080	480
2000	(28)	34,276	(11,400)	943
2001	8	(32,000)		

Sources: *2000 Statistical Report Book*, Ministry of Health, Armenia, and *1997 UN Fertility Publication.* Recent information is from Doctor Karena Saribekyan, Director of MCH at the MOH, Armenia.
Brackets ( ) indicate preliminary data or data estimated from other information.

F. Tuberculosis, WHO's DOTS strategy, and Recommendations for Armenia

The current incidence rate for TB in Armenia is 43 per 100,000 in 2000 (Health Statistics Yearbook 2000, after adjusting for 2001 census). This rate has leveled off in the last three years,[96] but this "leveling" is probably an anomaly because of the incorrect estimate of denominator population. TB incidence rates are less than the average for the other CIS countries; they have been lower since communist time, but the rate of increase is the same as or higher than the other CIS countries. No one seems to know the percent of MDR TB for any segment of the Armenian population. (We did not have time to visit the GTZ program on TB eradication, who may have some idea on resistance.) Extrapolating from next door neighbor Georgia, we expect MDR TB of about 10%[97]

The first line strategy to decrease TB is the DOTS program, only 39% of Armenia's TB cases are diagnosed and treated through the DOTS program. WHO[98] defines the five key components of DOTS as:

- Government commitment to sustained TB control activities.
- Case detection by sputum smear microscopy among symptomatic patients self-reporting to health services.
- Standardized treatment regimen of six to eight months for at least all confirmed sputum smear positive cases, with directly observed treatment (DOT) for at least the initial two months.
- A regular, uninterrupted supply of all essential anti-TB drugs.
- A standardized recording and reporting system that allows assessment of treatment results for each patient and of the TB control program overall.

Though DOTS is a first step in combating TB, this strategy has two major drawbacks. The first problem is that standard DOTS has no capacity to diagnose/treat MDR-TB. The CDC has articulated this concern[99]:

> Mathematical modeling suggests that MDR TB needs to be aggressively managed, since the WHO DOTS strategy for control of drug-susceptible TB is not sufficient to control this deadly variant of TB. Given the increasing trend toward globalization, transnational migration, and tourism, all countries are potential targets for outbreaks.

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[96] Armenian Ministry of Health *2000 Annual Statistical Report. Health in the Republic of Armenia-2000*, Official Statistics Data, Yerevan.

[97] National Tuberculosis Program of Georgia, brochure entitled: Tuberculosis Control in Georgia, 2002.

[98] http://www.who.int/gtb/publications/whatisdots/summary.html

[99] http://www.cdc.gov/nchstp/tb/notes/TBN_2_01/IA.htm

In response to this concern, WHO has developed DOTS-plus as a supplement to the standard DOTS treatment for countries with have more than 4% MDR TB and fully implemented DOTS. DOTS-plus is still in piloting phase worldwide. Although Armenia no doubt meets the "need" criteria, its 2000 rate of 39% of TB cases detected and treated through DOTS,[100] disqualifies it from piloting DOTS-plus. Furthermore, the GOAM still does not have enough anti-TB medication to assure full treatment nationwide, let alone second-line anti-TB medication.

The second major problem with the DOTS (and DOTS-plus) strategy is that it treats only active diseases, and TB has significant latency. WHO estimates 1/3 of the world's population is infected by TB (the vast majority with latent disease).[101] By the time a patient becomes symptomatic s/he has already infected other people (all the more in populations, like Armenia, where limited health care access decreases timeliness of diagnosis). The American National Institutes of Health has expressed concern for the limitations of DOTS because it treats only patients with active disease. An NIH conference concluded that by treating only active cases, "decades" are needed to significantly reduce the incidence of TB.[102] A better practice, in a population like Armenia's where the community infection ratio is sufficiently low for most transmission to be within the household,[103] would be to check sputum smears for symptomatic household members (for possible DOTS) and give non-symptomatic household members (directly observed) INH prophylaxis against conversion to active TB.[104,105] Another good practice in combating TB is sputum smears for anyone with an undiagnosed cough of more than two weeks, but this would require one of the inexpensive diagnostic methods (which are also used for quick MDR TB testing) discussed below.

The diagnostic capacity for TB in Armenia is so poor that diagnosis is often based solely on symptoms. Additionally prevalence of anti-TB drug resistance is for the most part unknown (despite asking people at Armenia's CDC and WHO), therefore Armenia must also be lacking in capacity to determine MDR TB and drug susceptibility. Currently two inexpensive functional products for rapid TB testing and drug susceptibility testing, which would be particularly useful in Eastern Europe and the CIS are available: MODS[106] and MABA[107]. Dr. Robert Gilman at

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[100] WHO Report 2002 Global Tuberculosis Control: Surveillance, Planning Financing. WHO/CDS/TB/2002.295 http://www.who.int/gtb/publications/globrep02

[101] http://www.cdc.gov/nchstp/tb/notes/TBN_2_01/IA.htm

[102] NIAID,The Global Burden of Tuberculosis, Blueprint for Tuberculosis Vaccine Development, http://ww.niaid.nih.gov/publications/blueprint

[103] Madico G. Gilman RH. Checkley W. Cabrera L. Kohlstadt I. Kacena K. Diaz JF. Black R. Community infection ratio as an indicator for tuberculosis control. *Lancet.* 345(8947):416-9, 1995 Feb 18.

[104] Comstock GW. Baum C. Snider DE Jr**.** Isoniazid prophylaxis among Alaskan Eskimos: a final report of the bethel isoniazid studies. *American Review of Respiratory Disease.* 119(5):827-30, 1979 May.

[105] NIAID,The Global Burden of Tuberculosis, Blueprint for Tuberculosis Vaccine Development, http://ww.niaid.nih.gov/publications/blueprint

[106] Caviedes L. Lee TS. Gilman RH. Sheen P. Spellman E. Lee EH. Berg DE. Montenegro-James S. Rapid, efficient detection and drug susceptibility testing of Mycobacterium tuberculosis in sputum by microscopic observation of broth cultures. The Tuberculosis Working Group in Peru. Journal of Clinical Microbiology. 38(3):1203-8, 2000 Mar.

[107] Franzblau SG. Witzig RS. McLaughlin JC. Torres P. Madico G. Hernandez A. Degnan MT. Cook MB. Quenzer VK. Ferguson RM. Gilman RH. Rapid, low-technology MIC determination with clinical Mycobacterium tuberculosis isolates by using the microplate Alamar Blue assay. Journal of Clinical Microbiology. 36(2):362-6, 1998 Feb.

Johns Hopkins Bloomberg School of Public Health, International Health Department has developed MABA which can tests for TB and resistance in a couple of days (as opposed to regular culture which takes 2-3 weeks), which has been cited for its usefulness, sensitivity, and reproducibility in several journals. For humanitarian reasons of keeping the costs down, Dr. Gilman has not patented or sold the methodology (materials cost about $1 per individual), hence, no company or agency is actively promoting the product.

Once past the infectious stage (at which time a TB patient must be hospitalized), an eventual goal would be to utilize the Family Physician (or a specially trained Family Practice nurse) to do and document directly observed treatment of TB, and it should be part of their training.

TB and specifically MDR TB is perhaps the greatest health threat in the world today. Unlike AIDS, there is essentially no protection from TB: you can get exposed walking down the street. Both NIH and CDC in the U.S. have made strong statements about the need for a real plan of attack. USAID, particularly in Eastern Europe and CIS, needs to have a cohesive plan of support for the effort to eradicate TB—obviously this is beyond the scope of this report.

G. Information about the Nutritional Status of Armenian Children

When considering nutritional status from the earlier CDC studies to the most recent DHS study, the nutritional status of children in the country is improving. However, since the data on is unavailable from CDC it is necessary to look at what data is available. The WHP survey showing a worse situation may be related to an unaccounted seasonal factor (September would be pre-harvest and prior to the winter slaughter of animals for meat), or as WHP suggested, due to sampling error. The Italian study found 4.2% wasting ($\pm$0.7% delineates the approximate 95% confidence interval) and 12.2% stunting ($\pm$1.5%), whereas the more recent DHS study found 2.3% wasting ($\pm$1.0%) and 15.5% stunting ($\pm$2.4%) and was done at the time of year when food is most plentiful. For significant differences the 95% confidence intervals should not overlap. Wasting has a significant improvement (decrease) but stunting has no significant change.

The DHS survey does not have large enough numbers of children in individual Marzs to accurately report malnutrition rates by Marz, so larger numbers of children measured in the high-risk Marzs would be helpful. Knowledge of whether or not seasonality of malnutrition exists in Armenia, as implied by the results of the WFP survey, is important for planning of nutritional assistance programs. A better idea of anthropometrically-defined-malnutrition status in Armenia, would entail taking measurements of about 500 children four times in a year in a few of the Marzs which appear to have consistently higher malnutrition rates (such as Gegharkunik, Ararat, parts of Yerevan, and Shirak – or an alternative list of where children under five are likely to be malnourished would be some clusters from the list recently compiled by DHS-Macro where home deliveries are most common, note the similarity of these lists of locations). Such surveys could relatively easily be implemented at the time of the UNICEF vaccination programs, given measurement instruments and education on how to use them.

The DHS survey showed a surprisingly high percentage of acute malnutrition only in Kotayk Marz, but only 69 children under age five were measured. As a general rule, at least 100 children should be measured in each age group for anthropometric measurements to merit presentation of a single population group—this accounts for the need to breakdown data by 12 month age group, otherwise the data is misleading.[108] In my short visit to Kotayk and Gegharkunik Marzs, Kotayk did not have clear evidence of malnutrition, whereas I saw some undernourished children in Gegharkunik. Interestingly, when one reviews the calculated sampling error for Kotayk, the standard error of weight-for-height is more than 4 times the amount of most of the other Marzs, and the 95% confidence error much wider than the other Marz. The percent of children with weight-for-height less than –2 S.D.of the reference median in Kotayk was 10.5%, but the 95% confidence interval of 1.4% to 19.5% includes the national average of 2.3%. Most of the weight-for-height 95% confidence intervals range from 0-5.0%. Hence, increased variation of measurement in Kotayk Marz probably explains the high wasting rate.

[108] WHO, Guidelines for Measuring Nutrition, WHO: Geneva, 1985.

Unfortunately data from the Italian and WFP studies are not broken down by age. In most countries the wasting for the 12-23 month old age group would be about three times the percent of wasting for all children 24 months and older.[109] The DHS survey does give anthropometric nutritional status measures broken down into smaller age groups. Indeed, the percent wasting for 12-23 month olds (4.5%) in Armenia is more than three times the percent of wasting among 24-59 month old children (1.3%). The DHS Appendix does not give sampling error by age group, but among 0-59 month olds, 2.3% have wasting with a 95% C.I.=0.9%-3.0%, so the difference in percent wasting between these age groups (12-23 months and 24-59 months is probably statistically significant). Children 12-23 months old generally have more wasting than the other age groups for several reasons: 1) this is the weaning age group and their gut is exposed to all sorts of new bacteria first time (causing worse and more frequent diarrhea); 2) children of 1 year are not able to make their hunger known or fend for themselves to get food; and 3) often parents make uneducated weaning food choices with little protein for these children. The age group of 6-12 months old children in poor countries often has similar though not as severe wasting problems, as also seen in Armenia.

[109] W.Keller and C-M Fillmore, WHO Statistics Quarterly, 1982

H. Approaches to a Public/Private Mix in Health Services Delivery

As outlined in the following table, the government has several options on how it can involve the private sector in health services delivery.

Range of Approaches for Private Sector Involvement in Health

Approach	*Application*
Contracting Out or Outsourcing	Purchase one or more services from a private source. Examples range from clinical laboratory services to laundry services. More ambitious examples include contracting with an NGO for management of a district health system, as in Cambodia.
Procurement	Purchase supplies or materials from private sources. Common examples include drugs, medical supplies, equipment and food. Usually most beneficial when a large volume of the item is needed.
Lease and Rental Arrangements	Securing the use (but not the ownership) of facilities or equipment from a private source. Items are usually capital intensive such as X-ray equipment.
Subsidy	Direct or indirect financial support to a private source intended to alter or enhance the provision of a selected service. Direct subsidies include grants and budgetary support.
Franchise	A private contractor is granted the right to provide a specified service to a specified clientele, usually in a defined geographic area. A fee from the contractor may be required.
Licenses and Permits	Through regulation, a private provider is authorized, by license or permit, to provide specified services.
Non-Governmental Operation (NGO)	A private independent agency, usually operated as a non-profit, with a narrowly defined range of services.
Proprietary Enterprise	A private independent agency owned by a private individual or a group of private investors.
Privatization and Autonomization	Privatization is selling or turning over ownership of public assets to private ownership. Autonomous institutions may remain under public ownership but may not be able to rely on governmental support except through contractual arrangements (as with decentralized facilities in Armenia).

Source: Taylor, Robert, unpublished

I. Preventive Medicine Services

Preventive Medicine

Typical preventive medicine services offered at the primary care level include:

- ***Immunizations,***
- ***Nutritional status evaluating and monitoring (including screening for anemia),***
- ***Prenatal care with screening (STIs and anemia; giving vitamins and iron supplementation),***
- ***Supporting/encouraging breastfeeding and correct weaning practices,***
- ***Post-natal care,***
- ***Disease prevention and risk factor counseling,***
- ***Preventive examinations for TB and STIs,***
- ***Cancer screening,***
- ***Hypertension and cholesterol screening and control,***
- ***Family planning services,***
- ***Depression and mental health screening,***
- ***Smoking cessation***
- ***Diabetes screening and screening diabetics for common complications,***
- ***Advice on healthier lifestyles,***
- ***Detection/isolation/reporting of transmissible diseases, and***
- ***Child developmental screening.***

J. A Step-by-Step Approach to Primary Health Care and Family Medicine

1) **Define who will provide family medicine.** The MOH has already determined that family medicine will be provided by certified Family Physicians and has also piloted Family Medicine Practice Teams (of "Pediatric GPs", "Adult GPs", and "OB/Gyns"). These teams make sense in the transition to Family Physicians if they are used until the doctors retire and are replaced by Family Physicians, they should be required to be re-trained to the level of a Family Physician in their specific field (i.e. the Pediatric GPs should be taught the Family Medicine modules for pediatrics—preferably by Family Physicians), until such a time as Family Physicians replace retiring "sub-specialist" members of the Family Medicine Team. A definitive decision on this matter needs to be made.

2) **Define what will be the scope of work for Family Physicians.** The Decree N375 on June 28th, 1999 of the Minister of Health: Family Physician Statement (Subject to Amendments) was meant to define the responsibilities and work of the Family Physician. It is inadequate. Currently, the "re-trained Family Physicians" and those graduating from "Family Medicine Residencies" are unable to treat and follow approximately 80% of the diseases listed. The scope of work should carve out a place in the medical system for family medicine, listing (and perhaps pushing the limits of) medical management and procedures that are possible. The scope will no doubt become bigger with time. At the same time, the 2-year residency programs for internists and pediatricians needs to define a scope of work which differentiates them from Family Physicians, i.e. they hospitalize and take care of the most difficult cases in their field—which would make them less threatened by Family Medicine. In practice physicians of all specialties all over the world tend to define their own scope of work by their skills, but in CIS countries a scope of work for Family Physicians is required to give them a legal niche.

3) **Once a commitment is made to Family Physicians and their scope of work is determined, the physician manpower structure must change accordingly.** Armenia cannot expect to have a successful family medicine program if it continues to produce the same overabundant number of other primary health care doctors (pediatricians, internists, and OB/Gyns). These broad specialists and the narrow specialists feel threatened because family physicians will be able to do much of their work. The mass production of doctors who are unemployed and/or whose training does not meet the goals of the Armenian MOH, or the healthcare needs of the country, must be stopped. In particular the over abundance of the specialists increases antagonism toward Family Physicians and everyone fights for the same patient base. In this transitional period, balancing physician (and nurse) manpower structure will need constant adjusting, but needs to be in place as a supportive measure for Family Medicine. The USAID program could be helpful in developing a system in which, over years this would be accomplished.

4) **Define training curriculum by board certification requirements for Family Physicians.** Both the NIH and the SMU have residency curriculum for family medicine.

The current curricula are heavily geared to evidence-based treatment guidelines, which is an excellent idea so long as those guidelines are practical for what the physician will have access to in practice (i.e. medicines and equipment, which is now not the case). One re-trained Family Physician stated that all her training was didactic, except her mannequin training at the AIHA's affiliated Emergency Medicine department ("the best part of the training"). PADCO is actively involved trying to arrange a hands-on clinical training site. However at least one of the residency program directors believes this is not necessary, the MOH may need curriculum requirements to enforce this type of training. The current momentum of curriculum development has been exceedingly slow. Training curriculum should be determined by board certification requirements, which generally require a certain percentage of residency training be spent acquiring hand-on experience with managing one's "own" patients. Armenia currently has no board certification requirements for any specialty or subspecialty.

5) **Define how Family Physicians will be paid.** Health insurance issues (i.e the basic benefit package, capitation, etc) and methodology are still being thrashed out in Armenia. These issues are discussed in the financial part of this document.

6) **Armenia must have the legal framework to support development of a Family Medicine Training Clinic.** Both residency directors (NIH and SMU) are unable to provide hands-on experiences for their residents because no legal structure has been developed which allows for enrollment of patients into a training clinic. Currently primary care doctors (pediatricians, adult GPs and OB/Gyns) have a designated catchment area, which provides a certain number of patients per doctor (approximately 1000 for pediatricians and 1600 for adult GPs). All of Armenia's population is divided into these physician catchment areas.

   The MoH generally understands that a family medicine training clinic will need open enrollment and that legal permission must be obtained, but has been slow in pursuing this legal framework. Precedence exists: Erubouni Hospital and Polyclinic (a successful graduate of the AIHA program) has open enrollment in a private practice system (as long as the patient can pay set fees).

   A Family Medicine training clinic will need to have sufficient patients to teach—which means breaking the current trend of the population rarely accessing the medical system. It must offer better medical care than what is general obtained in Armenia clinics. One of the goals of Family Medicine is for a doctor to doctor all members of a given family, under the hypothesis that a single the doctor would better understand the medical/social dynamics of the entire family. Open enrollment could require that entire families or households enroll with a Family Physician Trainer with the understanding that they will be seen by a resident under the supervision of the FM Trainer. In order to enroll, the family could be required to make an agreement that each family member will make all necessary preventive care appointments (hours for the clinic must be patient/family-friendly, include home visits when clinic visits are impossible, and have a policy for handling those families not following this rule) – this would give the family medicine resident a real chance to practice preventive medicine. Furthermore, the population

served by each Family Physician Trainer should be required to approximate the population distribution in age, sex and social status (i.e. the new personal number system –PM) of the city or community served. First the Physician Trainer should enroll the maximum number of patients they can handle (1600 patients, approximately 400 households), allowing for some didactic time and more time if a resident is just starting training, 2-3 residents can be trained with a 1600 patient base. Such a clinic would still need to have the Physician Trainers paid by the government primary care rate (unlike Erubouni), as well as collecting payment for training. Advertising for such an open enrollment of specially trained Family Physicians (with sliding-fee medications, patient-centered care, and the ability to handle cases out of the hospital, and assurance of no under-the-table payment) would no doubt produce an abundance of people trying to enroll, so that waiting lists would be necessary.

Recommendations and discussions of difficulties of starting a Family Physician practice Romania are published in: USAID, Societatea Civila Medicala, Health and Human Services. *Innovating Primary Care Delivery in Romania: Group Practice Development and Clinical Practice Enhancement,* July 2002.

7) **Have available the minimum medications and medical equipment for good patient management.** A training clinic would also need to be a testing site for a low cost Essential Drug list or UMCOR-like insurance for medicines (with concurrent regular availability of these medicines, otherwise the residents would not be able to practice clinical treatment guidelines). Sliding-fees for medications needs to insure that patients can afford to take prescribed medication regularly.

8) **A system of quality assurance for primary care needs to be developed.** This system is necessary for all medical specialties, but if family medicine is to be supported as the goal for meeting primary care needs in the future, the specialty will need its own continuous medical education (CME) requirements, which are best tied to licensure renewal for doctors and nurses. Attention to the teaching of quality assurance within the clinic and continuous quality improvement will be especially necessary at this point in the support and strengthening of primary care through Family Physicians. Armenia health workers must understand that being a physician or nurse is a continuous learning process. Quality assurance should also reflect the medical goals/needs of the country. For example, cardiovascular disease is a great problem in Armenia, once adequate medicine is available, at an affordable cost, doctors and nurse teams who are able to keep their a “good” percentage of their patients under good control could receive more pay than those who do not (or some other reward).

K. Lessons Learned by the World Bank in Armenia

The World Bank is a major donor and is a prime mover in promoting primary health care and the introduction of family medicine in Armenia and elsewhere in the developing world. The World Bank's current program provides the Government of Armenia with a loan of US$10 million to pursue two major issues – strengthening primary health care and strengthening health care financing. In primary health care, loan proceeds are targeted for the construction of 80 family medicine clinics, the training of family doctors, and the development of clinical guidelines.[110] In health financing, the World Bank loan was used to help establish the State Health Agency and develop the Basic Benefits Package, provider payment mechanisms, and SHA's financial information system.

From their experience, the World Bank has identified a number of "lessons learned."

a. Expectations for reform have been too optimistic for both the World Bank and client countries.
b. Institutional aspects of reform are as important as technically proficient strategies. Institutional aspects means providing sufficient time to build up capacity before taking on full functions and raising expectations.
c. Greater attention needs to be paid to the political economy of reform.
d. Projects have been too complex.
e. Adequate resources need to be committed to supervision of projects.

In promoting primary health care, the World Bank's efforts have encountered a number of difficulties.

- Early efforts to develop the legal foundation for family medicine have been criticized as too idealistic. They did not establish the practical underpinnings needed to help family doctors start their medical practices once clinic facilities are built and equipped.
- Training programs for family medicine were developed with no provision for hands-on learning with real patients in a model clinical setting.
- The architectural design of the model family medicine clinic is too large and expansive and does not reflect an under standing of how family physicians will practice.
- The cost of building each clinic has escalated and the construction of facilities in several locations has been delayed.

In health finance, the current World Bank loan was successful in helping to establish the State Health Agency. However, the SHA financial information system, used to track services and process claims, crashed. The assistance of PADCO was mobilized to design and implement a new system, recapturing SHA's lost files in the process.

[110] World Bank, Staff Appraisal Report, Health Financing and Primary Health Care Development Project, Republic of Armenia, June 30, 1997.

L. The Impact of Optimization on Clinics and Hospitals

As the result of optimization, clinics and hospitals have been burdened with debt and forced to collect fees from patients. Those clinics that have been consolidated have difficulty laying off personnel because of back wages that are owed.

To date, optimization means decreasing the number of health facilities. In the few cases where decreases have been implemented, they were accomplished by closing one facility and forcing staff to join another facility. It does not appear that any doctors have been laid off in this process. Laid off personnel have a right to sue for back pay, which poses a cash flow problem for the facilities that inherited the debt from the government. There is a separate GOAM budget to cover past debts, but it is not fully funded and properly executed.

The head of one polyclinic reported that she had enough money so far this year (2002) to pay all her salaries, but she used two months of the money to start to pay off the various staff members who had been laid off as a result of optimization. She had only one laid-off person try to sue for back pay. She settled out of court with complete back pay and the guarantee that this person would not tell anyone. Her budget from SHA is also supposed to pay for overhead, salaries, and medicine at 3 Ambulatories and 5 Feldscher offices. She has 124 employees (which includes 60 nurses), and had to lay off 56 people (nurses, accountants and various support and custodial staff) with the optimization. The polyclinic currently owes $8000 in back pay.

The Maternity Hospital in Vanadsor (Lori marz) became just a department in the General hospital complex as a result of optimization. The head of OB/Gyn incorrectly blames optimization on PADCO and says that "the PADCO project has ruined us". His hospital had been financially solvent prior to optimization, now spending is equalized among all departments. Apparently some of the other hospitals had millions of Armenian Dram ADM of debt. Now the Maternity Department is not responsible for its own spending, so they can not get sufficient blood supplies, sutures, and detergents, for example. Salaries are also lower in his department. Accountants, orderlies, and nurses were laid-off at the various hospitals as a result of optimization. SHA does not cover even 40% of the finances for the hospital, even though baby delivery is considered as part of the Basic Benefits Package. The OB/Gyns used to have two outpatient OB/Gyn polyclinics. Now OB/Gyn polyclinic doctors have to work in general polyclinics throughout the Marz. This head OB/Gyn feels this will have a negative impact on care quality because the OB/Gyns will be too isolated and will not have others with whom to discuss cases and get advice.

The Lori Maternity Hospital had been the third largest maternity hospital in Armenia. Now that optimization has made it a department only. According to the 20th of June 2000 decree of the Minister of Health (part B1.4) it is only allowed to treat and deliver women of the normal and low risk group. High-risk deliveries and gynecology cases must be referred to independent Maternity Hospitals (of which 6 exist, but all are in Yerevan). The Maternity Department continues to treat high-risk cases, but technically this is illegal.

The influence of regulation and market forces on restructuring

There has been some debate among the members of the Assessment Team about the extent restructuring should be driven by the government, through regulation and financing, as opposed to allowing market forces to influence the shape of the system. In reality, both approaches are needed.

The MOH's restructuring program, no matter how ineffective, reflects the state's effort to influence the shape of the system. Payments through the SHA can also play a strong role in restructuring the system, although their potential impact has not yet been tested. But given the necessity to survive on their own financially, some institutions will aggressively compete for patients, upgrading services and improving quality – an expected response in a market economy. At present, the current GOAM's optimization program is a two-tier program. First, it envisions public ownership of most facilities and therefore assumes the state's authority to decide what programs a facility can provide and what facilities should be expanded, merged, or closed. Second, decentralized facilities are expected to perform in a competitive market where their financial success is dependent on satisfying consumer demand. In reality, health markets are imperfect and the state will need to continue to provide regulatory guidance *and* financial interventions and support.

There is, then, a need for legal and regulatory changes that support the restructuring effort. Labor laws need to be revised, for example, to allow institutions greater flexibility in hiring and firing personnel. Policy and legal barriers to reform need to be overcome and new policies and legislation supportive to reform need to be adopted. Obstacles to optimization need to be identified and dealt with. The payroll debt, for example, is an obligation of central government that has been unfairly assigned for pay off to provider organizations going through optimization process.

Most hospitals and clinics will have a hard time taking advantage of market forces anytime soon. Most inherited from the MOH dilapidated facilities, outmoded or inoperable equipment, excessive personnel, and a large debt. In some case, facilities are barely habitable. Many rural clinics are unheated in winter. Current revenues, including formal and informal fees and payment from SHA, do not adequately cover current expenses and contribute nothing toward needed capital improvements or debt retirement. There are restrictions on reducing staffing levels and no money is available for much needed staff training. Until government payments improve, or until resources can be infused from some outside source, most providers have little hope of improving the quality or efficiency of their services or attracting a larger customer base.

Primary care practice: impressions from site visits

Our site visits prove that in large primary care settings have poor resources and therefore quality, they are yet not capable to lead in delivery system, and likely remain not attractive to and trusted by patients.

During its recent visit to Armenia, the Assessment Team was able to visit only a few representative clinics. In typical Soviet style, the doctor's and nurse's desks (offices) are in the

same room in which the patient is seen, no privacy curtain is necessary because these Soviet-trained GPs generally do not touch their patients. Sometimes there will be two patients in the office, and often the patient merely sits on a chair in front of or at the side of the doctor's desk. Armenian doctor visits appear to more frequently have the entire family in the room than what has been observed in Romania and Ukraine. Almost no visit begins with either blood pressure or weighing.

In general, adult GPs and pediatricians prescribe some antibiotics (which are given whether or not the infection is viral and bacterial) and a few other general medications; immunize children; write notes for time off from work. Only at the clinics, involved in AIHA partnerships, there was a capability for some diagnostic tests. The FAP (Feldsher Acusher Post - Feldsher offices) staffed by a nurse, or Feldsher, who generally spends her time recording birthdates, deaths, keeping SanEpid records and doing monthly vaccination of children. The high rates of vaccination in Armenia can be attributed to the network of Feldshers, originally established during the Soviet period. One Feldsher explained how she typically "prescribed" during home visits: she looked in the family's medicine chest and chose the most appropriate medicine for the illness.

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- Pavel Sapharyan, Deputy Minister of Finance and Economy

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- Dr. Emma Hambartsumyan, adult GP

POLYCLINIC #1/Vanadzor, Lori Marz

- Rima Matevosyan, pharmacist
- Dr. Marina Karapetyan, pediatrician
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POLYCLINIC #5/Vanadzor, Lori Marz

- Dr. Gayane Movsisyan, pediatrician
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N. Source Materials and Bibliography

America On Line, Armenia, *The World Fact Book*, Government Guide.

American International Health Alliance, *FY 02 Armenia Workplan*, October 12, 2001.

Belli, Paolo, *Ten Years of Health Reforms in the ECA Region: Lessons Learned and Options for the Future*, The World Bank, May 2000.

Gomart, E., *Report on Social Assessment in the Health Sector*, AUA, as cited in *Country Papers: Armenia*, USAID.

Government of Armenia, "The Law of the Republic of Armenia on Reproductive Health of Humans", Article 11 on Abortion.

Hovhannisyan, Samvel, E. Tragakes, S. Lessof, H. Aslanian and A. Mkrtchyan, *Health Care Systems in Transitions: Armenia*, European Observatory on Health Care Systems, 2001

Keller, W., and C.M.Fillmore, WHO Statistics Quarterly, 1982.

Keller, W., 1984 Nestle's Nutritional Review Series, Nutritional Stunting.

Kutsin, Joseph, *Towards Universal Health Care Coverage: A Goal-Oriented Framework for Policy Analysis*, World Bank, 2000.

Ministry of Health of the Republic of Armenia, *Concept of the Strategy of Privatization of Health Care Facilities*, Yerevan, 2000.

Ministry of Health of the Republic of Armenia, *Evaluation of the National Immunization Programme of the Republic of Armenia*, 1999.

Ministry of Health of the Republic of Armenia, *Main Directions of Armenian Ministry of Health 1999-2002 Health Care Development Strategy*.

Ministry of Health of the Republic of Armenia, "The Need for Privatization of Health Care Facilities," *The Strategy of the Ministry of Health*, Yerevan.

Ministry of Health of the Republic of Armenia, *The Strategy of Health Care System Development in Armenia 2000-2003*, Yerevan, 1999.

Ministry of Health of the Republic of Armenia, the State Health Agency, *Concept of Introduction of Medical Insurance in the Republic of Armenia*, Yerevan, 1999.

Ministry of Health of the Republic of Armenia, *2000 Statistical Report Book*, Yerevan, 2001

Murray, Christopher, and Alan Lopez, "Global mortality, disability, and the contribution of risk factors: Global Burden of Disease Study," The Lancet, v.349, May 17, 1997, pp. 1436-42. As cited in Belli, Paola, p.9.

Mkrtchyan, Ararat, *New Trends in Armenia Health Care*, Akop Megapart, Yerevan, 2001.

National Statistical Service, *Armenia Demographic and Health Survey 2000*, with the Ministry of Health and ORC Macro, Calverton, Maryland, December 2001.

PADCO, *Armenian Social Transition Program November 2001 Survey*, USAID.

PADCO, *Proposal for Armenia Social Transition Program*, May 5, 2000.

PADCO, *Report No 22: Assessment of the Capacity of Non-Governmental Organizations in Armenia to Support AST Pilot Projects*, USAID, February 2001.

PADCO, *Report No 26: Procedures for Building Collaboration Between the GOAM and NGOs Under the Armenia Social Transition Program*, USAID, March 2001.

PADCO, *Report No 42: Plan of Program to Enhance Health Information Systems in Armenia*, USAID, July 2001.

PADCO, *Report # 47: An Assessment of Health Financing Options for Armenia*, by Alexander Telyukov, Abt Associates Inc., USAID, August 2001.

PADCO, *Report No. 62: Recommendations for a Strategy to Implement Licensing and Accreditation in Armenia*, USAID, March 2002.

PADCO, *Report No 64: Improving Health Management Indicators for Armenia*, USAID, December 2001.

PADCO, *Report No 66, Recommendations For the Reform of Health Care Finance in Armenia*, USAID, January 2002.

PADCO, *Report No.70: The Armenian Social Transition Program Third Survey on Public Use of, Knowledge of, and Perception of Social Services*, USAID, March 2002

PADCO, *Report No. 70: Recommendations for the Development of Health Quality Care Development Systems in Armenia*, USAID, February 2002.

PADCO, *Draft: Report No 77: Draft of Law to Introduce Mandatory Health Insurance*, USAID, April 2002.

PADCO, *Seventh Quarterly Report of the Armenia Social Transition Program: January 1- March 31, 2002*, April 2002, plus previous quarterly reports

Papazian, Dennis R., *Armenia and Armenians*, University of Michigan, (www.hr-action.org/armenia/armenians.html).

Purvis, George, *Pilot Site Development in the Health Systems Component of the Armenia Social Transition Project*, January 14- February 3, 2001.

Presidential Commission on Problems of Women, Family, and Demography, 1997, *The Current Mortality Situation of the Population of Russia*, as cited by Belli, P, The World Bank.

PRIME II/Intrah Trip Reports and workplan.

Rogers, Everett, and F. F. Shoemaker, *Communication of Innovation: A Cross-Cultural Approach*, The Free Press, 1971.

Ruschman, Donald, *Armenian Pharmaceutical Sector*, USAID, January 2002.

Taylor Associates International, *Private Hospital Investment Opportunities*, International Finance Corporation, 1997.

UNICEF/Armenia, *Assessment of Antenatal Care in Armenia*, Mission Report, October 12-25, 1999.

UNICEF, *Proposal and Final Report on Iodine Deficiency Disease Project.*

UNICEF, *A Situation Analysis of Children and Women in Armenia*, Save the Children, 1998.

USAID/Armenia, HIV/AIDS Strategy and supporting documentation.

USAID/Armenia, *Performance Monitoring and Evaluation*, a workshop presentation, March 2002.

USAID/Armenia, *Results Review and Resource Request (R4)*, 2001.

USAID/Armenia, Social Transition Program, USAID/Armenia Program 1999-2003.

USAID/Armenia, *Strategic Plan, FY 1999-FY 2003*, March 1999.

World Bank, Staff Appraisal Report, "Primary Health Care Component," *Armenia Health Project*, Staff Appraisal Report, April 1997.

World Bank, Staff Appraisal Report, *Armenia Health Financing and Primary Health Care Development Project*, Republic of Armenia, June 30, 1997.

World Bank, Mid-Term Review Mission, *Armenia Health Financing and Primary Health Care Development Project*, Aide Memoire, March 9-19, 2001.

World Bank, Mid-Term Review Mission, *Armenia Health Financing and Primary Health Care Development Project (CR2979-0)*, World Bank/Yerevan, April 5, 2001.

World Bank, *Annex 1: Armenia Health Sector Indicators.*

World Bank, *World Development Report 1993: Investing in Health*, 1993.

World Health Organization, *Highlights on Health in Armenia, 2001* and *Health Statistics Annual, 2000.*