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# HOW GREAT IS THE BURDEN OF HOUSEHOLD HEALTH EXPENDITURE IN ARMENIA

November, 2008

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## PREFACE

Financial access to high quality health services among vulnerable populations is a priority goal of the Ministry of Health (MoH) of the Government of Armenia. With this study, the Primary Healthcare Reform (PHCR) project is pleased to support the MoH by analyzing health expenditure data from a representative nationwide sample of households and showing the extent to which this important goal is being met, where the gaps are, and some options for how these gaps may be reduced.

Professor Frank Feeley of Boston University School of Public Health, Dr. Lusine Aydinyan of the PHCR Project, Kelly McCoy of Boston University and Garnik Harutyunyan of the PHCR project are the primary authors of this study. We would like also to thank John Vartanian, Gagik Ghazakhetsyan, and Gayane Igithkanyan of the PHCR project for their useful comments and support. In addition, we want to thank the National Health Accounts Working Group members and officials from the State Health Agency of the MoH for their collaboration, and, the Armenian National Statistics Service for providing us with the data from the “Survey of 2006 Household Expenditures” as well as the household “Living Standards Measurement Survey” from various years.

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

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

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## **ACRONYMS**

<b>GDP</b>	Gross Domestic Product
<b>HH</b>	Household
<b>HSPA</b>	Health Sector Performance Assessment
<b>LSMS</b>	Living Standards Measurement Survey
<b>MTEF</b>	Medium Term Expenditures Framework
<b>NIH</b>	National Institute of Health
<b>PHCR</b>	Primary Health Care Reform Project
<b>WHO</b>	World Health Organization

## **EXECUTIVE SUMMARY**

Despite progress in the availability and affordability of primary health care, the 2006 household (HH) health expenditures survey reveals that Armenia has a severe problem with out of pocket health expenditures, particularly for drugs and hospital services. On average, population of Armenia spend 12.3% of reported income for health care, but this rises to 26.2% of income in the poorest 20% of the population. Hospital costs alone take 14.7% of the total income of the poorest, compared to 2% of the income of the wealthiest 20%. For the poor, hospital care in Armenia was certainly not free in 2006. The poorest quintile of the population actually paid more for hospital services than the wealthiest quintile.

Another measure of the burden of household health expenditures is the portion of households incurring medical expenses that are catastrophic by international definition. Such expenses exceed 40% of income in excess of the relevant national poverty line. Using an estimate of household income that is relatively generous, the 2006 survey shows that 16% of Armenian households had catastrophic health expenditures if we use the extreme (food only) poverty level. Medical expenses were catastrophic for 26% of Armenian households if we use the higher, more general poverty level. In a large study of such surveys throughout the world, no country reported more than 11% of households with catastrophic health expenditures. Only a few had 5% of the households so severely affected by health costs. For Western industrialized nations, even the United States, less than 1% of households are struck by catastrophic health expenses each year.

The 2006 survey did not fully measure the extent to which patient costs deter medical care in Armenia. It did ask how many households did NOT seek care for an illness or injury. This percentage is coming down, just as the number of visits to primary health care providers is going up; a vindication of the Government's effort to rapidly ramp up primary care expenditures. But the survey did not ask if patients obtained the services to which they were referred, or filled the prescriptions they received. Therefore we do not know the extent to which cost is keeping Armenians from receiving recommended medical services. However, we can infer from some data, like the percentage of households getting hospital care, that poorer households are not receiving needed hospital treatment for some conditions. The next household health expenditure survey (scheduled for early 2009) should include questions which directly address this issue of recommended care forgone due to cost.

The high levels of out of pocket cost, as well as high proportions of households with catastrophic medical costs are inevitable in an economy that spends only

2% of GDP in public funds for health care, and has no system of public or private health insurance. It is not the role of this paper to suggest the right option to increase public and risk pooled funding for health care and thus decreases out of pocket payments. The 2009 household survey will offer an opportunity to assess the impact of the Government policies to date in boosting primary care and maternal health spending. But, before the data are analyzed, it is time to begin a discussion of the options available to Armenia to address the continuing high burden of out of pocket medical care costs.

## INTRODUCTION

In 2006, Armenia conducted a health expenditure survey of 1,600 households<sup>1</sup>. Data for this survey were used to prepare a profile of private health expenditure in the 2006 National Health Accounts. This showed that approximately 51.5% of total health expenditures in 2006 were made out of pocket, a bit less than twice the percentage paid by the Government. There is no mandatory health insurance in Armenia and voluntary health insurance is insignificant. Therefore, households must cover the medical care costs not funded by Government. The remainder of health expenditure comes from foreign donors.

Out of pocket spending on health care appears to be falling as a percentage of total expenditure in response to the Government's increasing allocation to health, particularly primary care. In 2004, public funds were estimated to cover 24.4% of health expenditure; by 2007, this proportion was estimated to have risen to 35.6% of the total. However, the only real evidence for the amount of out of pocket spending comes from the household health expenditure survey, which has not been repeated since 2006.

In parallel with improvements in the economy, the proportion of health funding coming from Armenian households appears to have fallen from a high of 80% or more during the worst years of post Soviet economic depression. However, the reported level of out of pocket expenditure is still very high by European standards. The survey results suggest that Armenians are still paying for some of the services funded by the Government under the Basic Benefits Package. Primary care, maternity and emergency care and selected other services are supposed to be free for all Armenians, while a larger package of services is subsidized for the poorest. Nevertheless, the 2006 household survey shows that out of pocket health expenditures remain substantial. This suggests that some

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<sup>1</sup> Only 1, 548 of these households reported their income, and only this subset of the survey is used in the analysis of catastrophic health expenditures later in this paper.

Armenians do not obtain medical services because of their cost, and indicates clearly that a portion of families in Armenia experience medical expenses that are catastrophic by international standards. In this paper, we use the data from the 2006 health expenditure survey to show the distribution of the burden of out of pocket health expenditures by type of service and by the household income. We also estimate the percentage of households in Armenia that incurred catastrophic health expenditures in 2006. From this analysis, we make suggestions for the scheduled household expenditure survey in 2009. The analysis also raises questions that must be addressed in the Government in planning for health care funding in the longer range.

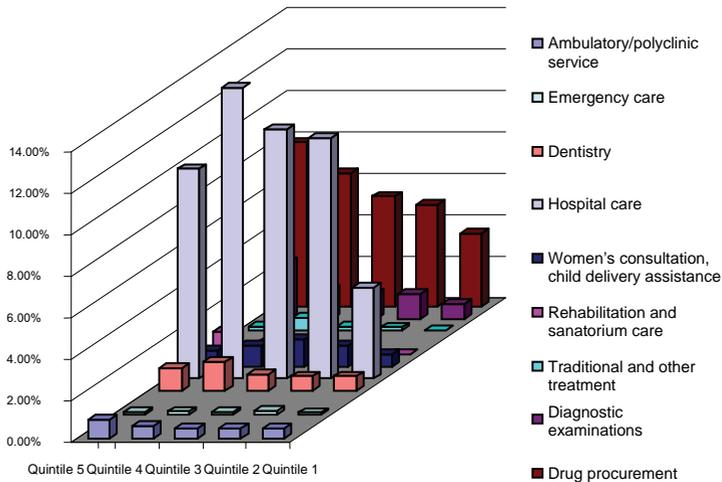
## **DISTRIBUTION OF BURDEN OF OUT-OF-POCKET COSTS**

### **BY TYPE OF CARE**

Two types of costs account for more than three quarters of the out of pocket health expenditure in Armenia- hospital care and pharmaceuticals. Figure 1 illustrates graphically how total out-of-pocket expenditures are distributed. The total of all columns in the graph equals 100% of out-of-pocket expense. Quintile 1 is the poorest 20% of the population. Expenses for hospital care alone by this group were 10% of all out of pocket medical expenses. Collectively, the poorest paid more for hospital and pharmaceutical expenses than did the richest 20% of the population. In fact, the richest quintile paid less for hospital expenses than any other income group. For the population as a whole, hospital expenditures are 6.2% of income and drugs are 3.3% of income.

There is good news in this data. The cost of primary care does not appear to be a great burden on the population. Formal and informal charges for ambulatory and polyclinic services averaged only 0.4% of household income and all such payments in total were less than 5% of total out of pocket health spending. Charges for emergency care are minimal and reported as 0.1% of income or less for all income groups. Diagnostic examinations, women's health and maternity services, and dentistry are the most significant cost categories after hospital and pharmaceutical expenses. Diagnostic services average 0.8% of income (6.5% of total out of pocket spending), women's health services 0.6% of income (5% of total out of pocket spending), and dentistry 0.5% of income (4% of total out of pocket spending).

**Figure 1. Household health expenditures by income quintiles**



\* Source *Survey of 2006 Household Health Expenditures*

### BY INCOME GROUP

Table 1 below contains data on the burden of out of pocket health expenses measured as a percentage of income. It shows that the impact of out of pocket health care costs is regressive: the poor pay more, proportionately, than the rich. Across the middle 60% of the population, out of pocket costs are relatively constant at 9% to 11% of income.

Despite the larger benefit package provided to the poorest Armenians under the state guarantee program, the poor are allocating a large portion of their incomes (which are generally below the poverty level) to health care.<sup>2</sup> For the poorest 20% of the population, health care expenditures were more than a quarter (26%) of the reported income. For the richest 20% of Armenian population, health care expenditures were only 5.2% of the income. This disparity between income groups is particularly notable for hospital care; hospital costs were 14.7% of the

<sup>2</sup> In 2006, 26.5% of Armenians lived below the poverty level, while 4.1% were extremely poor; eg, they had incomes below the minimum level necessary for an adequate diet. Part 1—Armenia: Economic Growth, Poverty and Labor Market in 2004-2006, p. 22.

income of the poorest, but only 2% of the income of the wealthiest quintile. There was a large disparity in the burden of women's health care costs as well: 1.3% of income for the poorest, 0.2% of income for the wealthiest. Clearly, even the poorest population in Armenia is paying, officially or unofficially, for services which were included in the basic benefit package to which they were entitled.

**Table 1. Proportion (percentage) of healthcare expenditures from household income**

Type of service	Quintile 1 (poorest)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (richest)	Average
Ambulatory-polyclinic services	0.7%	0.5%	0.3%	0.2%	0.2%	0.4%
Emergency care	0.2%	0.1%	0.07%	0.06%	0.03%	0.1%
Dentistry	0.9%	0.5%	0.5%	0.6%	0.2%	0.5%
Hospital care	14.7%	3.7%	5%	5.6%	2%	6.2%
Women's consultation, child delivery assistance	1.3%	0.5%	0.8%	0.4%	0.2%	0.6%
Rehabilitation and sanatorium care	0.4%	0.07%	0.08%	0.2%	0.2%	0.1%
Traditional and other healthcare	0.2%	0.02%	0.1%	0.2%	0.03%	0.1%
Laboratory and instrumental diagnosis	1.5%	0.6%	0.7%	0.6%	0.5%	0.8%
Drugs, food supplements and medical supplies	6.2%	2.9%	3.2%	2.6%	1.6%	3.3%
<b>Total</b>	26.2%	8.8%	10.8%	10.6%	5.2%	12.3%

*\*Source Survey of 2006 Household Health Expenditures*

## EFFECT ON CARE SEEKING BEHAVIOR

Expenses, or the fear of medical expenses, are one reason that people do not seek medical care. A 2007 survey found that financial barriers were the biggest reason that Armenians did not seek medical care. Forty seven percent of households not seeking medical care reported that they refrained due to financial reasons.<sup>3</sup> Only 36.2% stated that cultural reasons caused them to forego medical care. However, there are really two questions to be addressed when we ask if costs prevent people from obtaining medical care. The first is: “Did you seek any formal medical care when an illness or injury occurred?”. The second question asks what happened once the patient entered the health care system. Did the patient obtain the services or drugs which the physician recommended?

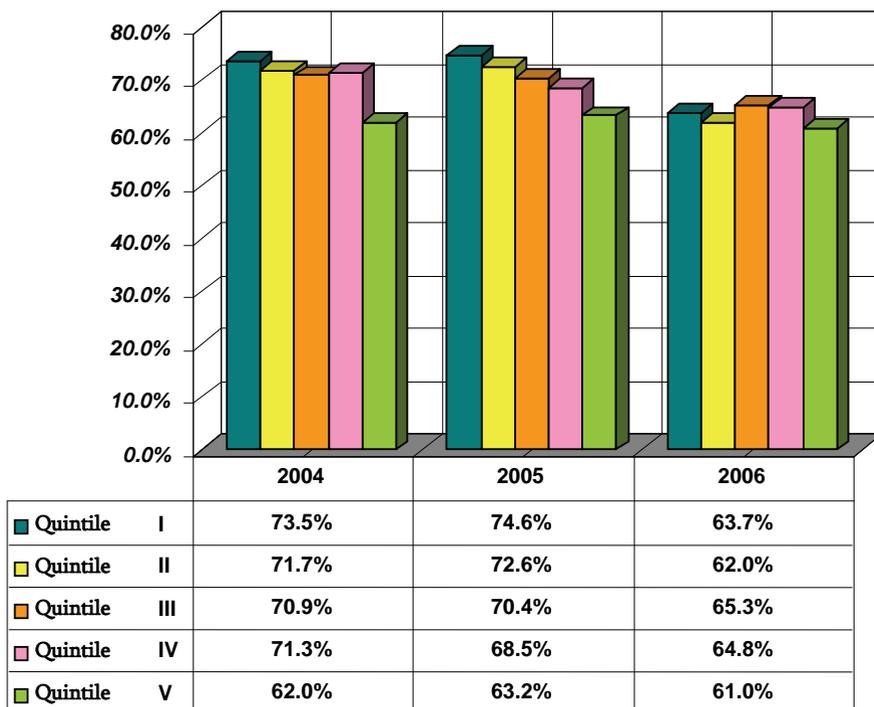
The household health expenditure data help to answer the first question. Figure 2 shows the percentage of households in each income quintile that did not seek medical care for an illness or injury in the years from 2004 to 2006. The percentage for all income quintiles decreased over this time. Of equal importance, the difference between the poorest and the richest decreased substantially by 2006, with the poorest (63.7%) only slightly more likely than the wealthiest (61%) to not seek treatment or consultation<sup>4</sup>. This appears to be a vindication of the Government policy focusing health care funding increases in primary care. These data, in parallel with reports of increasing frequency of primary care visits, suggest that initial medical care is more affordable and accessible for majority of population of Armenia.

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<sup>3</sup> Health Sector Performance Assessment (HSPA) Survey, 2007; developed by Armenia National Institute of Health Working Group on Health System Performance Assessment and quoted in Health System Performance in Armenia; Strategic Review Summary, 2007.

<sup>4</sup> Proportion of households not seeking consultation or treatment for injury or illness may seem high. However, the question did not distinguish the severity of the condition, and may reflect the willingness of many Armenians to self-treat minor illness, let some self-limiting illness (such as the flu) run their course, or accept moderate levels of discomfort without seeking treatment.

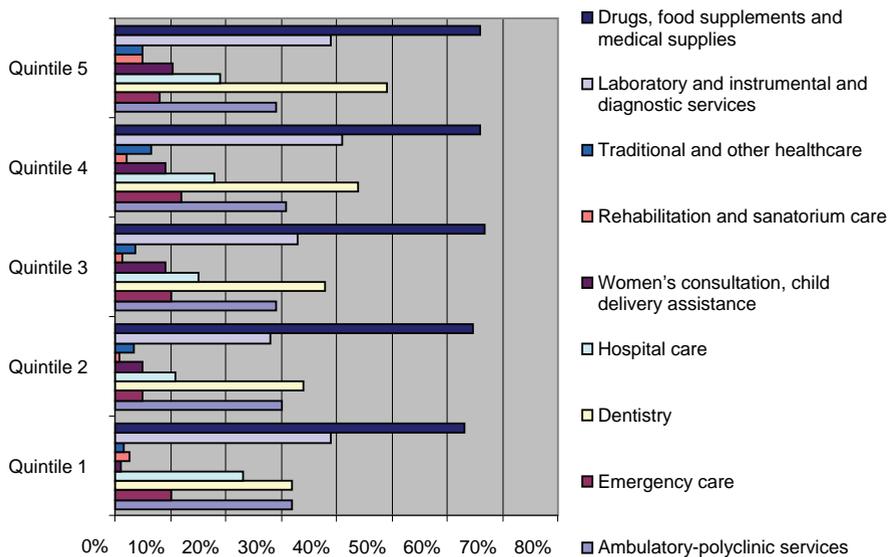
**Figure 2. Percentage of Households Not Obtaining Medical Advice or Consultation for an Illness or Injury, by income quintile (Quintile 1 = Poorest)**



\* Source National Statistics Service, 2004, 2005 and 2006 household's living standards measurement complete surveys.

The second question cannot be answered directly from the household health survey, because the survey asked only if respondents sought initial consultation or treatment. They were not asked if they obtained services recommended after they made contact with the health system. However, other data from the survey suggest that costs remain a significant barrier to obtaining recommended care. Figure 3 shows the proportion of households in each income quintile that obtained different services.

**Figure 3. Percentage of Households Obtaining One or More Services, By Type of Service and Income quintile (Quintile 1 = poorest)**



\* Source *Survey of 2006 Household Health Expenditures*

The poorest quintile were slightly more likely than the rich to use polyclinic services, perhaps not surprising, in view of the greater ability of the rich to go directly to private physicians or specialists. More than 60% of all quintiles obtained some drugs, although we know that the poor paid 6.2% of income for the drugs they obtained, while the rich paid only 1.6%. But, we cannot tell if the households obtained all of the drugs prescribed. The Ministry of Health recognizes that adult allowances for essential adult drugs are currently inadequate, and that some patients entitled to such drugs are told that the required drug is no longer available and the patient must purchase the prescription in the market.

Of particular concern is the disparity in the use of women's consultation and delivery assistance. Ten percent of the wealthiest quintile used these services in 2006, but less than 2% of the poorest. Perhaps, these poorest households contain a disproportionate number of pensioners beyond reproductive age, but the disparity seems to support the recent Ministry of Health program that provides much better funded vouchers for pre and post natal care and delivery services.

The real test of the impact of affordability on referrals comes with diagnostic services and hospital care. Approximately 40% of the wealthiest two quintiles

obtained some diagnostic services, but this proportion fell to about 30% for the next two, less affluent quintiles. For the poorest, it rose again to near 40%, but this is a group that usually has a much larger percentage of chronic disease, both because the elderly are often poor, and because chronic illness limits the ability to earn income. Thus, we would expect the objective “need” for diagnostic services among the poor to be greater than in the wealthiest segments of the population.

The trend in hospital care is similar, with the proportions using hospital services dropping steadily from near 20% for the wealthiest to little more than 10% in quintile 2. This percentage rises to over 20% for the poorest quintile, but as noted above, this group is likely to have a much greater frequency of chronic disease, and to need more hospital care. The care is clearly not free to this poorest group, since they report spending 14.7% of their income on hospital care. But, we do not know how much hospital care was recommended, but never received, because of the fear of these costs.

## **EXTENT OF CATASTROPHIC HEALTH EXPENDITURES**

Viewed in the aggregate, the out of pocket costs of medical care were considerable, and clearly regressive. But the burden of disease, and medical care costs, is not distributed evenly across the population, or even across any sub-group defined by income. In 2006, Armenian hospitals reported 270,000 admissions, or one for every 11.9 citizens in the nominal national population of 3.2 million<sup>5</sup>. Thus, the reported hospital expenditures are incurred by only a portion of the population. Some may have only minor diagnostic or consultation expenses, others may have major expenses for surgery and hospitalization or prolonged treatment of a chronic illness. The same is true for pharmaceuticals; one family may pay during the year only for a course of antibiotics, while another attempt to purchase multiple drugs every month to deal with a life-long illness.

To account for these differences, and the extent to which medical expenses lead to (further) impoverishment of a sector of the population, economists measure the proportion of the population which is subject to catastrophic medical expenses in any one year. We have analyzed the 2006 health expenditure data to produce catastrophic health expenditure estimates for Armenia.

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<sup>5</sup> 2006 data from National Information and Analytic Center, Ministry of Health.

## **DEFINITION OF CATASTROPHIC HEALTH EXPENDITURE**

To provide a definition of catastrophic medical expenses across societies at different levels of income, economists have defined a household as having “catastrophic” expenses if it spends more than 40% of income in excess of the poverty line for medical costs. At this level, families are likely selling assets (perhaps productive assets such as land or livestock), or foregoing expenditures for food, housing, education or other essentials. The closer a family is to the poverty line, the more likely it is that a given level of health expenditure will result in a “catastrophe,” and the measure takes this phenomenon into account. Any medical expenses for a family with income below the level needed to obtain a minimum food supply are catastrophic.

## **CATASTROPHIC EXPENDITURES IN THE HOUSEHOLD SURVEY DONE IN ARMENIA**

To determine the proportion of Armenian households incurring catastrophic medical expenses in the 2006 survey, we made the calculations described in Appendix 1. The most important adjustment increased the reported income of each household by 67%. This reflects the observation that households tended to under-report income on the health expenditure survey, and that average reported household income in this survey was 40% less than the average reported in a general household living standard survey<sup>6</sup> also conducted in 2006. Thus, the estimates reported here are more “conservative” (find fewer households to have catastrophic medical expenses), than if we used the household income values reported in the survey.

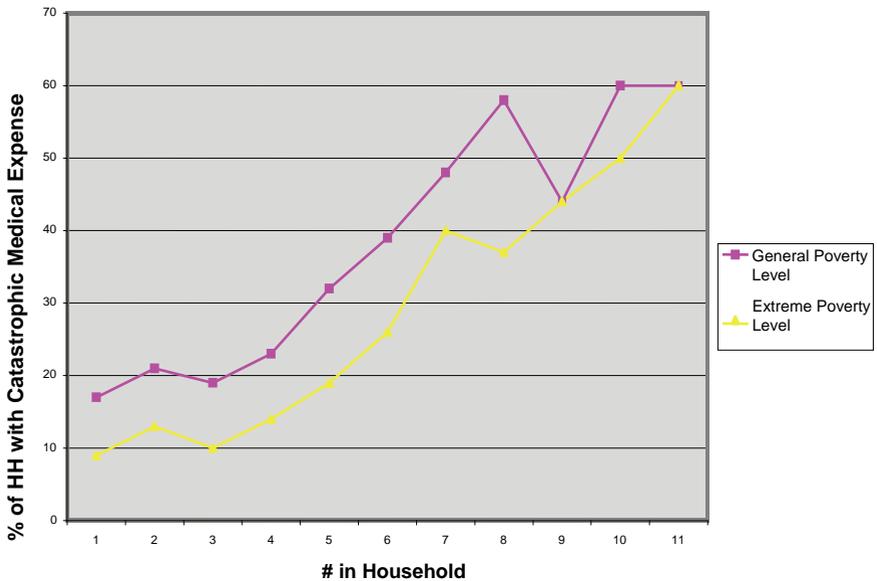
Armenia uses two definitions of poverty. One is an extreme poverty level that includes only the costs of a minimally adequate diet, with no allowance for other necessary expenditures. The other, general, poverty level is a higher level of household income that includes an allowance for non-food necessities. In 2006, the extreme poverty level for an individual adult was 14,300 AMD per month. The general poverty level was 21,555 AMD per month. The poverty level for households of different size and age composition was determined using the formula shown in Appendix One.

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<sup>6</sup> Household living standards measurement survey (LSMS), Armenia National Statistical Service, 2006.

The calculations show that 16% of Armenian households (255/1,548 in the sample that reported income) had catastrophic medical expenses, if we use the extreme poverty definition, and 26% (405/1,548) had catastrophic medical expenses, if we use the general poverty definition. Between one in four and one in six Armenian households actually incurred health expenditures that are catastrophic by international definition. This measure says nothing about families that may have avoided medical care because they could not make such expenditures. As shown in Figure 4, the proportion of households with catastrophic health expenditures rises as household size increases. It is not surprising because available income is stretched over more people and the risk of major illness rises with the number of household members. The values for very large families should be treated with caution, since there were relatively few in the sample.

**Figure 4. Variation in Catastrophic Expense by HH Size**



## COMPARISON TO OTHER COUNTRIES

In 2003, a widely quoted article by Xu, Evans et al in *The Lancet* surveyed catastrophic health expenditures reported from health expenditure surveys. Table 2 below is taken from their analysis. In general, industrialized countries that have fully developed national health or social insurance systems report that far less than 1% of households have catastrophic health expenditures each year. Even in the United States, with its well publicized problem of the uninsured, catastrophic medical expenses hit only one half of one percent of households each year. The proportion of households with catastrophic health expenditures is higher in developing countries, particularly those with highly unequal incomes or low levels of public health expenditure. But in none of the countries reported did the percentage of households with catastrophic expenditures exceed 10.5 % of the total. Only Vietnam and Brazil had more than 10% of households with catastrophic health expenditures, and only five others exceeded 5% (Argentina, Azerbaijan, Cambodia, Colombia, and Lebanon). Other post Soviet states (Estonia, Latvia, Lithuania, Kyrgyzstan, Ukraine) reported catastrophic health expenditures for 0.3% to 3.86% of households. Generally, but not always, the size of the sample for the household surveys reported by Xu and Evans is larger than the 1,600 households in Armenia that participated in the 2006 survey, so the range of error in the Armenian estimates may be somewhat larger than that for many countries in Table 2. Nevertheless, the levels of catastrophic health expenditure we report here for Armenia are “off the charts” compared to international standards.<sup>7</sup>

**Table 2. Proportion of Households Reporting Catastrophic Health Expenditures in the Past Year**

Country	Date of HH Health Expenditure Survey	% of Survey Reporting Catastrophic Health Expenditure in Last Year	Range of Catastrophic Expenditure Estimates (%) (High—Low)
Argentina	1996-97	5.77	(5.51-6.02)
Azerbaijan	1995	7.15	(6.43-7.86)
Bangladesh	1995-96	1.21	(1.01-1.41)
Belgium	1997-98	0.09	(0.01-0.18)

<sup>7</sup> Information in this paragraph and Table 2 is taken from Ke Xu, David Evans et al, “Household catastrophic expenditures; a multicountry analysis.” *The Lancet*, Vol. 362, June 12, 2003, p. 111-117.

<b>Country</b>	<b>Date of HH Health Expenditure Survey</b>	<b>% of Survey Reporting Catastrophic Health Expenditure in Last Year</b>	<b>Range of Catastrophic Expenditure Estimates (%) (High—Low)</b>
Brazil	1996	10.27	(9.49-11.04)
Bulgaria	2000	2.00	(1.77-2.23)
Cambodia	1999	5.02	(4.57-5.47)
Canada	1997	0.09	(0.06-0.13)
Colombia	1997	6.26	(5.88-6.64)
Costa Rica	1992	0.12	(0.00-0.23)
Croatia	1999	0.20	(0.10-0.29)
Czech Republic	1999	0.00	(0.00-<0.01)
Denmark	1997	0.07	(0.00-0.14)
Djibouti	1996	0.32	((0.17-0.47)
Egypt	1997	2.80	(2.39-3.21)
Estonia	1997	0.31	(0.13-0.49)
Finland	1998	0.44	(0.25-0.62)
France	1995	0.01	(0.00-0.02)
Germany	1993	0.03	(0.02-0.04)
Ghana	1998-99	1.30	(1.11-1.49)
Greece	1998	2.17	(1.93-2.40)
Guyana	1992	0.60	(0.33-0.87)
Hungary	1993	0.20	(0.11-0.29)
Iceland	1995	0.30	(0.10-0.50)
Indonesia	1999	1.26	(1.20-1.32)
Israel	1999	0.35	(0.23-0.46)
Jamaica	1997	1.86	(1.45-2.28)
Kyrgyzstan	1998	0.62	(0.38-0.86)
Latvia	1997/98	2.75	(2.47-3.04)
Lebanon	1999	5.17	(4.81-5.53)
Lithuania	1999	1.34	(1.15-1.54)
Mauritius	1996-97	1.28	(1.10-1.46)
Mexico	1996	1.54	(1.36-1.71)

<b>Country</b>	<b>Date of HH Health Expenditure Survey</b>	<b>% of Survey Reporting Catastrophic Health Expenditure in Last Year</b>	<b>Range of Catastrophic Expenditure Estimates (%) (High—Low)</b>
Morocco	1991	0.17	(0.10-0.25)
Namibia	1994	0.11	(0.04-0.18)
Nicaragua	1993	2.05	(1.76-2.34)
Norway	1998	0.28	(0.08-0.49)
Panama	1997	2.35	(2.07-2.62)
Paraguay	1996	3.51	(3.04-3.98)
Peru	1994	3.21	(2.84-3.58)
Philippines	1997	0.78	(0.71-0.85)
Portugal	1994-95	2.71	(2.42-3.01)
Rep. of Korea	1999	1.73	(1.65-1.80)
Romania	1994	0.09	(0.01-0.17)
Senegal	1994	0.55	(0.38-0.72)
Slovakia	1993	0.00	(0.00-<0.01)
Slovenia	1997	0.06	(0.01-0.12)
South Africa	1995	0.03	(0.02-0.04)
Spain	1996	0.48	(0.31-0.64)
Sri Lanka	1995-96	1.25	(1.13-1.37)
Sweden	1996	0.18	(0.06-0.42)
Switzerland	1998	0.57	(0.47-0.68)
Thailand	1998	0.80	(0.70-0.89)
United Kingdom	1999/2000	0.04	(0.01-0.07)
Ukraine	1996	3.87	(3.36-4.39)
USA	1997	0.55	(0.42-0.69)
Vietnam	1997	10.45	(9.90-11.0)
Yemen	1998	1.66	(1.46-1.86)
Zambia	1996	2.29	(2.03-2.54)

# IMPLICATIONS

## FOR 2009 HOUSEHOLD HEALTH EXPENDITURE SURVEY

The household health expenditure study scheduled for late 2009 offers the opportunity to test the impact of the recovering economy and Ministry of Health policies on affordability and accessibility. It is extremely important to ask not only if household members sought care for an illness or injury, but if they received care recommended after that consultation. The questions should distinguish care foregone by type of service, so we can see how different segments of society are deterred - if at all - in obtaining diagnostic services, drugs, women's health services and hospitalization.

Longitudinal analysis of the 2006 and 2009 surveys will also permit us to determine if health care in Armenia has become more affordable. Questions to be asked in the analysis include:

- How has the proportion of households with catastrophic health expenditures changed, both in aggregate and by income quintile?
- How has the percentage of household expenditure on health care changed, both in aggregate and by income quintile?
- Are the "big ticket" items for household health expenditure - hospitals and pharmaceuticals - still the same; has the absolute amount spent on these services (adjusted for inflation) changed at all?
- Has the disparity between poor and rich in the proportion of income expended on such items as hospital care, women's health services, drugs and diagnostics been reduced? In other words, has the Armenian health care financing system become less regressive? This will be a notable opportunity to test the impact of the new Voucher Policy for Maternity Services.

Given the importance of drug expenditures, and the known problems with the financing of essential drugs for adults, it may be desirable to further differentiate the questions about pharmaceuticals. In particular, it is desirable to know if large out of pocket drug expenditures are being made for important drugs for the treatment of heart disease and other major killers in the Armenian population, and if significant segments of the population are not obtaining these drugs when recommended because of the cost. It is certainly plausible that the cost of cardiovascular drugs (antihypertensives, cholesterol lowering drugs, diuretics) that must be taken continually are a barrier to optimum care for these chronic diseases.

## FOR HEALTH FINANCING POLICY

The reason that Armenia still has a high level of out of pocket medical expenditure, and a high proportion of catastrophic medical expense, is apparent. The total level of health care spending, although increasing, is still low by global standards. Armenia has a well developed health system, many doctors, and an aging and well educated population. It spends about 2% of GDP in public funding of health services, has no social health insurance system, and a miniscule voluntary health insurance industry. As a result there is no risk pooled funding for health care beyond the Government expenditure.

By comparison, other countries with similarly developed health systems and aging populations spend a minimum of 4% to 6% of GDP on health from taxes or risk pooling mechanisms. Estonia, for example, spent 3.8% of GDP on health care through taxes and social insurance, with only 1.3% (25% of total health expenditure) coming from patients, mostly for copayments and uncovered services.<sup>8</sup> In Western Europe, the percentage of public and risk pooled funding for health rises to 8% or more of GDP. It will not be possible to reduce out of pocket health expenditures to the levels seen in other developed countries (25% or less of total health expenditure), or to bring the proportion of households with catastrophic health expenditures down to the levels seen in other countries unless Armenia decides to commit a greater portion of the economy to health care through taxes or insurance mechanisms.

The Government has made a partial commitment to move in this direction in the medium term expenditure framework (MTEF). Public expenditure is expected to increase from 35.6% to 45.9% of health expenditure over the period from 2007 to 2011. However, private health expenditures in this period are only estimates. If higher than estimates, then the Government proportion will be lower. Expenditures for primary care are programmed to grow by 34% to 36% per year from 2008 to 2011. But total Government health expenditures are only programmed to grow by 22% in 2009 and 23% in 2010. So expenditures for all services outside primary care can only grow by 14% to 16% in those years. The planned increase in public health funding over the next three years does not appear to target the biggest sources of out of pocket expense- hospitals and drugs. However, a revision in the formula for funding essential drugs for adults might address this dimension of the affordability problem within the primary care budget.

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<sup>8</sup> WHO European Observatory on Health Systems, Profile of Estonian Health System, 2008

This slow rate of growth in expenditures outside primary care will make it difficult to cut into the major categories of out of pocket expenses - drugs, hospital care, and diagnostics. The recent radical change in reimbursement for maternity related services should reduce the out of pocket costs in this category. But without more rapid expansion in the total portion of the Government budget going to health care, rapid growth in the cost of maternal health services can only occur by delaying the planned improvements in primary care funding, or by further slowing the rate of growth of Government payment for other hospital services. If the growth in these payments slows, the burden of household expenditures for diagnostic and hospital services may well increase. In fact, the planned increase in the use of primary care may result in more referrals for diagnostic tests and hospital treatment as unrecognized diseases are diagnosed. This could increase the burden of hospital costs and increase the proportion of Armenians who do not obtain recommended medical services. Only analysis of periodic household surveys will tell us if this is actually happening.

To significantly reduce the burden of out of pocket expenditures, the Government must consider a further shift in public funding towards health (allowing faster growth in the funding for hospital and diagnostic services) or consider the options for mandatory social or other employment based health insurance. The Government's proposed Poverty Reduction Strategy proposes to increase public health funding to 3.5% of the GDP, but this target is set for 2021. Hospital budgets would receive a large portion of this further increase in health funding. But for the next few years, the Government is not planning to increase hospital funding dramatically (other than the voucher based increase for maternity services), so it will likely be difficult to reduce the burden of out of pocket health expenses. The 2009 household health expenditure survey offers an opportunity to test this hypothesis.

## **APPENDIX A: METHODOLOGY FOR CALCULATION OF CATASTROPHIC HEALTH EXPENDITURES IN ARMENIA**

The household income amounts reported in the 2006 health expenditure survey were generally considered to be an underestimate of actual income. This may occur because the focus of the study is on a detailed recounting of health expenditure, without a similar in-depth focus on reported household income. Perhaps households are less willing to fully report income, and techniques to reduce under-reporting are under developed. In any case, the average monthly per capita income (11,068 AMD) reported in the 2006 health expenditure study was 7,398 (40%) less than the average monthly per capita income (18,466 AMD) reported in the broader household living standard measurement survey (LSMS) conducted in the same year. The average LSMS income was approximately 1.67 (18,466/11,068) times the average income reported in the health expenditure survey. If we assume that income is under-reported in the household health expenditures survey, then a direct calculation of the number of households with catastrophic health expenditures will be an overestimate.

To correct for this problem, and to produce a “conservative estimate” of the proportion of households with catastrophic health expenditures, we increased the reported income of every household in the health expenditure survey by 67% to reflect the difference in average reported income between the two surveys. We then conducted the necessary analysis to estimate the proportion of households with catastrophic expenditures. In effect, we have increased reported incomes by 67% without increasing reported health expenditures.

We obtained the 2006 household health expenditure survey data showing the size and composition of each household, reported income and reported health expenditures. We then took the following steps:

1. Multiplied the reported income of each household by 1.67 (to adjust for the fact that average HH health expenditure survey incomes were 40% less than reported in the LSMS).
2. Calculated the poverty level for each household according to the poverty standards for an Armenian household of similar size/composition in 2006.

These calculations were conducted using two poverty standards:

- An “extreme” (food only) poverty standard. The amount of income necessary to feed the family. There is no allowance for housing or other expenses. The 2006 standard for a single adult was 14,300 AMD<sup>9</sup> per month.

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<sup>9</sup> Part 1 Armenia: Economic Growth, Poverty and Labor Market in 2004-2006. p. 23

- The general poverty standard; a higher amount which includes some allowance for housing, transport, etc. The 2006 standard for a single adult was 21,555 AMD<sup>10</sup> per month.

Of course, children eat less than adults, and there are savings resulting from multiple individuals living in the same household. To reflect this, the Armenia poverty standard is adjusted for households with more than one member as follows:

$$\text{Household poverty level} = \text{Individual Adult Poverty Level } X (A + .65C)^{.87}$$

where A is the number of adults in the household and C is the number of children 14 and below. 0.87 is the scale parameter which reflects the economies of multiple individuals living in the same household.<sup>11</sup>

3. Deducted the poverty standard (extreme and general) for each household from its income as adjusted in step 1. This produces two measures of “discretionary” income for each household.
4. For each household, divided the amount of reported health expenditure by the amount of income above the extreme and general poverty levels. Because hospital expenditures were reported for a six month recall period and other health expenditures for a four month period, we adjusted the reported amounts to a monthly average and totaled the monthly average for all categories of health expenditure.
5. Counted the number of households that had reported health expenditures in excess of 40% of income above the extreme and general poverty levels. These are households with catastrophic health expenditures.
6. Reported the percent of all households that had catastrophic health expenditures. Because the “extreme” or “food poverty” standard is a lower amount, the discretionary income above this amount is larger for any family. Thus, for a given level of health expenditure, fewer families will have a catastrophic health expenditure if we use the “extreme” or “food poverty” standard than if we use the general standard.

The results show that 255 of 1,548<sup>12</sup> households (**16%**) had catastrophic health expenditures if we use the extreme poverty standard, and 405 of these households (**26%**) have catastrophic health expenditures if we use the higher general poverty standard.

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<sup>10</sup> Ibid.

<sup>11</sup>Part 4 Armenia, Subjective Poverty in 2006, p. 115

<sup>12</sup> The survey included 1,600 households, but only 1,548 reported household income.

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