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Performance Measures and Pilot Evaluation of Georgia's Medical assistance Program for Population below the Poverty Line

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**Performance Measures and Pilot Evaluation of Georgia's Medical
assistance Program for Population below the Poverty Line**

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2010

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Abbreviations

ASS	Agency for Social Services
BDD	Basic Data and Directions
CHE	Catastrophic Health Expenditure
CIA	Central Intelligence Agency
CIS	Commonwealth of Independent States
CPT	Household's Capacity to Pay
GoG	Government of Georgia
HeSPA	Health and Social Program's Agency
HIMS	Health Information Management System
HMIS	Health Management Information System
HUES	Household Utilization and Expenditure Survey
ICPC	International Classification of Primary Care
IRB	Institutional Review Board
MAP	Medical Assistance Program Below the Poverty Line
MoLHSA	Ministry of Labour, Health and Social Affairs of Georgia
MTEF	Middle Term Expenditure Framework
NCDC	National Center for Disease Control
NCSP	Nomesco Classification of Surgical Procedures
NHA	National Health Accounts
NMCUES	National Medical Care Utilization and Expenditure Survey, the U.S.
OESC	Countries enrolled in Organization for Economic Co-operation and Development
OOP	Out of Pocket Payment
PHC	Primary Health Care
SDS	State Department of Statistics
UNDP	United Nation's Development Program
USAID	United States Agency for International Development

I. Executive Summary

In recent years the Georgian health care system has been undergoing fundamental reforms aimed at improving the population's health status by increasing financial and geographic access to high-quality health care. To address limited financial access to health services of the poor, and protect them from catastrophic expenditures associated with illnesses and improve equity, the government restructured the centralized, financially and administratively unsustainable social security system, with a liberal welfare system focusing on providing a safety net for the poor.

In mid 2006, a proxy-means-tested system for the detection of poor households became operational and allowed for delivering targeted health services for households living below the poverty line. At the same time, as an important tool for implementation of Health Financing Policy, the Government launched the Medical Assistance Program for Population Below the Poverty Line (MAP). The program provides more than 700,000 people, registered in the database as the poorest, the benefit package (primary health care, specialized outpatient and inpatient services). The benefit package is purchased with public funds by private insurance companies. Insurance companies receive an insurance premium for each registered beneficiary from the Government and, through contractual relationships with health care providers' organizations, ensure that beneficiaries receive the above mentioned services.

As MAP is the first government attempt to target public health care benefits to the poor, the study aims to analyze the effectiveness of MAP and its impact on program objectives. Because MAP only defines broad goals and lacks clear and measurable performance indicators, the proposed study aims to: (a) develop a set of measures (input, output/outcome indicators) to evaluate MAP and (b) apply the performance measures to assess program impact on financial accessibility of health services, financial protection against catastrophic health expenditures and equity of access and health financing of the program beneficiaries (the poor households).

Based on the existing MAP evaluation papers and other literature, 30 possible performance indicators were defined. Using WHO methodology, these indicators were evaluated: 22 indicators were used as principal indicators; three indicators were termed secondary and supplemental; and five indicators were discarded. Among principal and secondary indicators, 16 indicators were available, eight were partially available and one was unavailable.

For each selected available performance indicator, detailed descriptions of measure (numerator, denominator), data sources, unit of analysis and time frames were identified. In case, where data gaps were found, the study developed recommendations to support data gathering through routine reporting systems and planned surveys.

Based on available data from different secondary data sources, a pilot evaluation of MAP was conducted, examining MAP inputs and its impact on: (a) benefit targeting, (b) utilization of health services; (c) financial access to health services; (d) financial protection of the population from catastrophic health expenditures; (e) equity of access and (f) equity of financing.

As the program was newly introduced and no baseline and follow-up data were available, it was difficult to ascribe evaluation results purely as program impact and exclude the influence of other variables. In addition, the study used secondary data from different sources and, in some cases data were not comparable and/or reliable. Given these limitations, the study does not allow

a conclusion that MAP 2006-2008 was effective in terms of reaching program objectives. Despite those limitations, the results of the evaluation findings clearly show some positive trends and evidence that changes could be useful in some areas.

Program Funding: Sustainable and growing program finance is represented in: (a) absolute values, (b) percent of government expenditures on health and (c) percent of total health expenditures. Clearly, the gradual increase of the program budget is the positive trend that enabled GoG to cover more beneficiaries under the MAP, but as health service coverage and annual limits for each service category varied through years (MoLHSA, 2008) (MoLHSA, 2009), the study was not able to correlate an increase in the per capita MAP budget with improved coverage of benefit services.

Benefit targeting: HUES shows that targeting the poorest remained low after one year of program implementation (on July 2007). Since MAP targeted about 15.6 percent of the population almost 100 percent coverage of the lowest quintile¹ should be expected for effective benefit targeting. The fact that 80 percent of the poorest quintile was not covered by MAP and 6.5 percent of MAP beneficiaries are from the richest richest quintile, raises serious concerns with regard to benefit targeting. Despite those concerns, the absolute number of MAP beneficiaries, as well as their share in total number of households registered in the database of socially vulnerable families and in the total number of poor in the country increased substantially.

Utilization of health services: MAP beneficiaries used 2.7 times more outpatient and 1.26 times more inpatient services than non-beneficiaries (HUES). In addition to the positive impact of MAP on service utilization rates in beneficiaries, the results partially could be associated with different health status as more beneficiaries reported to be sick (63.9 percent) than non-beneficiaries (58.3 percent). When compared service utilization among consumption quintiles, the study found that the poorest and 2nd consumption quintiles utilized less services in both beneficiaries and non-beneficiaries than 4th and the richest consumption quintiles. This findings together with problems in benefit targeting raise concern about financial access to health for the poorest quintiles.

Financial access and equity of access to health services: HUES found that financial access to needed hospitalization and lab tests was higher in beneficiaries than non-beneficiaries. Despite MAP's positive impact on access to hospital services, 11.1 percent of beneficiaries reported that they needed hospitalization in the last year but were not hospitalized because it was too expensive. In addition, 20 percent of MAP beneficiaries were not able to purchase prescribed medicines when only 19 percent of non-beneficiaries could not afford them. The study also found inequitable financial access to health services among consumption quintiles: population in the top two consumption quintiles are more likely to afford health services and drugs than the lower 3 quintiles.

¹ Consumption quintiles are used to distinguish the population according to their welfare: poorest households are grouped together into the 1st quintile, those with higher consumption into the 2nd quintile, and so on. Five quintiles rank the population from the poorest 20 percent to the richest 20 percent. In developing countries, consumption quintiles are considered more reliable measure of program's impact on people's welfare than income quintiles.

Financial protection of population from catastrophic health expenditures: MAP was successful in covering 10.1 percent of the population of Georgia with publicly funded health insurance where only 1.5 percent of the population had private/employer based health insurance (HUES). In 2008 the coverage increased up to 17.5 percent of the total population. Despite this positive trend, about 81.5 percent of the poorest are uninsured and the rate is higher in all other consumption quintiles. MAP succeeded in decreasing the level of uninsured in the poorest quintile, but if the benefit targeting was effective, MAP should cover almost the entire lowest quintile with health insurance. The high rate of uninsured, combined with a high poverty rate, contributed to a higher share of households facing catastrophic health expenditures. After one year of MAP implementation, about 11.7 percent of population faced catastrophic health expenditure with the highest share of the poorest quintile (17.7 percent).

Equity of finance: The study found that in mid 2007, the mean monthly household spending on health in beneficiaries was 50 GEL and in non-beneficiaries - 71 GEL. In absolute values, the households from the poorest quintile, on average, paid two times less on health than the households from richest quintile. In contrast, a percentage of a household's monthly consumption, devoted to health was higher in beneficiaries than in non-beneficiaries, and 70 percent higher in the poorest quintile than in the richest quintile. The study also found that the mean amount per case of drug purchase constituted 18.5 percent of households' monthly consumption and an average cost for a case hospitalization exceeded four times the monthly household consumption in the poorest households (while households' monthly consumption and average costs for a case of hospitalization was practically the same in the richest households). These results show health expenditures are not distributed equitably among population groups and any case of illnesses, associated with hospitalization and/or buying medicines, may impoverish the poor.

Policy implications of study findings and recommendations: In order to improve evidence-based MAP planning, the capstone project developed a logic model, and a monitoring and evaluation framework; suggesting routine use to measure the program's effectiveness. For this purpose, (a) institutionalization of monitoring and evaluation framework of MAP and (b) its integration in Health Management Information system on one hand and in evidence-based policy/program/budget cycle on the other is critically important. Consideration of study results about data gaps and recommendations on improvement of HIMS would be also helpful during the follow-up assessments of the program. Further research is also needed to identify possible areas of misreporting and develop useful tools for improvement data reliability.

The findings of the pilot evaluation of the program shows that despite positive trends in program funding and coverage, improved benefit targeting, increased financial access, increased financial protection as well as financial equity and increased access to health services for the poorest households is still needed. Broadly defined, the following policies are proposed for MAP to improve access to health services and protect the poor from catastrophic health expenditures: (a) Improve benefit targeting by evaluating effectiveness of the existing "means tested" system and develop-revise the system based on the findings; (b) Improve the benefit package and increase insurance limits for hospital treatment; and (c) Introduce drug benefits for MAP beneficiaries for outpatient treatment allowing the poor to access essential medicines.

II. Introduction

1. Problem definition

Georgia is a former Soviet Republic with a population of 4.3 million people. After 70 years of Soviet occupation, the country regained its independence in 1991. The transition to a market economy was very difficult and impacted by the loss of traditional markets. Georgia's GDP declined by 90 percent, the largest decline among transition countries² (Chitashvili et al., 2009).

Challenging socio-economic conditions were clearly reflected in the health care system. From the highly centralized soviet health financing model ("Integrated Semashko Model"), where the population's health care needs were provided by the state, annual per-capita public expenditures on health fell from about US \$13 in 1990 to \$0.80 in 1994 (European Observatory on Health Care Systems [EOHCS], 2002). It took 14 years to increase per capita public health expenditures to \$32.0 (Ministry of Labor Health and Social Affairs of Georgia, [MoLHSA], 2006). Despite the fact that public spending on health increased 40 times, out-of-pocket expenditures (both formal and informal) represented 72 percent of an average Georgian's total health expenditures in 2006, the highest in the Post Soviet Countries and the European Region (which averages approximately 25 percent) (World Health Organization [WHO], 2010). High out-of-pocket payment levels exacerbate the country's high poverty level (33.6 percent in 2006 (State Department of Statistics, 2010)) and may contribute to increased bankruptcy because of illness (EDPRP Georgia, 2003). The share of households facing catastrophic health expenditures has increased dramatically, reaching 11.7 percent in 2007. For the poorest quintile, this rate was 17.7 percent in 2007 (Gotsadze, Zoidze & Rukhadze, 2009). Catastrophic health expenditures may be related to the limited use of pre-payment and risk pooling schemes. For example, expenditures on private health insurance were only 1.5 percent of total private health expenditures in 2006 (MoLHSA, 2006).

Due to high out-of-pocket expenditures and limited financial access to health services, Georgia has the lowest health services utilization rates in Europe and Central Asia; less than 2 outpatient visits per person per year, less than 6 inpatient admissions per 100 person per year and less than 2 surgical procedures per 100 person per year (Hou & Chao, 2008).

Despite GoG's articulated commitment to universal health care, it was not economically viable and did not in fact exist. The government's contribution to total health expenditures was only 20 percent and it could not fully cover the population's health care needs. To make matters worse, the allocation of these public resources had developed historically, as the result of influence of different lobbying groups³ (Chanturidze, 2007). In addition to this problem, the vast majority of the publicly funded health care programs did not have sufficient funds to cover services for all beneficiaries, creating opportunities for corruption and raising problems related to access to publicly funded health services and provider reimbursements.

² Countries, whose economy is changing from a centrally planned economy to a free market

³ Different lobbying groups had influenced decisions on allocation of public resources. As a result, programs were not planned based on priorities. Sometimes, programmatic budgets involved direct financing of health care facilities (without competitive selection)

Georgia's health financing system was inadequate for ensuring accessibility to even basic health services. The heavy financial burden represented by out-of-pocket costs for medical care had a catastrophic influence, particularly for poor households; basic health services were either not available or impoverished these households.

2. Government's health financing priorities

To address the difficulties related to financial accessibility of health services, Georgia restructured its social security system to focus on providing a safety net for the most vulnerable part of the population. For this purpose, a "database of socially vulnerable families was formed, followed by introduction of means-testing to address the needs of the most vulnerable population, with benefits that include social subsidies, social and health services)" (Chitashvili et al., 2009). In mid 2006, a proxy-means-tested system⁴ for the detection of poor households became operational and allowed delivering targeted health services for households, living below the poverty line. For these population groups, MAP provides a benefit package (primary health care, and specialized outpatient and inpatient services), that is purchased with public funds from private insurance companies which have developed qualified "insurance products".

For Georgians who were not eligible for the Medical Assistance Program, GoG announced an affordable voluntary health insurance program in 2009. It covers the costs of urgent care in case of accident, 50 percent of costs of urgent non-accident inpatient care, urgent outpatient care, unlimited visits to a primary health physician and limited laboratory and diagnostic tests at the Primary Health Care (PHC) level. The government subsidizes 66 percent of the annual premium. Associated objectives of this program include stimulating a private health insurance market as well as orienting Georgians toward the purchase of health insurance.

Finally and for all Georgians, the Ministry of Labour, Health and Social Affairs of Georgia (MoLHSA) ensures universal coverage of "uninsured risks"⁵ public health services for the entire population and limited individual needs for some chronic diseases, such as hemodialysis, TB, HIV/AIDS, psychiatric care. A stand-alone state medical program covers also children under the age of three and adults older than 60, without participation of the insurance industry.

Through these complex changes in public health financing, GoG aims to increase financial accessibility to health services, improve equity and financial protection of the population from catastrophic health expenditure by replacing direct out-of-pocket payments with pre-payment schemes.

3. Medical Assistance Program (MAP) overview

3.1 Program Objectives

⁴ Proxy-means testing is a subset of the means-testing system, in which targeting is done through other (easy-to-collect) indicators or proxies to correlate the level of income/poverty of beneficiaries

⁵ Services that the private insurance market, generally, fails to cover: 1) population based public health services, considered as "public goods" and 2) limited individual health services (such as hemodialysis, TB and HIV/AIDS treatment) that are associated with high insurance risks

As indicated above, the program aims to increase financial access to health services, and improve equity and financial protection from catastrophic health expenditures for the population below the poverty line.

3.2. Program in Brief

The Medical Assistance Program for Populations below the Poverty Line (MAP) was launched in July 2006. It provided approximately 650,000 beneficiaries with a benefit package through direct purchasing of health services from health care providers by public expenditure through the Health and Social Program's Agency (HeSPA, public purchaser). The benefit package included:

- Urgent outpatient and inpatient services;
- Planned inpatient services;
- Out-patient diagnostic services upon referral from primary health care physician (financial limit set for this type of service is 200 Gel a year per beneficiary)
- Reimbursement of costs incurred during pregnancy and delivery;
- MAP beneficiaries' co-payments that they had to pay to get services funded by other state health programs.

In 2007 (Ministry of Labor Health and Social Affairs of Georgia, [MoLHSA], 2007) , the number of MAP beneficiaries increased up to 660,000. Additionally, in two pilot areas (Tbilisi and Imereti) the government started to finance benefit packages for the poor by purchasing insurance products from private insurance companies (in the rest of Georgia, the purchasing scheme was the same as in 2006). Hoping to gradually develop private health insurance market, the government extended the pilot to the rest of the country in 2008.

In this model of public-private partnership (See Appendix 2), MoLHSA continues to develop MAP, using the database of socially vulnerable families. Public purchaser, affiliated body of the MoLHSA, issues and delivers insurance cards to the beneficiaries of the program (This card is the proof of eligibility to be a beneficiary of the program. After receiving an insurance card, beneficiaries can choose a private insurance company and register through the company as a program beneficiary (insured) . If the beneficiary does not choose an insurance company, the state purchaser randomly assigns the beneficiary to a private insurance company (considering the number of registered beneficiaries that each insurance company has). The insurance company receives insurance premiums from the public purchaser for each registered beneficiary. Through contractual relationships with health care providers, the insurance company, in turn, assures that beneficiaries receive comprehensive primary health care, specialized outpatient and inpatient services, defined as a benefit package of the program. Thus, Government works as a larger "big employer" providing a huge insurance pool of poor households and insures them through a publicly funded health program. In order to meet with the requirements of the program, the public purchaser selects insurance companies on a competitive basis and administers the contracts with them.

3.3. Eligibility

Beneficiaries of the program are mainly determined through a means-testing system. In order to target social assistance effectively, the government started formation of a database of socially vulnerable families in 2005. Socio-economic conditions of more than 460,000 families have been assessed and ascribed ranking scores which indicate severity of poverty. This enables identifying those in highest need, as well as appropriate levels of social assistance for different households.

At present, households with a score below 70,000 are eligible to participate in the program. The eligibility score for the poor households for MAP did not vary after 2007. In 2009, the program beneficiaries also included the refugees from conflict regions (such as those from occupied Georgian territory by Russian Federation).

3.4. Administrating Agencies

MoLHSA is a central government unit responsible for development and implementation of labor, health and social policy of the country. During the past few years, MoLHSA has undergone considerable structural and functional changes. At present, its structure is centralized, consisting of functional (e.g., Department of Health, Department of Social Security) and administrative departments. Functional departments are responsible for the development and evaluation of policy and its implementation tools (publicly funded health and social programs, regulatory framework).

Policies/programs are executed by the affiliated agencies of MoLHSA. The Agency for Social Services (ASS) is responsible for administration of means-tested benefits and social subsidies while HeSPA administers state purchases of health and social services. Both agencies have regional (district) branches.

3.5. Planning

The Georgian government introduced the Middle-Term Expenditure Framework (MTEF) method for middle-term planning of the state's budget. According to the MTEF, priorities of different sectors, corresponding publicly funded programs and required resources for their implementation are determined annually by the ministries and submitted to the President and the Cabinet of Ministers for approval. At the next stage, the executive government submits a Basic Data and Directions (BDD) document to the parliamentary committees for discussion. After having received amendments, made by the committees, the Ministry of Finance uses BDD for defining the budget ceilings for each ministry. Ministries develop drafts of state annual budgets in their sectors. An integrated budget is subject to approval by the parliament.

At the MoLHSA level, priorities in the health sector and its implementation programs (including the program of our study) are determined by the Health Department. After the program is designed, its implementation is delegated to HeSPA.

III. Study objectives and Methodological Approaches

Considering the role that MAP plays in health financing reform of Georgia and the value of transformational changes it provides in public health financing system, there is a clear need to evaluate MAP's effectiveness.

1. **Study Goal:** the goal of the study is to analyze the effectiveness of MAP and its impact on financial accessibility⁶ of health services; financial protection against catastrophic health expenditures;⁷ and equity⁸ of access and equity of health financing specifically in poor households. As the program only defines broad goals and lacks clear and measurable performance indicators, the proposed study aims to:

- Develop a set of measures (input, output/outcome indicators) to evaluate MAP;
- Apply the performance measures to assess program impact on financial accessibility of health services, financial protection against catastrophic health expenditures and equity of access and health financing of the program beneficiaries (the poor households).

2. **Research Questions** Consistent with study goals, the capstone project addresses the following questions:

What indicators should be used to assess MAP?

- What measures should be used to assess program inputs, outputs and outcomes?
- Are these measures important, understandable, valid & reliable, actionable and feasible?

Does the application of the measures allow a conclusion that MAP is effective? Specifically, in terms of:

- Improving financial accessibility of health services for the poor;
- Protecting against catastrophic health expenditures;
- Ensuring equity of access and health financing.

3. Target Audience

The target audiences for the project are policy makers and chief executive government officials responsible for decisions regarding public health financing. The target audience includes but is not limited to the Prime Minister, Minister of Labour, Health and Social Affairs, Planners of Public Health Programs, Minister of Finance, and Members of Parliament.

⁶ Ability of the people to obtain appropriate health care at the right time based on needs

⁷ Protection of people against catastrophic expenditures, associated with illness

⁸ Equitable distribution of burden of financing the health system (equity of finance) and services provided in health care are based on needs rather than ability to pay (equity of access)

4. *Relation of the study to HPM Course Work*

The study objectives and the scope of analysis, as well as other parts of this capstone project are developed using the knowledge and experience acquired while studying in the HPM program. Working on the capstone project, the author integrated different concepts/perspectives and analytic techniques taught throughout the courses and transformed them into the recommendations that are most applicable to Georgia. For example, HPM 681 (Quality and Outcomes in Health Care) helped identify different sets of outcomes for a variety of interventions in the health system and assess their validity. For the final class project, the author developed an inventory of available health system performance indicators, relevant to the Georgian Health System goals and objectives, selected indicators according to the defined criteria and identified the final set of performance measurements to assess quality, effectiveness and efficiency of health services. Biostatistics (AMS 535) and Statistics in Public Policy (PPM 601) helped me to properly define and interpret indicators for each set of program objectives. PPM 602 (Research Design) refined my methodological approaches for program evaluation while PPM 620 (Introduction to Policy analysis) provided opportunity to use different analytic techniques for program evaluation. Analytic competency developed during the course of HPM 634 (Health Care Finance 1) helped assess reimbursement arrangements under MAP, as well as its implications for providers and payers. And finally, HPM 676 (Health Care Planning and Marketing) helped identify the target audience for the capstone project.

5. *Data Sources and Data Collection:*

In order to answer the study questions, the author used secondary data from different sources: administrative and legal documents (State Budget, approved publicly funded health programs), research articles, National Health Accounts, National Health Statistics, Health Care Utilization and Expenditure Survey) For each study question, indicators were defined to measure performance, and the data source for each indicator was defined. For example, to assess the share of public financing in the total health expenditure, National Health Accounts and the State Budget of the corresponding year was used. The Health Care Utilization and Expenditure Survey helped to obtain information about: illnesses of household members (disease groups, acute, chronic); utilization of services when sick (inpatient, outpatient, self-treatment); health insurance coverage (private, employer and public); awareness of publicly funded health insurance programs; financial ability of households to purchase prescribed medication and needed health services;⁹ and household and per capita health expenditures by types of services (inpatient, outpatient, ambulance, drugs and self-treatment).

6. *Human Subjects Review*

As the project is based on secondary data (research literature, administrative and legal documents, policy papers, National Health Accounts, National Health Statistics, the Health Care Utilization and Expenditure Survey, etc.) and does not involve human subjects, IRB approval was not required.

⁹ Health Service Utilization and Expenditure Survey, conducted in 2007 measures it as the percent of households who were able to purchase prescribed medication and pay for health services.

7. Methodology

In order to define performance measures for MAP, first existing evaluations of MAP in Georgia were reviewed to investigate what measures were used for program monitoring and evaluation. In order to expand the scope of analysis, other evaluation indicators, supported by the literature and relevant to the country's health system development objectives, were investigated and an inventory of possible performance measures was developed.

Then, the inventory of available/possible performance indicators was evaluated against the following criteria¹⁰:

- **Importance:** As determined by how well the indicator reflects a strategic dimension drawn from government priorities and reforms.
- **Understandability:** Meaning that a change in the indicator is clearly understood as reflecting a change in performance on the related strategic dimension.
- **Actionability:** An indication that the indicator value can be influenced by changes in government policies or regulations.
- **Validity and Reliability:** A selected indicator should measure what it is intended to measure in a consistent and reliable way.
- **Feasibility:** Considers if the required data is available, or obtainable at a reasonable cost.

The selection process was based on a rating scale (from -1 to +1). The interpretation of a rating scale for criteria 1 to 4 (important, understandable, actionable, valid and reliable) considered the following options: -1_ Criteria not met; 0_ Criteria largely met, +1 _ Criteria completely met. Rating scale interpretation for criteria 5 (feasible) was different: -1_ Information impossible to collect; 0_ Information not collected yet but possible to collect at a reasonable cost; +1 _ Information readily available. Assignment of a specific score (-1, 0, +1) to each criteria of preselected indicators was based on literature review and personal experience.

Summing the rating scores, each indicator was defined as A, B or C (A=2 to 5; B =-1 to 1; C=-5 to -2):

A: The main indicator;

B: Second stage indicator that could be used as supplemental (supported by specific explanations on possible issues of misreporting, if any).

C: Not available, not feasible or serious quality issue, requiring further development of data collection tool or to discard it.

The ranking process is summarized in Appendix #3 followed with specific explanations.

Based on evaluation results of preselected performance indicators, final set of selected performance measures was developed (Appendix #4).

In order to conduct the pilot evaluation, the author identified data sources for selected performance indicators and collected secondary data for each indicator. In cases, where data

¹⁰ Selection criteria and rating tool is based on resources of WHO

were not available, data gaps were identified, and recommendations provided to ensure accessibility of currently unavailable data in the future.

Finally, a pilot evaluation of MAP was conducted using available data. Because MAP is a newly introduced program (June, 2006), it was difficult to conclusively evaluate the program. Thus, the main focus was made on the preliminary evaluation of MAP, clarifying the problems and providing baseline information for decision makers to improve and refine MAP in the next few years.

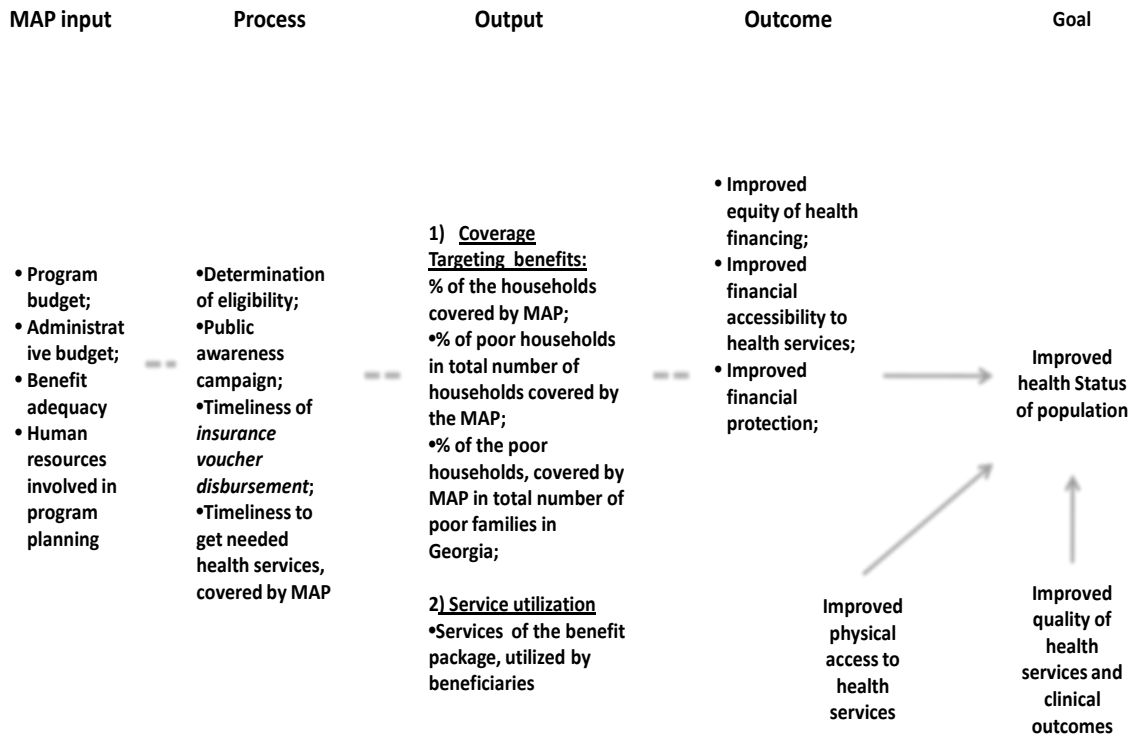
IV. Indicator development

1. Logic Model

In order to define the framework for MAP evaluation and interpret its findings, it is important to first conceptualize a logic model. While the logic model proposed below does not fully reflect every aspect of the program, it gives a useful framework for evaluation. Through the public financing of a comprehensive benefit package for poor populations, GoG hopes to 1) increase their financial access to health services, 2) protect the target population against catastrophic health expenditure and 3) ensure equity of health financing. These objectives, together with other health system development objectives (for example, increased geographic access, improved quality and clinical outcomes of health services), not related to MAP interventions, will finally lead to better health for the poor.

As defined in the research objectives and methodology, this capstone project focuses on input, output (by primarily evaluate targeting and service utilization) and outcome (impact) analysis of the MAP following 2.5 years of operation (from June 2006 to December 31, 2008). Due to the fact that there are limited secondary data that could be served to analyze activities of the program (for example semi-structured interviews of planners, implementers and/or participants, field observations, focus-group interviews, minutes of meeting , etc), the study does not cover process indicators and implementation assessment of MAP (See the logic model below).

Logic Model of MAP



2. Performance indicators

In order to implement the conceptual model, the scope of input, output, and outcome domains, operational definitions and research questions was developed. For each domain, performance measures were identified that are: (1) available from different secondary data sources and (MoLHSA, 2006) supported by literature to answer corresponding research questions (Appendix #2).

At the next stage, inventory of available/possible performance indicators was evaluated against defined criteria (importance, understandability, ability to action, validity, reliability and feasibility). By using rating scale and summing the rating scores, each indicator was ranked as A, B or C. The assessment of and rationale for different indicators are provided in Appendix #3; indicators in Appendix #3 are marked as available or not available (indicated in red)¹¹.

¹¹ For convenience, selected indicators were assigned the same number as in appendix #3

Finally, for each available selected performance indicator, detailed description of the measure (numerator, denominator), data sources, unit of analysis and currency (date or period for which data are available and/or were chosen for analysis) was identified (Appendix #4).

3. Addressing validity and reliability issues

Conducting evaluation research based on secondary data from various sources and different data collection techniques has its advantages and disadvantages. Secondary data offer an opportunity to use vast number of social indicators, aggregated in routine statistics, surveys and evaluation papers for comprehensive analysis. The technique is also inexpensive when compared to surveys and interviews, and gives a clear picture about data available in the health information management system.

On the other hand, using existing statistics raises serious concerns regarding data validity and reliability: “do they accurately report what they claim to report?” (Murray&Evans, 2003) To address the problem, the triangulation (double-checking of results from different sources) was conducted, where possible. For example, triangulation was used to compare results of indicators #12 (Local Average Treatment effect (LATE) of the MAP beneficiaries vs non-beneficiaries¹²) and #13.1 (percent of population hospitalized during year prior to survey, stratified by beneficiaries/non-beneficiaries and by consumption quintiles).

Relying on data that already exists for another research purpose, raises concerns that an available source may not cover exactly what it aims to cover and measurements may not be valid. To address the validity issue, a technique suggested by Babbie at al. was used (Murray&Evans, 2003) : a logic model of program evaluation and used several indicators to measure each dimension of the program. When the results show the same trend in multiple measures, there were grounds to conclude that the findings were more likely to be valid: Ingenuity and reasoning can usually turn up several independent tests of a given hypothesis. If all the tests seem to confirm hypothesis then the weight of evidence supports the validity of the measure (Ministry of Labor Health and Social Affairs of Georgia, [MoLHSA], 2009)”.

V. Evaluation of MAP

1. Evaluation design

The major data sources, chosen for pilot evaluation of MAP (Appendix #4) are: existing statistics, state budget, approved publicly funded health program (MAP) and evaluation papers (as specified below for each measure). The main data source used for MAP evaluation is Health Utilization and Expenditure Survey (Chitashvili et al., 2009) of Georgian Households (HUES) conducted after one year of the program implementation. Most indicators of the survey measure variables of interest in participant and comparison groups, but are limited in their ability to assess progress over time (“time-series” analysis). Because baseline data are not available prior to MAP’s introduction, a follow-up comparison was not conducted. Thus, based on HUES, the study conducted a two-cell model quasi-experimental evaluation (participant and comparison group¹³), without “before” and “after” and follow-up analysis.

¹² More detailed information about indicator #12 is provided in Appendix #3 and Appendix#4.

¹³ Composition of participant and comparison groups in HUES and WB Evaluation Study is described in appendix # 5

2. Pilot findings

After operationalization of each indicator, conceptualization of terms, development of reference sheets for each indicator with numerator, denominator, data sources, currencies and etc, I collected those secondary data and started pilot evaluation of the MAP. In this section, findings of the evaluation are presented by input, output and outcome domains. In outputs section I present findings on benefit targeting and MAP's impact on utilization of health services. In outcomes' domain, findings show how the program met its objectives: financial access, protection from catastrophic health expenditure, equity of access and financing. Under domains/subdomains, findings are presented by each available selected indicators.

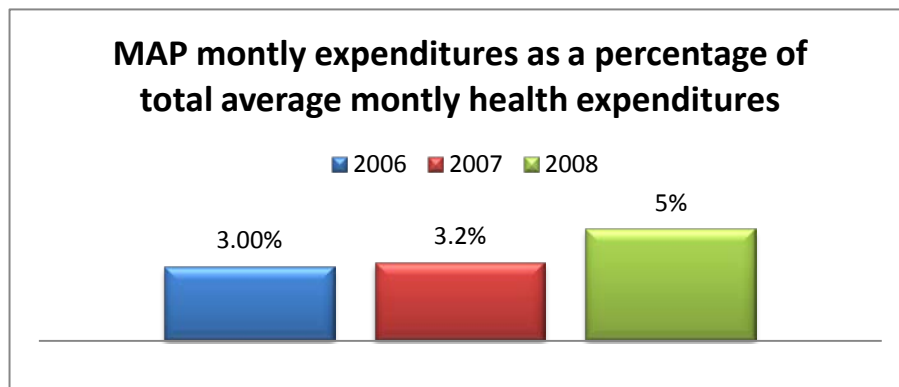
2.1. MAP inputs

Indicator #1: MAP expenditures as a percentage of government expenditures on health (Indicator score: A)

Initiated from June 2006, GoG allocated 18 million GEL to MAP. The program's budget constituted about 7 percent of total public expenditures. In 2007, the program budget was increased to 43.990 million¹⁴GEL and comprised 18 percent of the government's health expenditure. In 2008, the program budget increased 74.994 million GEL, 27.6 percent of the Government's health expenditure (Appendix #6. Table #1).

Indicator #2: percentage of MAP expenditures in total health expenditures (Indicator score: A)

The MAP expenditures were 3.0 percent; 3.2 percent and 5 percent of total health expenditures for three consecutive years (2006, 2007 and 2008) after the program initiation.



Source: State Budget and NHA of corresponding years

Indicator #4: Per Capita MAP expenditures (Indicator score: A)

As the number of beneficiaries covered by MAP gradually increased, the estimated annual per capita MAP expenditures were also increased and constituted 55, 65 and 100 GEL per

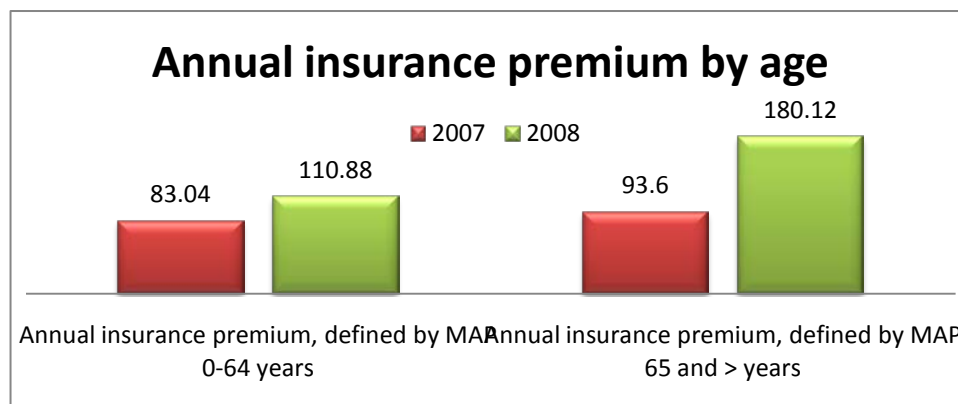
¹⁴ The budget figures are not adjusted to inflation. According to State Department of Statistics of Georgia, inflation was 9.2 percent in 2007 and 10 percent in 2008.

capita in 2006, 2007 and 2008, respectively. Annual per capita increase in 2007 and 2008 in comparison with the previous year was 18 percent and 53 percent, respectively.

It is also important to emphasize that health service coverage and the annual limits of each service category of the benefit package varied through years Ministry of Labor Health and Social Affairs of Georgia, [MoLHSA], 2008),(MoLHSA, 2009). For example: In 2007, MAP set a GEL limit of 200 on annual outpatient diagnostic services per beneficiary per year, while, in 2008, there was no limit on those services. Instead, MAP 2008 restricted certain diagnostic services in the benefit package. The differences in benefit packages throughout the years was also caused by the fact that when the program first launched, the poor remained also beneficiaries of other publicly funded health programs. In order to improve program effectiveness and support efficient use of resources, MoLHSA started gradual integration of those benefit packages into MAP’s benefit package. For example in 2009, Primary Health Care Program’s benefit package, for MAP beneficiaries, was integrated in MAP’s benefit package.

Indicator #7: Establish MAP premium offered as a percent of actuarially determined MAP premium (Indicator score: A)

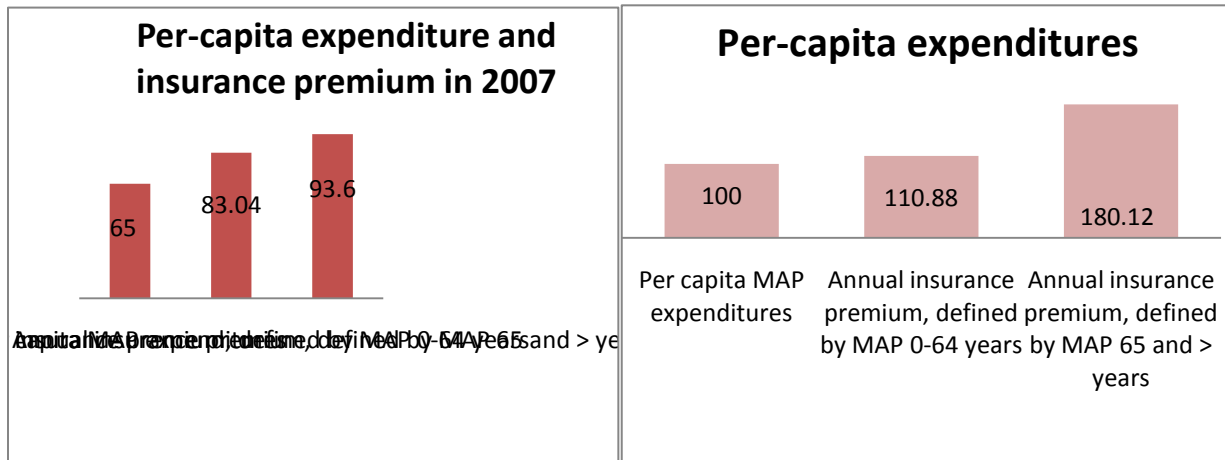
In order to assess adequacy of the MAP premium, the established MAP premium defined by MoLHSA was compared to the amount defined by independent actuaries. No data are available to compare these measures in 2007, when GoG started program implementation. In 2007, the annual insurance premium, defined by the MoLHSA was 83.04 GEL for the population under 64 years old and 93.6 GEL for persons over 65. In 2008, independent actuarial calculations were conducted by USAID funded project (US Agency for International Development [USAID], 2008) and the government used those estimates during the program planning. Annual insurance premiums offered by MAP in 2008 was consistent with premiums defined by independent actuaries. Based on actuarial estimates, GoG increased insurance premiums by 34 percent in first age group and by 92 percent elderly in 2008. The reasons of such a dramatic increase of insurance premiums for the elderly could be caused by) incorrect assessment of the risk in 2007, and/or insufficient data.



Source: MAP of 2007, 2008

Data reliability issues could also be raised in comparing annual per-capita MAP expenditures to annual insurance premiums per beneficiary. The charts below show that per capita MAP expenditures, even without subtraction of administrative costs of HeSPA, are less

than the annual insurance premiums for all age groups (insurance premium simply should be enough to cover all beneficiaries of the program).



Source: MAP of 2007, 2008

Indicator #5: Percent of administrative budget (assigned administrative costs) of the program in total budget of MAP (Indicator score: B)

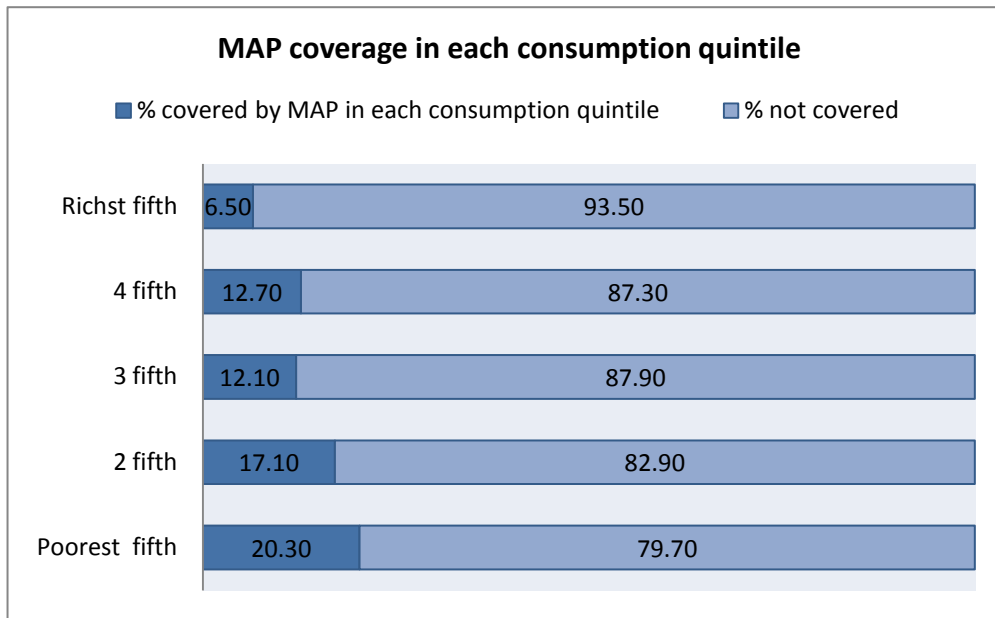
Administrative costs for the public purchaser (HeSPA) were one percent of the program budget in years 2006 and 2008 (there were no data in 2007). Information is not available about administrative costs of insurance companies.

2.2. MAP outputs

2.2.1. Targeting and coverage of the poor

Indicator #8: Percentage of population in each consumption quintile covered by MAP (Indicator score: A)

HUES data (Appendix 6 Table 2) indicate that targeting the poorest remained low after one year of program implementation (in July 2007). Considering the number of MAP beneficiaries, it was expected that MAP would include the total population in the lowest quintile (which represents 15.6 percent of the total population). In fact, only 20.3 percent is covered: nearly 80 percent of the poorest quintile are excluded from program benefits. The data in the chart also show that almost 80 percent of program beneficiaries are not in the poorest quintile. Furthermore, the program covers 6.5 percent of the richest quintile and thus, raises serious concerns about effectiveness of benefit targeting (Chitashvili et al., 2009).



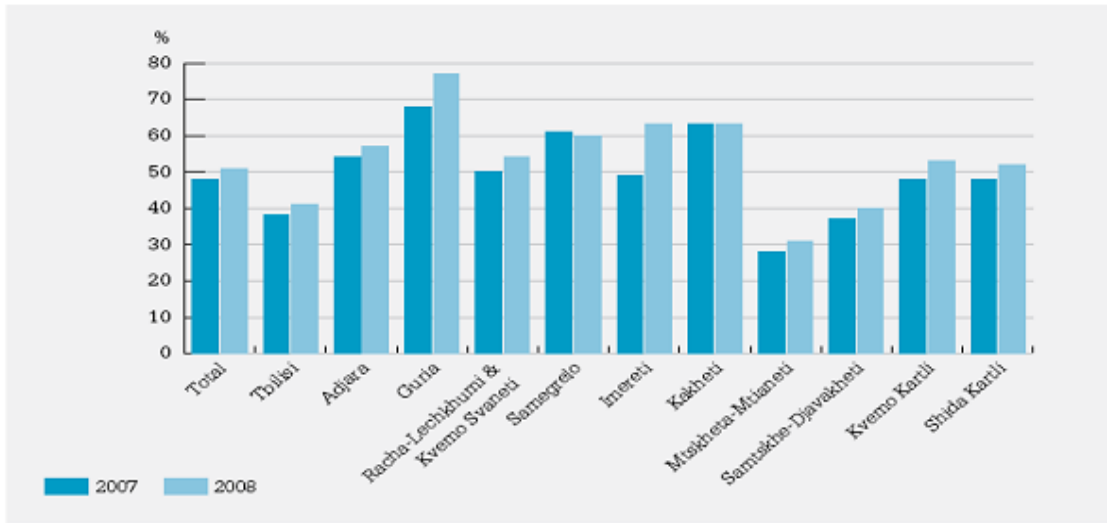
Source: HUES, July 2007

Indicator #10: Percentage of the beneficiaries of MAP as the total number of poor, registered in socially vulnerable database (Indicator score: A)

Despite the problems highlighted above, the number of MAP beneficiaries is gradually increasing each year. The number of MAP beneficiaries is also increasing as a percentage of total number of households, registered in the HeSPA database. On average MAP covers about 50 percent of households registered in the database and in almost all regions MAP coverage of registered families improved by 4-5 percent in 2008.

The chart below shows the percentage of the poor households covered by MAP in total number of the poor, registered in the HeSPA database, by regions:

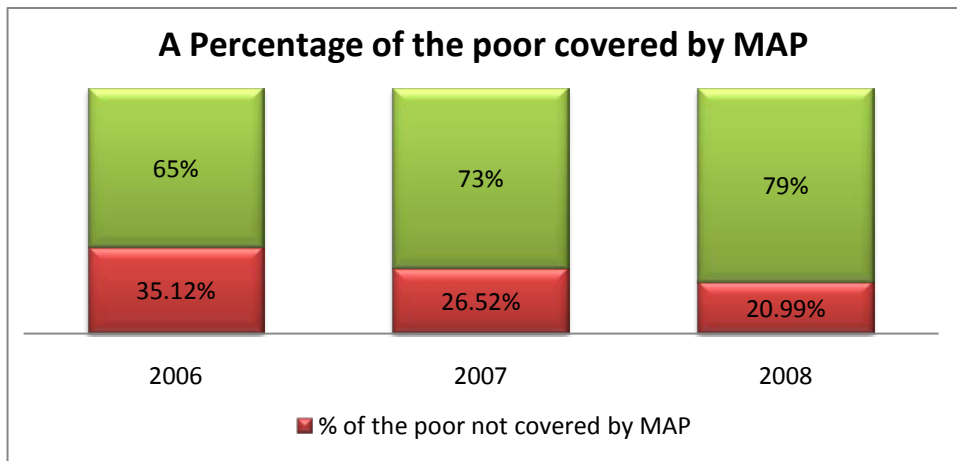
Share of the poor households covered by MAP in total number of the poor registered in the HeSPA database



Source: Health and Social Programme Agency

Indicator 11: Percent of the beneficiaries of MAP in total number of the poor (Indicator score: A)

In parallel with the increasing the number of MAP beneficiaries, their percentage in total number of the poor was also increasing in 2006-2008. Specifically, setting the poverty incidence¹⁵ threshold at 60 percent of median consumption, MAP covered about 65 percent of the population living below the poverty line in 2006. In 2007, coverage increased by 8 percent and in 2008 by 6 percent, in comparison with previous year, constituting about 80 percent of the poor of the country in 2008.



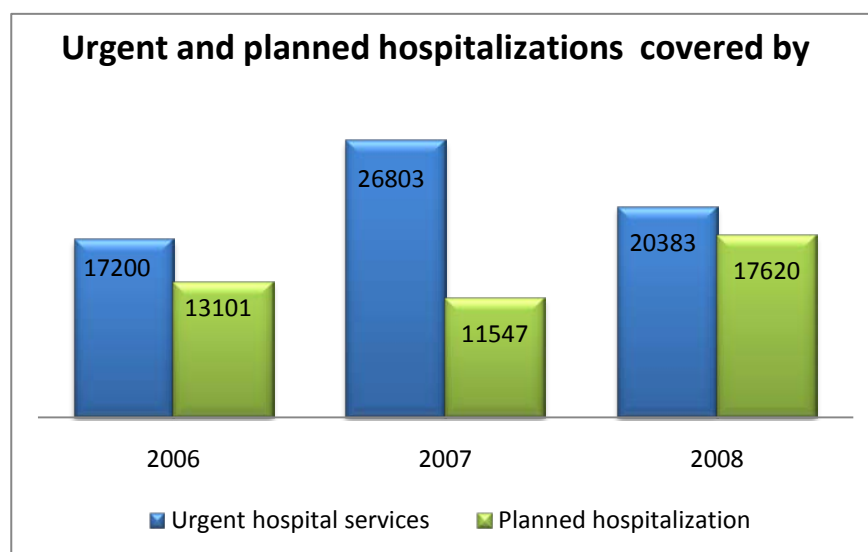
Source: State Department of Statistics, HeSPA

¹⁵ Population, living below the poverty line

2.2.2. Utilization of health services

Within six months of program implementation in 2006, MAP covered the costs of 17,200 urgent outpatient and hospital care services (Appendix #6. Table 4); 13,101 beneficiaries received hospital services. Pregnancy and baby delivery costs have been covered for 16,450 women in the same year. In 2007 program covered 26,803 urgent hospital cases and 11,547 planned hospitalizations. The program also covered 36,363 obstetrics services not only for beneficiaries, but also partially (200 GEL voucher) for non-beneficiaries, who declared the financial need to cover medical expenses during the pregnancy. In 2007 the program also covered 6,956 oncology services (these services were financed by a separate program for all oncology patients in 2006), for MAP beneficiaries. These numbers practically doubled in 2008 (11,950 covered oncology services).

The number of covered urgent hospitalizations decreased from 26,803 in 2007 to 20,383 cases in 2008, but planned hospitalizations increased almost by the same volume, reaching 17,620 covered cases in 2008.



Source: HeSPA, (Chitashvili et al., 2009)

One of the reasons for such dramatic changes in urgent and planned hospitalizations might be associated with improved reporting/coding of planned and urgent hospital admissions. In 2006 and partially 2007, when the program was implemented by a public purchaser¹⁶, the procedure to receive planned hospital services was a longer process as it required authorization from HeSPA. Based on this fact and high level of acute surgeries, WB evaluation study (Hou&Chao, 2008) raised concern of misclassifying non-urgent surgeries as urgent, "to avoid waiting for authorization". That reasoning may explain increased planned and decreased acute hospital admissions in 2008, when the program was fully implemented by private insurance companies, not requiring prior authorization for planned hospital services.

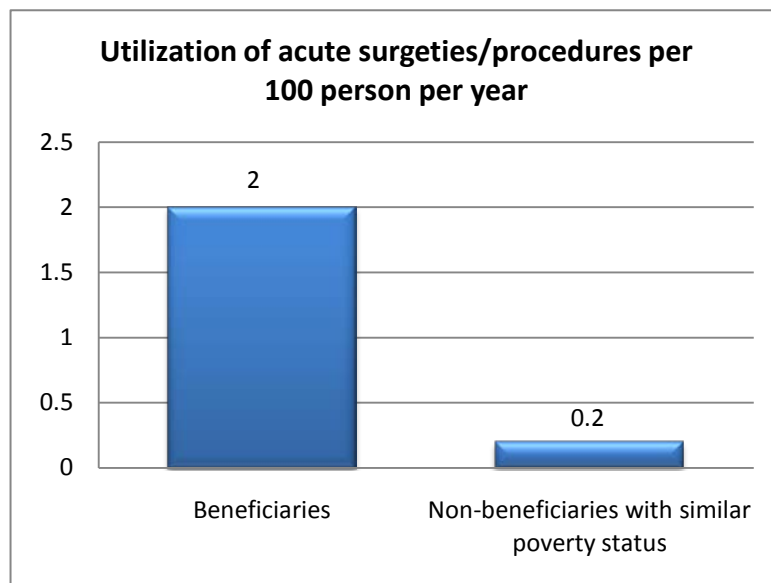
¹⁶ As explained above, from 2008 the program was implemented by private insurance companies

Due to significant differences in MAP benefit packages (emphasized in input section) throughout the years we did not integrate the above mentioned service utilization measures in selected MAP indicators (the results of different years simply would not be comparable). On the other hand, I believe that the analysis I made above is important to understand possible reasons of dramatic changes in MAP health service utilization data in different years.

Indicator 12: Local Average Treatment Effect (LATE) of the MAP beneficiaries vs non-beneficiaries (Indicator score: B)

In order to assess initial impact (at the end of 2006) of MAP on utilization of health services, WB evaluation study (Hou&Chao, 2008) compared utilization of inpatient acute surgeries in participant and comparison groups. Claims data in HeSPA contained information on: (1) acute (urgent) surgeries for families with a welfare score¹⁷ up to 100,000 and (MoLHSA, 2006) acute surgeries for the non-beneficiaries of the population, including households having just above the 100,000 welfare score¹⁷. These data enabled researchers to compare utilization in participant (MAP beneficiaries) and comparison (Urgent care beneficiaries) groups that were very similar to each other by socio-economic profile.

The study found that “the impact on utilization of acute surgeries is significant: MAP beneficiaries are 9 times more likely to seek acute surgeries¹⁸ as compared to non-beneficiaries in the neighborhood of the threshold. Probability to seek acute surgeries in non-MAP beneficiaries is 0.2 per 100 person per year while in MAP beneficiaries it comprises two per 100 person per year, which is close to the national average (2 per person per year)” (Hou&Chao, 2008) .



Source: X. Hou, Sh. Chao., 2008 (Hou&Chao, 2008)

¹⁷ 50-75 percent of costs of these services is covered by other publicly funded, Urgent Care Program

¹⁸ Although there is no clear explanation of definition of acute surgeries, it contains also all surgical procedures, claimed through separate code

The difference is significant in two very similar groups: households were considered eligible if they had up to 100,000 for a welfare score in 2006, the participant group determined just below the cut-off score _from 98,000 to 100,000 and comparison group _ just above the eligibility score _from 100,000 to 102,000. The only critical difference between the two groups was eligibility score that determined that one group was offered to participate in the program and the other did not. The result of statistical testing of the difference between the two groups provides evidence of groups' similarities; participant and comparison groups were similar in 28 out of 31 observable variables. Based on this analysis, researchers raised concerns of data reliability/validity. One of the possible reasons of data reliability, stated by the WB study is: "Lifting the financial constraint removes the most significant barrier to poor people (below the 100,000 welfare score) seeking care and would naturally precipitate a huge increase in health services utilization". Although that is true for some health services, it might not be true for acute surgeries, as demand is usually inelastic to price changes for acute surgeries. In addition, the regulation in Georgia obligates health care provider organizations to stabilize urgent cases despite a patient's ability to pay. Thus, it is highly unlikely that this is the possible reason of misreporting.

"Misreporting of acute surgeries for MAP and Urgent Care Program due to different reimbursement rates" (Hou&Chao, 2008) seems a more reasonable explanation of significant difference between participant and comparison groups, highlighted in the WB evaluation study. If we assume any of the above mentioned reasons are true, the reliability of research findings and thus the impact of MAP on acute surgeries is questionable.

Due to the unavailability of data, the WB evaluation study was not able to evaluate MAP's impact on utilization of other health services of MAP's benefit package (acute/urgent out-patient treatment and diagnostic procedures, planned inpatient services and deliveries) and compare its findings to impact of MAP on utilization of acute surgeries.

Indicator 13.1 Share (percentage) of population hospitalized during year prior to survey (inpatient) (Indicator score: A)

To check reliability of the data corresponding to Indicator 12, the author compared it to the results of a different data source. The HUES 2007 contains information on share of population who utilized inpatient hospital services during a year prior to survey in both beneficiaries and non-beneficiaries Indicator 13.1.). It is important to highlight that indicator 12 and 13.1 are not the same: the first measures the number of surgeries just above and below the eligibility threshold, when the second measures inpatient services in beneficiaries and non-beneficiaries; first measures the surgeries/surgical procedures reported to HeSPA, when the second measures self-reported acute and planned inpatient services (not only surgeries); There is also a difference in timelines – the first measures the variable of interest in the last 6 months of 2006; The second measures the variable during the one year (05/2006-05-2007) prior to the survey interviews. Despite the differences, the comparison of results of these indicators still could be useful to assess whether there is as much a significant difference among utilization of hospital inpatient services among beneficiaries and non-beneficiaries as is in case of acute surgeries, in the WB evaluation study.

HUES data show that after one year of MAP implementation, about 5.3 percent of beneficiaries utilized hospital services, about 1.26 times more than non-beneficiaries (4.2 percent). HUES did not find such significant differences in inpatient service utilization as was described in case of urgent hospital services in the WB evaluation study (9 times more!).

The study also did not find significant difference in utilization of inpatient services in consumption quintiles. 3rd and 4th quintiles had higher hospitalization rates in comparison with the poorest quintile.

Indicator 13.2 Total number of consultations per capita per year (Indicator score: A)

HUES shows that MAP beneficiaries use outpatient services about 2.7 times more than non-beneficiaries (Appendix 6, Table 5). It might be partly because that they more likely need those services (table #6 in Appendix 6 shows that the rate of chronic diseases and acute sicknesses is higher in beneficiaries than in non-beneficiaries), but we could not also exclude a positive MAP impact on increased outpatient services in beneficiaries (Appendix 6, Table 6).

Indicator 13.3 percentage of population that consulted a health care provider in total number of population who had acute sickness during last six months and/or were chronically ill (inpatient, outpatient), stratified by beneficiaries/non-beneficiaries and by consumption quintiles (Indicator score: A)

Combining all, inpatient and outpatient service utilizations, HUES indicates that about 58.3 percent of beneficiaries utilized health services when sick, that is one percent less than health service utilization rates in non-beneficiaries. In contrast, more beneficiaries reported to be sick (63.9 percent) than non-beneficiaries (58.3 percent). Also, the poorest and 2nd consumption quintiles utilized less services in both beneficiaries and non-beneficiaries than 4th and the richest consumption quintiles (Appendix 6, Table 7).

It is important to emphasize that currently, neither HUES nor the routine health information system can stratify service utilization information by functions of care. Thus it was impossible to stratify findings by functions of care (planned/urgent inpatient, outpatient services, stratified by oncology, therapy, cardiology, etc.) and inform decision makers about MAP's impact on utilization of health services according to each service category of benefit package.

When conducting impact analysis on utilization of health services, we should consider that MAP service coverage was changing in 2006, 2007, 2008, 2009 and interpret the results carefully. While Indicator 13 might be an invalid measure to compare service utilization rates among beneficiaries in different years, it is a valid indicator to assess the impact of annual MAP on service utilization¹⁹ of beneficiaries (compare baseline information before annual MAP starts to the results after one year of its implementation).

¹⁹ The service coverage is the same in annual MAPs

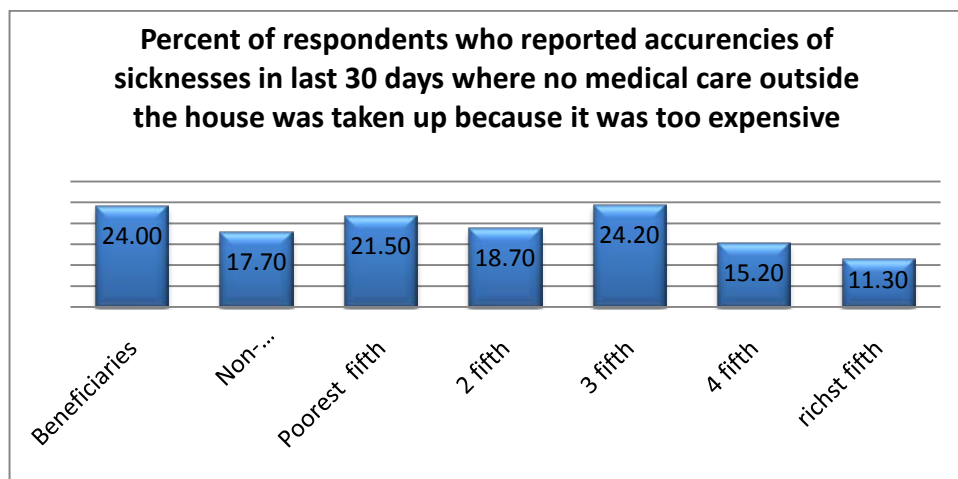
2.3. MAP Outcomes

2.3.1. Financial access to health services and equity of access

Indicator 14: Percentage of respondents who reported occurrences of sicknesses in last 30 days where no medical care outside the house was taken up because it was too expensive/not enough money available (stratified by beneficiaries/non-beneficiaries, by consumption quintiles) (Indicator score: A)

HUES found that after one year of program implementation (in June 2007), 24 percent of MAP beneficiaries, who reported occurrences of sicknesses in the last 30 days were not able to obtain needed health services because it was too expensive/not enough money available. This share was 6.3 percent less in non-beneficiaries (Appendix 6. Table 8).

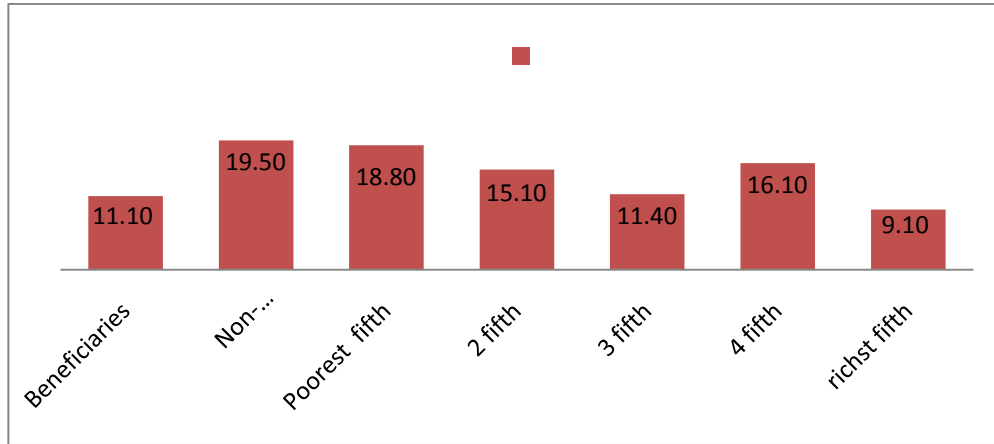
HUES also indicates inequitable financial access to health services among the consumption quintiles: population in the fourth and the fifth (the richest) consumption quintiles are more likely to afford health services than the lower three quintiles:



Source: HUES

Indicator 15: Percentage of population who were reported to need hospitalization in the last year but were not hospitalized because it was too expensive/they did not have enough money (stratified by beneficiaries/non-beneficiaries; by consumption quintiles) (Indicator score: A)

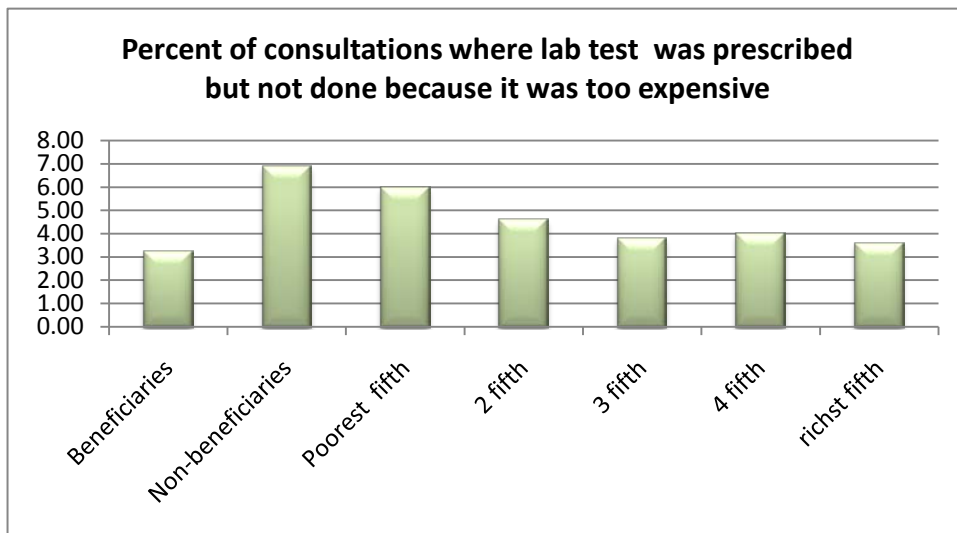
In contrast to acute outpatient services, financial access to needed hospitalization is 8.5 percent higher in beneficiaries than non-beneficiaries. Specifically, only 11.1 percent of beneficiaries reported that they needed hospitalization in the last year but were not hospitalized because it was too expensive, while for about 20 percent of non-beneficiaries, hospital (inpatient) services were inaccessible due to cost.



Source: HUES

Indicator 16: Percent of consultations where lab test was prescribed but not done because it was too expensive. stratified by beneficiaries, non-beneficiaries, by consumption quintiles (Indicator score: A)

Only 3.2 percent of beneficiaries were not able to do lab tests because of financial inaccessibility, while 6.9 percent of non-beneficiaries could not afford them. Households with higher consumption quintiles were more likely to be able afford lab-tests than the population from the poorest two quintiles. The same trend in inpatient, outpatient services and lab-tests clearly shows that the health system financing does not ensure equitable access to health services to poor households.



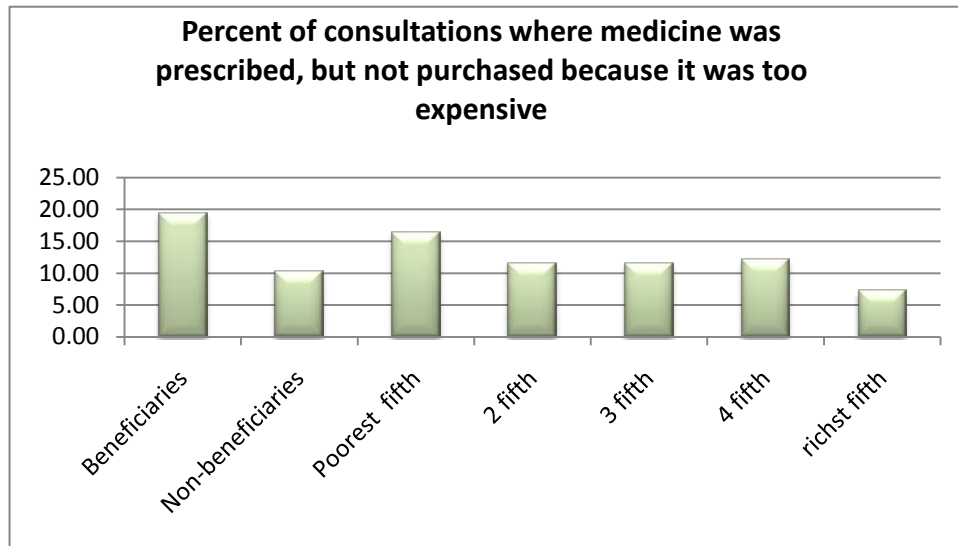
Source: HUES

Indicator #17: Percentage of consultations where medicine was prescribed, but not purchased because it was too expensive (stratified by beneficiaries/non-beneficiaries; stratified also by consumption quintiles) (Indicator score: A)

The fact that MAP does not cover outpatient drugs for MAP beneficiaries is adequately reflected in a restricted access to pharmaceuticals; about 20 percent of MAP beneficiaries were

not able to purchase prescribed medicine because it was too expensive. Two times more non-beneficiaries could afford prescribed medicines than beneficiaries.

Distribution of financial access (equity of access) to prescribed medicine shows that as in all above mentioned cases, medicines are more affordable for rich households than for the poor.



Source: HUES

2.3.2. Protection from catastrophic health expenditures

Indicator 19: The share MAP beneficiaries in population, who have any kind of health insurance, stratified by Government, private, employer health insurance (Indicator score: A)

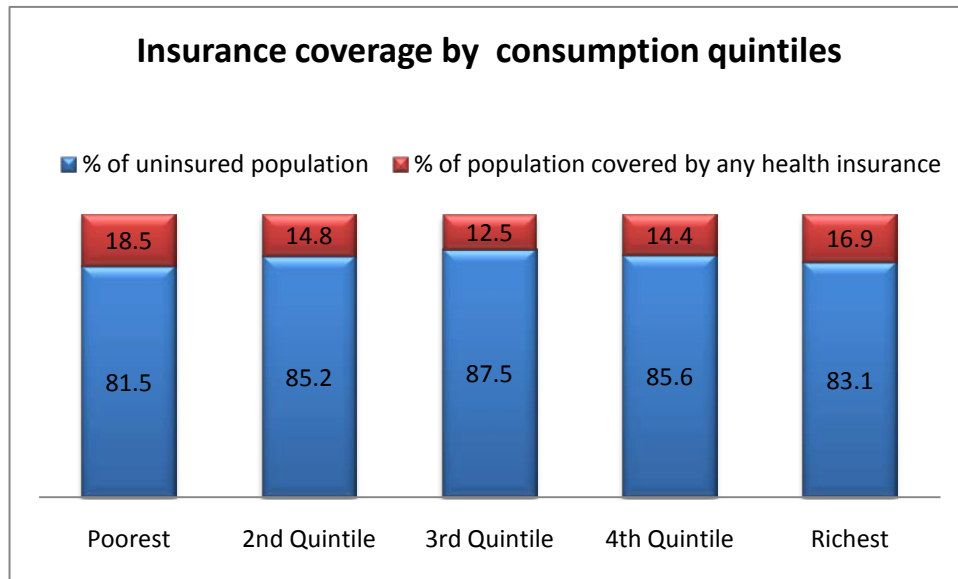
In 2007, MAP was able to cover 673,014 beneficiaries with publicly funded health insurance, constituting 71.6 percent of people having any kind of health insurance (Government, private, employer). Such coverage seems significant if we consider that among 14.1 percent of the population covered with any kind of health insurance, MAP covered 10.1 percent of the population in 2007, when only 1.5 percent of the population was covered with private/employer based health insurance (HUES).

In 2008, the health insurance coverage improved both in MAP beneficiaries and non-beneficiaries. Comparable data (HUES) do not exist, but according to the State Financial Supervision Agency of Insurance (Gotsadze et al., 2001), about 22.9 percent of the population is covered by any kind of health insurance, and the share of MAP beneficiaries in the population being covered with private/employer based health insurance increased to 76.1 percent.

Considering the fact that the percent of employer-based (public and private) and voluntarily insured population increased to 5.5 percent, increased MAP coverage seems more significant. In 2008, MAP covered 17.5 percent of the total population with the health insurance package (Appendix 8. Table 9).

Indicator 21: Percentage of the uninsured population stratified by consumption quintiles (Indicator score: A)

Despite the fact that MAP covers increasing number of beneficiaries each year, the number of the uninsured still constitutes a significant part of the population. The HUES shows that more than 80 percent of the population in mid 2007 was uninsured. Distribution of the uninsured population by consumption quintile shows that 81.5 percent of the poorest are uninsured while the rate of un-insurance is higher in all other quintiles (from 83.1 to 87.5 in the third quintile).



Source: HUES

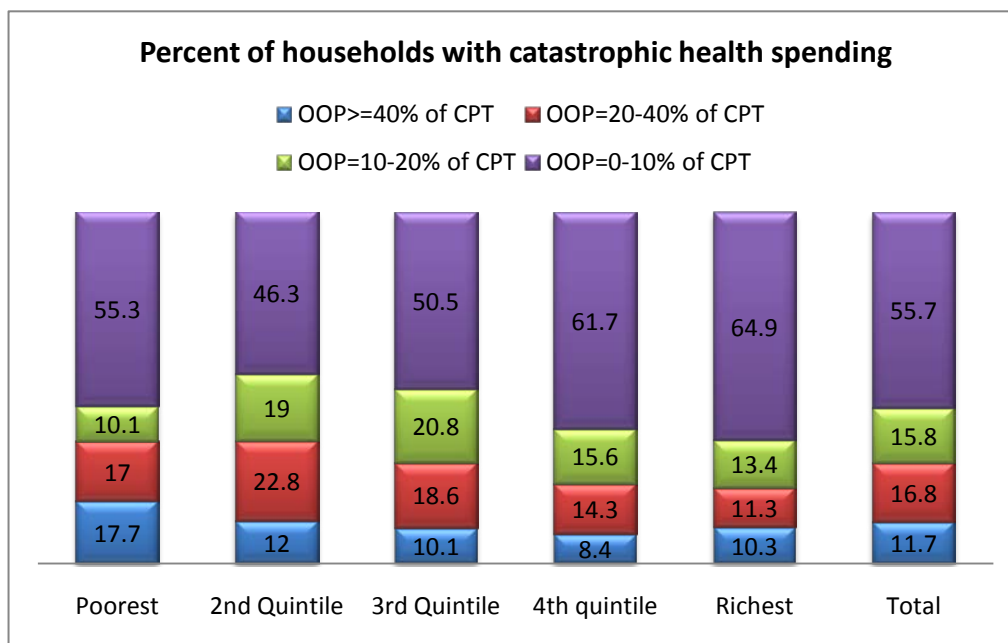
Table #8 shows that the main source of health insurance is government insurance. Employer-based health insurance is slightly higher in the 3rd, 4th and 5th (the richest) quintiles and despite the fact that the coverage is still under 3 percent, individual private health insurance is six times higher in the richest quintile than in the poorest quintile(Appendix #8, Table #10).

When comparing insurance coverage through public and private (employer based, individual) insurance schemes, it is also important to analyze differences in benefit packages between pools. *“Indicators need to address not only how many people are in the pools, but also what services are covered. When benefit packages differ, the implications for the effectiveness of the financing function will also differ (Ministry of Labor Health and Social Affairs of Georgia, World Health Organization, World Bank [MoLHSA,WHO&WB], 2009)”*. Due to lack of data on benefit packages, we are not able to compare them and draw valid statements on effectiveness of MAP to protect the population from Catastrophic Health Expenditures (CHE).

Indicator 22: percentage of the population incurring catastrophic health expenditure (stratified by consumption quintile) in total population incurring any kind of medical expenditure during the reporting period (Indicator score: A)

Having health insurance, whether it is public or private, does not guarantee that the population is fully protected from facing catastrophic health expenditures. Based on HUES we

found that after one year of MAP implementation, about 11.7 percent²⁰ of the population faced catastrophic health expenditures (Appendix #6, Table #11).



Source: Got adds G., Zooids A., Rukhadze N. Household Catastrophic Health Expenditure: Evidence From Georgia and its Policy Implications, BMC Health Service Research, April 2009

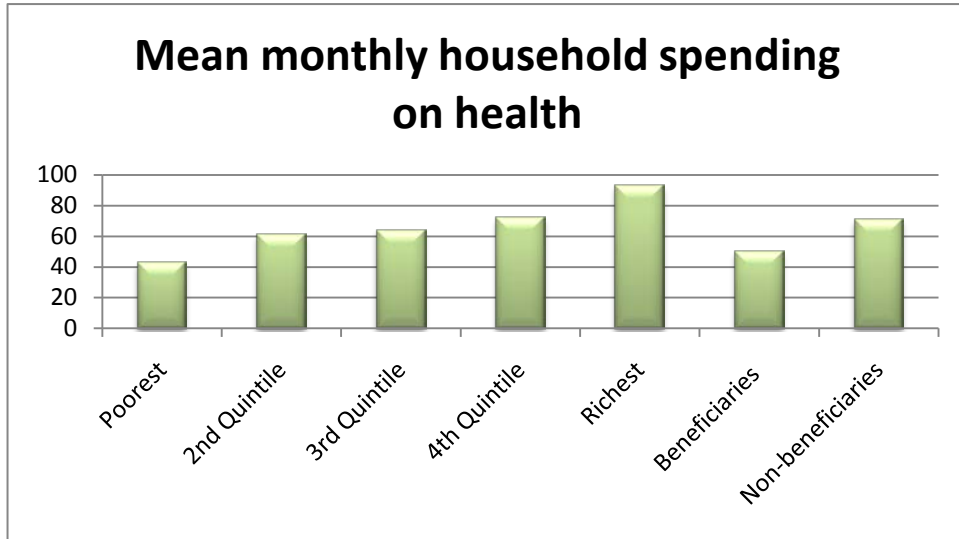
The chart shows that catastrophic expenses during the illnesses are especially high in the poorest quintile (17.7 percent) and gradually decrease in quintiles with higher consumptions.

2.3.3. Equity of Finance

Indicator 24: Mean monthly household spending on health (Indicator score: A)

Based on HUES data, the study found that in mid 2007, the mean monthly household spending on health in beneficiaries was 50 GEL. In non-beneficiaries the mean monthly expenditures on health amount was 71 GEL (Appendix #6, Table #12). In absolute values, as the chart shows, the poorest quintile paid two times less than the richest.

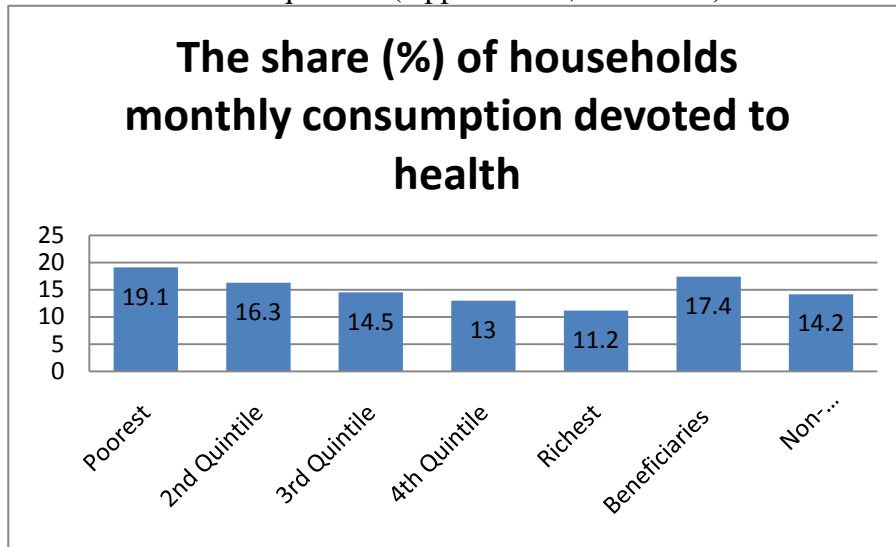
²⁰ The results are based on the assumption that households face catastrophic health expenditures and their out-of-pocket payments are greater than or equal to 40 percent of their capacity to pay” (MoLHSA,WHO&WB, 2009)



Source: HUES

Indicator 23: The share of households monthly consumption, devoted to health (Indicator score: A)

When comparing the percent of households' monthly consumption, devoted to health, the study found that it is higher in beneficiaries than non-beneficiaries and 70 percent higher in the poorest quintile than in the richest quintile. (Appendix #6, Table #12).



Source: HUES

Indicator 26: Outpatient care costs as a percent of monthly household consumption (Indicator score: A)

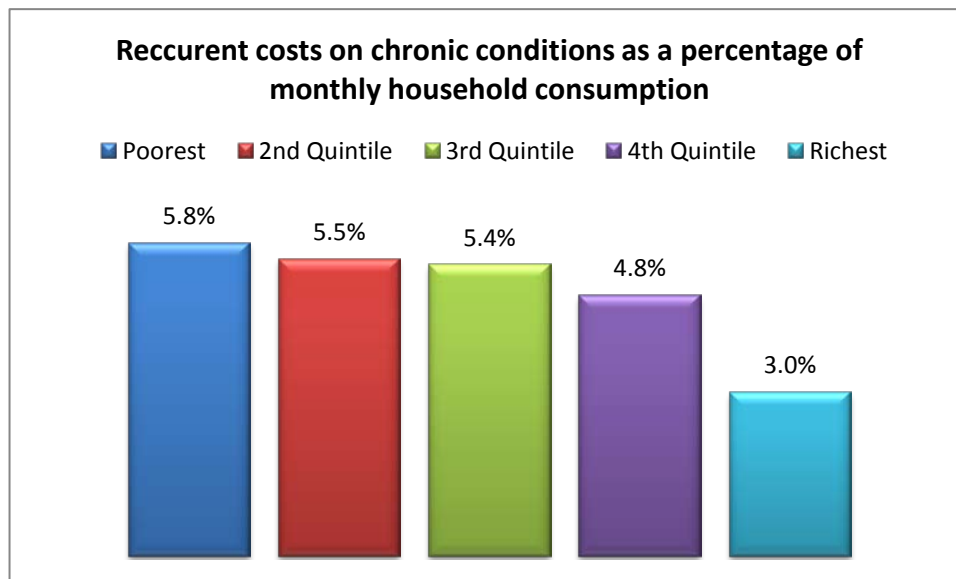
Household monthly consumption, devoted to health in HUES was broken down by several categories: a) recurrent costs (cost of drugs and some medical items) faced by

households due to chronic conditions; b) cost of outpatient care when healthcare provider was consulted; c) costs of self-treatment without consulting health care provider.

The costs on outpatient care were about 16 times more in the richest quintile than in the poorest. Similarly, the share of outpatient costs in monthly consumption of the poorest household was two times less than in the richest. This result, together with the possible positive impact of MAP, is clearly associated with the difference in purchasing power between the rich and the poor.

Indicator 25: Recurrent costs on chronic conditions as the percent of monthly household consumption (Indicator score: A)

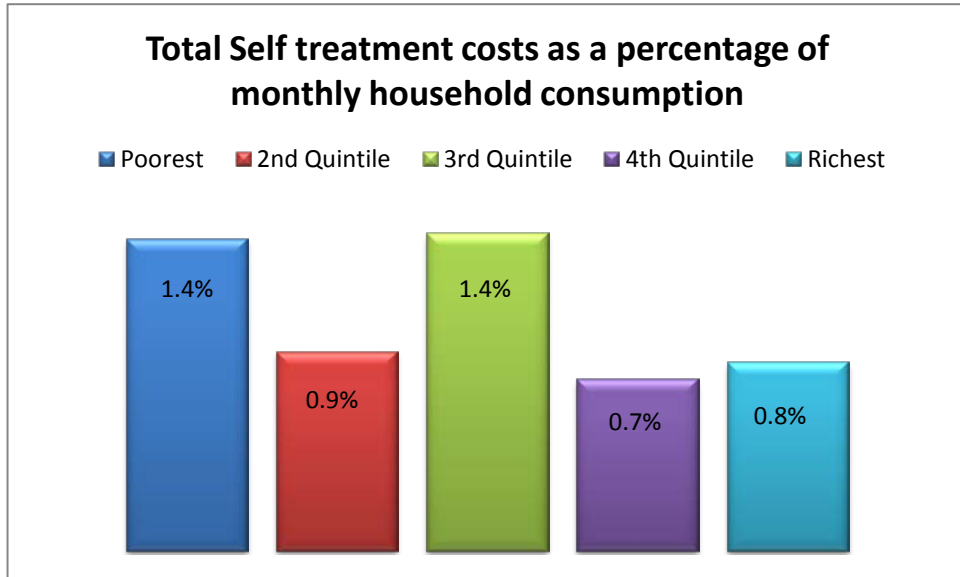
In contrast, the share of recurrent costs on chronic conditions as a percentage of monthly household consumption was almost two times higher in the lowest quintile than in the highest, but as in all other cases, in absolute values, the richest paid about six times more (Appendix #6, Table #12).



Source: HUES

Indicator 27: Total self-treatment costs as the percent of monthly household consumption (Indicator score: A)

Self-treatment costs as the percent of monthly household consumption followed the same trend indicated above – the share was higher in poorer three quintiles than in the richer quintiles, but, in absolute values, the richest households paid three times more than the poorest.

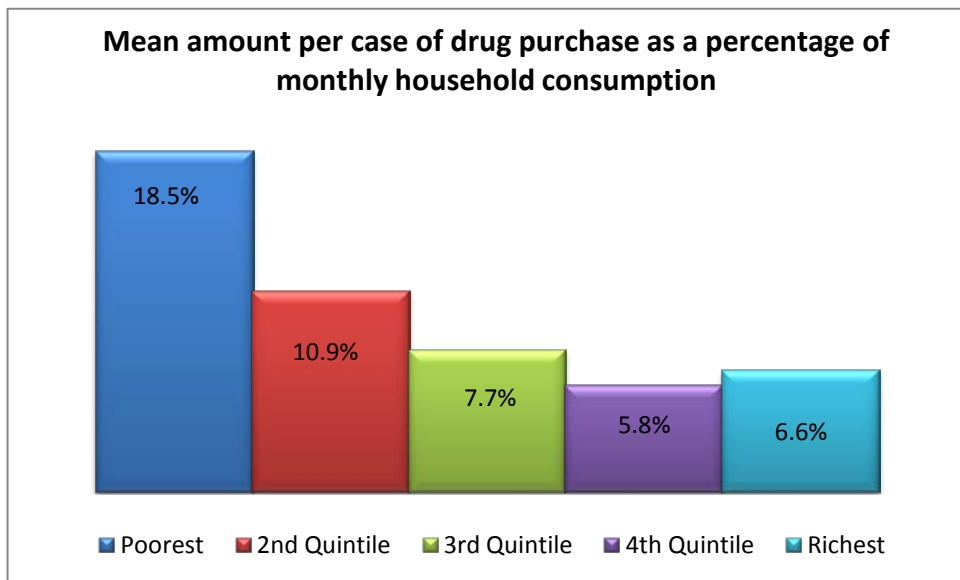


Source: HUES

HUES also found that because MAP “is not providing outpatient drug benefits, the mean amount that is paid for self treatment as well as the share of those who undertook such treatment were comparable between beneficiary and non-beneficiary groups and differences ...observed in mean expenditure are probably determined by differences in purchasing power of individuals/households” (Center for Disease Control, [CDC] , 2010) .

Indicator 28: Mean amount per case of drug purchase as a percentage of monthly household consumption (Indicator score: A)

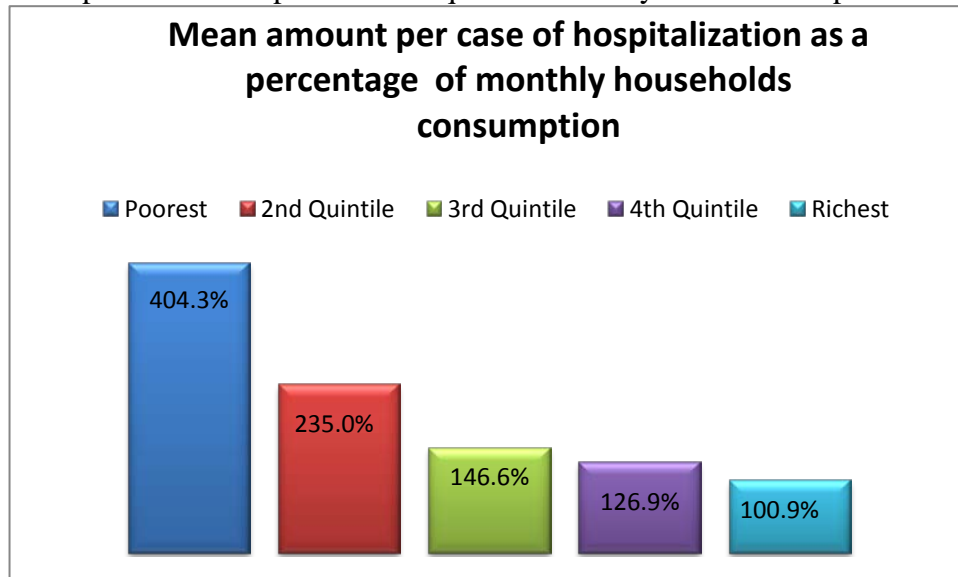
The mean amount per case of drug purchase constituted 18.5 percent of the poorest households’ monthly consumption, three times more than the richest.



Source: HUES

Indicator 29: Mean amount per case of hospitalization as a percentage of monthly household consumption (Indicator score: A)

The same extends to hospital treatment. An average cost of hospitalization exceeds four times the monthly household consumption in the poorest households. In the richest households, an average costs per case of hospitalization equals to monthly household expenditures.



Source: HUES

VI. Discussion

1. Monitoring and evaluation framework of the MAP

Based on the existing MAP evaluation reports and other literature, 30 possible performance indicators were defined. After evaluation of those indicators according to WHO methodology, 22 indicators were established to be principal indicators, 3 indicators were determined as the secondary/supplemental and 5 indicators were discarded.

Among principal and secondary indicators, 16 indicators were available, 8 were partially available and one was unavailable.

For each selected available performance indicator's detailed description of the measure (numerator, denominator), data sources, data gaps, unit of analysis and time frames of analysis were determined. In cases, where data gaps were identified, the study developed recommendations to support data gathering through routine reporting systems and planned surveys.

Based on available data from different secondary data sources, a pilot evaluation of MAP was conducted. The study examined program inputs and MAP's impact on:

- Benefit targeting
- Utilization of health services
- Financial access to health services
- Financial protection of population from catastrophic health expenditures

- Equity of access and equity of financing

As the program was newly introduced and no baseline and follow-up data were available, it was difficult to ascribe evaluation results purely as program impact, and to exclude the influence of other variables. In addition, the study used secondary data from different sources and in some cases, data were not comparable and/or reliable. Given these limitations, the study does not allow us to conclude whether MAP 2006-2008 was effective in terms of reaching program objectives or not.

Despite those limitations, the results provide a comprehensive review of MAP inputs, outputs and outcomes. These results are helpful to identify problems for purposes of conducting future assessments, some positive trends and the areas that need further improvements.

2. Program Funding

Sustainable and growing program finance is represented in: (a) absolute values, and (b) percent of government expenditure on health and (c) percentage of total health expenditures. The annual budget increased by 22 percent in 2007 and 70 percent in 2008 when inflation did not exceed 10 percent.

Clearly, the gradual increase of program budget is the positive trend that enabled GoG to cover more beneficiaries under MAP, but as health service coverage and annual limits for each service category varied through years (MoLHSA, 2008) (MoLHSA, 2009), it is difficult to correlate an increase in the per capita MAP budget with improved coverage.

Also, using independent actuarial services for defining insurance premiums from 2008 could be considered as a positive step in evidence-based program planning. As the services were conducted by financial support of donor organization, there is the concern on sustainable financing of actuarial services for MAP in the future.

3. Benefit targeting

The eligibility of the program is determined by means-testing. In order to target social assistance to those with the greatest need, the government developed a database of socially vulnerable families in 2005. Socio-economic conditions of about 500,000 families have been assessed and ascribed ranking scores indicating severity of their poverty. As the program is targeted explicitly to poor households, it is important to evaluate whether the means testing system allows MoHLSA to properly assess poverty status of the households to receive social assistance and publicly funded health services.

HUES show that targeting the poorest remained low after one year of program implementation (in July 2007). Since MAP targeted about 15.6 percent of the population almost 100 percent of coverage of the lowest quintile should be expected in case of effective benefit targeting. The fact that 80 percent of the poorest quintile was not covered by MAP and 6.5 percent of MAP beneficiaries are from the richest consumption quintile, raises serious concerns with regard to benefit targeting. But, despite statistically significant evidence, the study findings still should be interpreted with caution. The means testing system, which defines eligibility for MAP benefits, uses “*comprehensive assessment of a household economic status, while the HUES mainly assess the cash expenditures incurred by a household in a given time period*” (Gotsadze,

Zoidze& Rukhadze, 2009) . In spite of the argument, the findings are presented, as Indicator #8 passes the face validity test. The tool used by HUES to define consumption quintiles of households is common/acceptable in social research (Murray&Evans, 2003).

Because the means tested system may not adequately reflect a households's socio-economic status, MoLHSA has revised the system to improve benefit targeting. Follow-up HUESs should be conducted to assess effectiveness of recent review of the means testing system and MAP interventions on benefit targeting.

Despite the problems in benefit targeting, the absolute number of MAP beneficiaries, as well as their share in total number of households, registered in the database of socially vulnerable families and in total number of the poor in the country has increased substantially. United Nations Development Program (UNDP) and Central Intelligence Agency (CIA) (Central Intelligence Agency [CIA], 2008) (Government of Georgia, 2007) estimates on poverty incidence in the country (with correspondingly 56.2 percent and 31 percent poverty rate in 2006) state the reliability of the poverty threshold (23.3 percent by the State Department of Statistics (SDS)), and thus high MAP coverage of the poor. In spite of data reliability concerns, the program does cover more beneficiaries each year.

4. Utilization of health services

The data show that the beneficiaries have been actively using health care services provided by MAP. But due to the fact that the services and the annual coverage limits under each service category of MAP's benefit package varied each year, it was impossible to draw valid statements about the impact of MAP on utilization of health services based only on health service utilization rates of MAP beneficiaries. MAP's assessment on health service utilization in the future should be conducted along with comprehensive analysis of benefit packages throughout the years.

Based on existing evaluation reports of the program, the study raises possible problems in data reliability, generated by HeSPA; identifies gaps in data reporting; and provides recommendations that will help HeSPA to get reliable, comparable and compatible information from Insurance companies and health care organizations about services utilized under the MAP.

Alternative data sources (for example, HUES) also have limitations on measuring the impact of MAP on health service utilization among beneficiaries. HUES (conducted in 2007) did not stratify information from households by functions of care. It only allows assessing the use of inpatient and outpatient services among beneficiaries and consumption quintiles. MAP beneficiaries used 2.7 times more outpatient and 1.26 times more inpatient services than non-beneficiaries (HUES). The fact that the service utilization rate is higher in beneficiaries than in non-beneficiaries shows a possible positive impact of MAP. The difference could partially be caused by differences in health status: more beneficiaries were reported to be sick (63.9 percent) than non-beneficiaries (58.3 percent). The study also found low inpatient service utilization rates in the poorest and 2nd consumption quintiles than in 3rd, 4th and 5th consumption quintiles. This finding, together with insufficient benefit targeting (about 80 percent of the poorest households

are not covered by MAP) shows that the problem of financial access to health services might still hinder opportunity to get needed health services for the poorest quintiles.

5. Financial access and equity of access to health services

HUES found that financial access to needed hospitalization and lab tests was higher among beneficiaries than non-beneficiaries. Despite MAP's positive impact on access to hospital services, MAP's 2007 funding was not enough to fully cover beneficiaries' needs on hospital inpatient services: 11.1 percent of beneficiaries reported that they needed hospitalization in the last year but were not hospitalized because it was too expensive.

The fact that MAP does not cover outpatient drugs for MAP beneficiaries adequately reflected to the restricted access to pharmaceuticals: about 20 percent of MAP beneficiaries were not able to purchase prescribed medicine because it was too expensive while two times less non-beneficiaries could not afford prescribed medicine.

Based on HUES data, the study also found inequitable financial access to health services among consumption quintiles: those in the fourth and the fifth consumption quintiles are more likely to afford health services and drugs than the lower three quintiles.

The fact that financial access to hospital services and lab tests is higher in beneficiaries than in non-beneficiaries could be an indication of the program's success. On the other hand, financial barriers to accessing care and needed medicines remain important, particularly for the poorest quintiles,²¹ and call for an immediate policy solution to promote a more equitable provision of care in Georgia's health system.

6. Financial protection of population from catastrophic health expenditures

Along with the high level of poverty in the country (33.6 percent in 2006 (SDS, 2010)), limited use of pre-payment and risk pooling schemes could be the reason why families face extreme poverty and bankruptcy during the illnesses. Health insurance manages the "financial exposure to risk via (a) transferring risk from an individual to a group and (b) sharing losses on some equitable basis by all members of the group" [22] .

MAP successfully covered 10.1 percent of the population with publicly funded health insurance in a country where only 1.5 percent of the population had private/employer-based health insurance . In 2008, the coverage increased to 17.5 percent of the total population.

²¹ The methodology of HUES identifies 5 quintiles of households, based on their consumption level. As MAP covered about 15 percent the poorest households in 2007, we could conclude that, in case of successful benefit targeting, the program should ensure almost full coverage of the poorest household quintile (poorest 20 percent of population). For that reason, stratification of measures both, by: (1) beneficiaries/ non-beneficiaries and (2) different consumption quintiles is important for the analysis.

Despite that positive trend, the number of the uninsured still constituted the biggest proportion of the population. About 81.5 percent of the poorest are uninsured and the rate is higher in all other consumption quintiles. High rates of uninsurance, together with high poverty status, contributed to a higher share of households facing catastrophic health expenditures. After one year of MAP implementation, about 11.7 percent of population faced catastrophic health expenditure with the highest share of the poorest quintile (17.7 percent). Having such high levels of catastrophic expenses, Georgia is the second (after Argentina) among 45 countries having one of the most unprotected health care financing systems (MoLHSA,WHO&WB, 2009)²².

Because CHE are not stratified by beneficiaries/non-beneficiaries and no baseline and follow-up data are available (except HUES 2007), it is difficult to assess MAP's impact on financial protection against catastrophic health expenditures. Monitoring the rate of CHE over time by using the same survey tool and stratifying its findings by beneficiary-non-beneficiary will allow MoLHSA to track the progress toward the important measure of MAP.

7. *Equity of finance*

Fairness requires that health system payments are organized in such a way that the burden of payments is equalized across households. Equal burden is defined as an equal fraction of each household's capacity to pay (CTP). The ratio of a household's health payments to its capacity to pay is called the household financial contribution (HFC). Literature shows that "*a substantial majority of respondents thought it was fairer to avoid the risk of catastrophic payments by ensuring equal proportional contributions of capacity to pay*" (Williams & Torrens, 2005, chap 5). CTP is usually estimated after subtracting Subsistence Expenditure from monthly household expenditure (i.e. consumption) obtained from the HIS survey (Households Integrated Survey).

Because of data unavailability, it was not possible to calculate CTP for each consumption quintile and for beneficiary/non-beneficiary. The analysis is based on mean monthly household consumption (without subtracting substance expenditure), which usually corresponds the average food expenditure of the households, adjusted to the size of the household.

Based on HUES, the study found that in mid 2007, the mean monthly household spending on health among beneficiaries was 50 GEL. Among non-beneficiaries it constituted 71 GEL. While this may provide grounds to argue the possible positive impact of MAP, it is difficult to prove the causal relationship: data do not include third party payments (e.g., for the government or from employers.) The result may be also associated with purchasing power of beneficiaries. In absolute values, the poorest quintile paid two times less than the richest on

²² Authors, calculating CHE based on HUES however consider that (5) such international comparisons bear limitations ("*Study primarily focused on questioning health care utilization and expenditure, while most surveys used in the papers were either Living Standard Measurement Studies, or household budget surveys or household income and expenditure surveys that did not specifically look at health care utilization and expenditure. Consequently, a recall bias in non-health care surveys may underestimate spending levels on health, while our survey focused on health, possibly rendered higher estimates*").

health. When compared the share of households' monthly consumption, devoted to health, it is higher in beneficiaries than in non-beneficiaries, and 70 percent higher in the poorest quintile than in the richest quintile. The results indicate that the burden of out-of-pocket payments on health is not distributed equitably among beneficiaries/non-beneficiaries and among consumption quintiles.

The mean household expenses for chronic conditions, outpatient care and self-treatment were lowest among the poorest quintile groups, and highest among the richest. As in the aggregated measure, the poor spent more of their monthly consumption on costs of self-treatment and costs faced due to chronic conditions than the richest. The mean amount per case of drug purchase in the lowest quintile was 18.5 percent of households' monthly consumption, three times more than the richest. Also, average costs of a case of hospitalization exceeded monthly household consumption by 400 percent in the poorest households while average costs of hospitalization was practically the same as monthly households' consumption in the richest households. If we consider: (a) households' needs to substance expenditure (monthly expenditure on food and other substance expenses); (b) fact that neither public health programs nor private insurance schemes covered outpatient drugs; (c) almost 80 percent of the poor remained uninsured (both through government and private insurance), and (d) the poor practically do not have savings, we could conclude that any case of hospitalization and/or buying medicines may impoverish the poor. The evidence thus shows that much must still be done to reach equal distribution of the burden of health expenditures among population groups.

8. *Policy implications of study findings*

Current reporting systems and planned surveys do not accumulate information that would allow assessment of program effectiveness. MAP does not have a monitoring and evaluation framework and its effectiveness is not routinely measured. There are also serious concerns on data availability and quality that, together with weak reporting systems, hinder opportunity of evidence-based program planning and implementation.

To assess MAP effectiveness and use the evidence for improved budget and program planning, this study developed a logic model and monitoring and evaluation (M&E) framework. In order to use developed tools on a regular basis, it is essential to: (a) institutionalize M&E framework of MAP and (b) integrate it in Health Management Information System and in evidence-based policy/program/budget cycle. Consideration of study results about data gaps and recommendations on improvement of HIMS will also be helpful during the follow-up assessments of the program. In addition, further research is needed to identify possible areas of misreporting, and to develop useful tools for improving data reliability.

It is expected that the Georgian government's mid- to long-term efforts to alleviate poverty and increase incomes for poor households would have a positive impact on their health and other needs. The findings of the pilot evaluation of the program show that despite positive trends in program funding and coverage, improved benefit targeting, increased financial access, increased financial protection as well as financial equity and increased access to health services are still needed for poor households.

The following broad policies are proposed for MAP to improve access to health services and protect the poor from catastrophic health expenditures:

- Improve benefit targeting by evaluating effectiveness of the existing “means tested” system and develop-revise the system based on the findings;
- Improve the benefit package and increase insurance limits for hospital treatment;
- Introduce drug benefits for MAP beneficiaries for outpatient treatment allowing the poor to access essential medicines²³.

VII. Recommendations

Within the context of the three policy priorities described above, specific recommendations include:

1. MAP evaluation design

In order to estimate the impact of MAP on the key outcomes of interest and exclude/minimize influence of other variables, research design has to compare key outcome variables for a sample of MAP beneficiaries (participant group) with those who are not beneficiaries of the program but have a similar socio-economic status. The ideal way –the gold standard of research design – would be to randomly choose the approved applicants into a participant and control group; delay program benefits before the study for the control group; and compare before and after outcomes in both participant and control groups. But a fully experimental design for an ongoing program will not be ethically, politically or operationally feasible. In order to obtain the information that could not be gathered from routine statistics (existing reporting system), this study recommends a quasi-experimental design for MAP evaluation, in which key variables of interests are compared in MAP beneficiaries and non-beneficiaries in every two years of program implementation.

In addition, the sample size should be large enough to provide statistically significant results; the research design should be able also to measure observable (demographics, economic status) and unobservable (motivation and need to be a MAP beneficiary) characteristics.

Other factors that need to be considered to choose a proper research design for the impact analysis are: political, ethical and operational feasibility of the evaluation design; estimated budget; and the timeliness of evaluation findings.

2. Gathering needed information through surveys

Considering the fact that nationally representative HUES gathers information on self-reported health status, utilization of health services, related health expenditures and stratifies its findings by beneficiaries/non-beneficiaries and by consumption quintiles, this study considers HUES as a crucial data source to answer most research questions and recommends using the same survey tool to receive comparable information for follow-up analysis (every two years).

Based on assessment of each performance indicators (Appendix #3) study also recommends the following changes in HUES:

- Stratify (drill down) survey findings by beneficiary/non-beneficiary for the following selected indicators (appendix # 3): indicator #23, indicator #25, indicator #26, indicator #27, indicator #28, indicator #29;

²³ Based on essential drug list

- As much as sample size gives an opportunity, stratify survey findings for selected indicator #13 and indicator #24 (appendix # 4) by functions of care: outpatient, inpatient (urgent/planned) services, each stratified by therapy, oncology, cardiology etc. Suggested classification, provided in details in Appendix #5, is supported by routine HIMS. Thus, it provides opportunity to (a) inform not only MAP, but also other publicly funded programs on coverage gaps and (b) increase the possibilities to generating comparable information in overall HMIS. Estimated per-capita expenditures by functions of care will also inform National Health Accounts (NHA), national policy evaluation tool, based on which the Government identifies priorities for publicly funded health programs and will be an important step in evidence-based program/budget planning not only for MAP, but also for other publicly funded health services.
- Include indicator #18 (percent of population who where hospitalized in last year but left hospital early because they run out of money in total number of population reported hospital treatment (stratified by beneficiaries/non/beneficiaries; by consumption quintiles) from selected list of indicators (appendix # 3) in HUES survey.

3. *Gathering needed information through routine information system*

The existing reporting system (from health care organizations to insurance companies, from insurance companies to HeSPA and from HeSPA to MoLHSA) does not generate enough information to make informed decisions about MAP implementation. Specifically, analysis of pre-selected indicators show (Appendix #3) that neither HeSPA nor MoLHSA receives information about services covered and remunerated under MAP according to ICD10 diagnostic codes and procedures/intervention codes (International Classification of Procedure Codes (ICPC) and NomESCO Classification of Surgical Procedures (NCSP)), stratified by regions, age, sex. Without this critical information, it is difficult to assess the impact of MAP on the main output of the program: health service utilization of beneficiaries.

On the other hand, GoG is not aware of the administrative costs of insurance companies, for example, the costs (losses) the insurance companies faced to remunerate services provided to MAP beneficiaries. Without that information, it is impossible to reliably assess risks and calculate insurance premium for the next year for MAP. Considering those needs, the following information should be gathered.

1. Additional information to be gathered by Insurance companies from each health care provider (providing services under MAP) and to be sent to public purchaser (HeSPA)

- 1.1. Monthly inpatient visits and costs:
 - Per each patient: ICD 10 code, NCSP code, planned/urgent; period of visit, number of hospital days; total cost of service that was reimbursed)
- 1.2. Monthly outpatient visits and costs:
 - Per each patient: ICD 10 code, ICPC code, time of visit, total cost of service that was reimbursed)
- 1.3. Annual administrative costs of each insurance company, total costs of reimbursed services

2. Additional information to be included in HeSPA's monthly/annual reporting forms (to MoLHSA)

- 2.1. Insured MAP beneficiaries, stratified by age groups, male/female, regions (monthly form);
- 2.2. Annual administrative costs per each insurance company, cost of services reimbursed (annual form);
- 2.3. Aggregated information on total number of inpatient services (stratified by regions; by total number of each ICD 10 code, NCSP code, planned/urgent inpatient care; number of hospital days; total cost of service reimbursed) (monthly form);
- 2.4. Aggregated information on total number of outpatient visits (stratified by regions, by total number of each ICD 10 code, ICPC code, total cost of service reimbursed) (monthly form);

VIII. Conclusions

Despite some difficulties, in its initial years of implementation, MAP successfully provided medical services to an increased number of Georgians. Having significant political support from the highest level decision makers of the country, the program can be optimistically regarded. With proper stewardship and integrated, evidence-based interventions, MoLHSA can be expected to reach MAP's objectives.

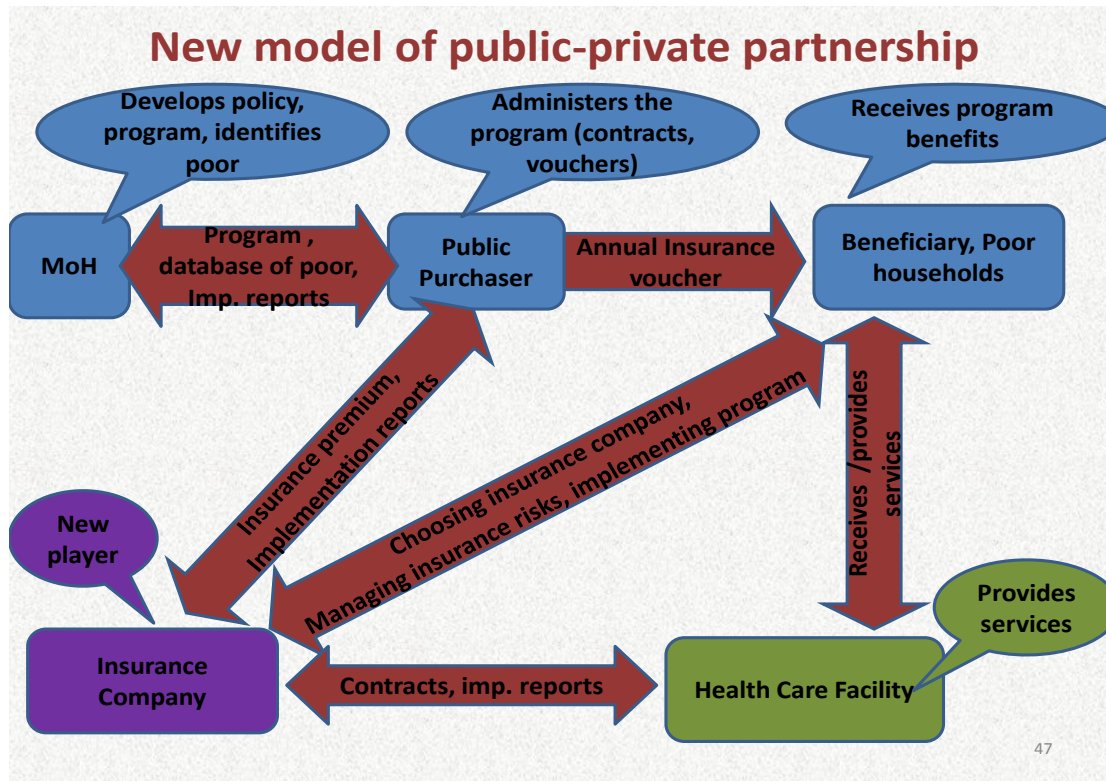
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22. Williams and Torrens, 7th ed. Chapter 5 Private Health Insurance and Managed Care, p.110;

Appendix:

Appendix#1



Appendix #2: Monitoring and Evaluation framework for MAP

What has to be assessed	Key Questions	Pre-selected Performance indicators
Inputs of MAP		Input measures:
<ul style="list-style-type: none"> • MAP budget; • Administrative budget of MAP; • Adequacy of insurance premium to the program benefits; 	What is the share of MAP expenditures in total government expenditure on health and in total health expenditure?	1.Percent MAP expenditures in government expenditures on health; 2.Percent MAP expenditures in total health expenditures; 3.Per capita MAP expenditures as a percent of per-capita total health expenditures 4.Per capita MAP expenditures
	What resources are needed to administer the program?	5.Percent of administrative budget (assigned administrative costs) of the program in total budget of MAP (12, 13, 14). 6.Employee/day used annually to administer the MAP
	What is the difference (if any) between annual insurance premiums and actuarial estimates?	7. Annual insurance premium offered by the MAP as a percent of insurance premium according actuarial estimate, developed for MAP of corresponding year (US Agency for International Development [USAID], 2008)
Outputs of MAP		Output measures:
<ul style="list-style-type: none"> • Targeting of benefits toward most in need _the poor; • The coverage of the poor; • Utilized services (inpatient, outpatient) under the MAP; 	Does the program succeed to target the health benefits to the poor?	8. Percent of each consumption quintile covered by MAP (CDC, 2010) 9. Comparison of health services utilization rates among the lowest and the highest quintile of MAP beneficiaries by welfare scores (Hou&Chao, 2008)
	What percent of the poor throughout the country is covered by MAP;	10. Percent of the beneficiaries of the MAP in the total number of population, registered in socially vulnerable database; (see HSPA page 75) 11. Percent of the beneficiaries of MAP in total number of poors stratified by Region;

What has to be assessed	Key Questions	Pre-selected Performance indicators
	What is the difference in services utilized by MAP beneficiaries in comparison to non-beneficiaries with similar poverty status?	<p>12. Local Average Treatment (surgeries) effect (LATE) of the MAP beneficiaries vs non-beneficiaries (Hou&Chao, 2008)</p> <p>13. Percent of population utilized health services when sick (stratified by beneficiaries, non-beneficiaries, by consumption quintiles, and by functions of care: outpatient, inpatient (urgent/planned), each stratified by therapy, oncology, cardiology and etc.) (CDC, 2010)</p>
Outcomes of MAP		Outcome measures:
2.1. Financial accessibility to the health services²⁴	What percent of population could not afford health and diagnostic services and purchase prescribed drugs?	<p>14. Percent of respondents who reported sickness in last 30 days where no medical care outside the house was taken up because it was too expensive/not enough money available (stratified by beneficiaries/non-beneficiaries, by consumption quintiles²⁵) (CDC, 2010) ;</p> <p>15. Percent of population who were reported to need hospitalization in the last year but were not hospitalized because it was too expensive/they did not have enough money (stratified by beneficiaries/non/beneficiaries; by consumption quintiles) (CDC, 2010)</p> <p>16. Percentage of consultations where lab test was prescribed but not done because it was too expensive. stratified by beneficiaries, non-beneficiaries, by consumption quintiles (CDC, 2010)</p> <p>17. Percentage of consultations where medicine was prescribed, but not purchased because it was too expensive (stratified by beneficiaries/non-beneficiaries; stratified also by consumption quintiles) (CDC, 2010)</p> <p>18. Percent of patients left hospital early because they run out of money in total number of patients reported hospital treatment</p>

²⁴ Meaning ability of the people to obtain appropriate health care at the right time based on needs

²⁵ Decomposition by consumption quintile better assesses equity of access (see dimension 2.3.2.), but in order to avoid repetition of indicators (this note reflects to all 4 indicators under 2.1. dimension), both decompositions are shown in dimension #2.1.

What has to be assessed	Key Questions	Pre-selected Performance indicators
		(United Nations development Programme [UNDP], 2008)
2.2. Financial protection of the population meaning protect people against catastrophic expenditures, associated with illness	What is the share MAP beneficiaries in population who have any kind of health insurance (Government, private, employer);	The share MAP beneficiaries in population who have any kind of health insurance, stratified by government, private, employer health insurance; (CDC, 2010) (Gotsadze et al., 2001); 20. Percentage of population reporting being covered by health insurance (government, private, employer) stratified by source of payment (CDC, 2010)
	What percent of population is uninsured?	Percentage of the uninsured population stratified by consumption quintiles; (CDC, 2010)
	What is the share protection of the population against catastrophic expenditures?	Percentage of the population incurring catastrophic health expenditure (stratified by consumption quintile) in total population incurring any kind of medical expenditure during reporting period (EDPRP Georgia, 2003)
2.3. Equity of the health system ²⁶		
2.3.1. Equity of finance promoting a more equitable distribution of burden of financing the health system ²⁷	Does the health system ensure fair distribution of burden of health financing?	23. The share of household consumption devoted to health (stratified by beneficiaries/nonbeneficiaries and by household consumption quintiles (from poorest fifth to richest fifth) (CDC, 2010) 24. Mean monthly household spending on health (stratified by beneficiaries/nonbeneficiaries and by household consumption quintiles (from poorest fifth to richest fifth) 25. The share of households monthly consumptions devoted to recurrent costs on chronic conditions (stratified by consumption quintile and by beneficiary/nonbeneficiary) (CDC, 2010)

²⁶ Meaning to ensure more fair distribution of resources within the system to meet basic health needs of the population

²⁷ Meaning to ensure that richer people pay more for health care, as a proportion of their income, than poorer people;

What has to be assessed	Key Questions	Pre-selected Performance indicators
		<p>(Gotsadze, Zoidze& Rukhadze, 2009)</p> <p>26. The share of households montly consumptions devoted to outpatient care costs (stratified by consumption quintile and by beneficiary/nonbeneficiary) (CDC, 2010) (Gotsadze, Zoidze& Rukhadze, 2009)</p> <p>27. The share of households montly consumptions devoted to self treatment costs (stratified by consumption quintile and by beneficiary/nonbeneficiary) (CDC, 2010) (Gotsadze, Zoidze& Rukhadze, 2009)</p> <p>28. Mean amount per case of drug purchase as the percent of montly household consumption (stratified by consumption quintile and by beneficiary/nonbeneficiary) (CDC, 2010) (Gotsadze, Zoidze& Rukhadze, 2009)</p> <p>29. Mean amount of hospitalization as the percentage of montly household consumption (stratified by consumption quintile and by beneficiary/nonbeneficiary) (CDC, 2010) (Gotsadze, Zoidze& Rukhadze, 2009)</p> <p>30. Fairness in financial contribution (FFC), (mean of cubed absolute difference between the out-of-pocket health payments share of household capacity to pay (EDPRP Georgia, 2003) (This indicator allows to assess whether the country collects contributions from households to finance health in an equitable manner.</p>
<p>2.3.2. Equity of access _promoting a more equitable use and provision of services ²⁸</p>	<p>How financial accessibility to health services has changed in consumption quintiles?</p>	<p>Indicators #14, 15, 16, 17 with stratification by consumption quintile could be used to assess equity of access as it will show the disrtibution of access to health services among different consumption quintiles</p>

²⁸ Meaning that services provided in health care are based on needs rather than ability to pay”

Appendix #3: Evaluation of pre-selected performance indicators according to the defined criteria

Core set of pre-selected performance indicators available *, unavailable** (marked in red)	Criteria -1, 0, +1					A	Comments
	Important	Understandable	Actionable	Valid & Reliable	Feasible	B C	
Input measures:							
1. Percentage of MAP expenditures ²⁹ in government expenditures on health*	+1	+1	0	+1	+1	A +4	
2. Percentage of MAP expenditures in total health expenditures*	0	+1	0	+1	+1	A +3	
3. Per capita MAP expenditures as a percentage of per-capita total health	0	-1	0	-1	0	C -2	(a) Per capita measures raise serious concerns regarding feasibility as the number of population in Georgia (4.3 million), used as denominator for this

expenditures*							indicator, might not reflect the actual number population (CDC, 2010) . (b) MAP beneficiaries are also recipients of other publicly funded health programs. Thus, the comparison of per-capita expenditures by MAP and per-capita total health expenditures would not lead to valid analysis on the government's total contribution to the health of the poor.
4. Per capita MAP expenditures*	+1	+1	+1	0	0	A +3	As the beneficiaries of the program vary throughout the years, per-capita MAP expenditures is effective measure to assess program input per beneficiary
5. Percent of administrative budget (assigned administrative costs) of the program in total budget of MAP (12, 13, 14)*	+1	0	0	0	-1	B 0	Administrative budget of the program is available only for 2006 and partially for 2007 (administrative budget of HeSPA). Information about administrative budgets of insurance companies to run the MAP is not available.
6. Employee/day used annually to administer the MAP**	0	0	-1	-1	-1	C -3	Information is not available and could not be obtained at a reasonable cost from either public purchases or private health insurance companies
7. Annual insurance premium offered by MAP as a percentage of insurance premium according actuarial estimate, developed for MAP of corresponding year (WHO, 2010) (ratio level);	+1	+1	0	+1	-1	A +2	Actuarial estimates are available only for 2008 and 2009 years (source: USAID, Co-reform Project). In order to get independent and reliable estimate of insurance for MAP MoLHSA should ensure sustainable financing of independent actuarial services. In order to reliably define insurance premium, it is also critically important to know utilization rates and costs that insurance companies pay to health care providers for the services provided under the program. The current reporting system does not consider collection

							of this information from insurance companies.
Output measures:							
8. Percentage of each consumption quintile covered by MAP (Chitashvili et al., 2009)	+1	+1	+1	0	+1	A +4	Measuring percentage of consumption quintiles covered by MAP, gives clear understanding how effectively program covers the poorest quintiles (whether the program reaches the poorest among consumption quintiles).
9. Comparison of health services utilization rates among the lowest and the highest quintile of MAP beneficiaries by welfare scores (Hou&Chao, 2008) *	0	0	-1		0	C -2	This indicator is proposed by WB evaluation paper (Hou&Chao, 2008) . The methodology to obtain the information was based on multi part model developed by Manning et al: MAP beneficiaries were grouped into five quintiles based on their welfare scores and the use of services compared between the lowest and highest quintiles. Considering the fact that the study assumes that eligibility scores provide reliable estimate of poverty status of MAP beneficiaries, this indicator only allows us to assess whether the benefits have reached the poorest among beneficiaries and is not valid to assess the benefit targeting.
10. Percent of the beneficiaries of the MAP in the total number of population, registered in socially vulnerable database*	+1	+1	0	+1	+1	A +4	Due to limited government funds, it is unable to cover 100 percent of the poor, thus, despite visible increase of coverage, ability to action is limited.
11. Percent of the beneficiaries of MAP in total number of poors stratified by Region*	+1	+1	0	-1	+1	A +2	Poverty incidence is based on data of Georgia's Department of Statistics. Reliability of these data might be questionable as it significantly differs from UNDP and CIA ³⁰ estimates (Central Intelligence

³⁰ Central Intelligence Agency Civilian _ intelligence agency of the United States government.

							Agency [CIA], 2008) (Government of Georgia, 2007) 23,3 percent SDS, 56.2 percent UNDP, 31 percent _CIA)
12. Local Average Treatment (surgeries) effect (LATE) of the MAP beneficiaries vs non-beneficiaries (Hou&Chao, 2008) *	+1	0	+1	-1	-1	B 0	The indicator is provided by WB paper (Hou&Chao, 2008) . It evaluates the impact of MAP on utilization of services. In addition to the study limitations (it compares only acute surgeries while the program covers also acute out-patient treatment and diagnostic procedures, planned inpatient services, deliveries and only with assessment of acute surgeries), it also raises serious concerns on data quality/reliability, obtained from HeSPA.
2. Percent of population utilizing health services when sick (stratified by beneficiaries, non-beneficiaries, by consumption quintiles, and by functions of care: outpatient, inpatient (urgent/planned), each stratified by therapy, oncology, cardiology and etc.) (CDC, 2010) **	+1	+1	+1	0	-1	A +2	<p>This indicator is critical to assess key output of the program _ utilization of services of MAP under benefit package. Current reporting system (from health care organizations to HeSPA and from HeSPA to MoLHSA) does not support receiving information about the services covered and remunerated under MAP according to ICD10 diagnostic codes, procedures/intervention codes (ICPC and NCSP), stratified by regions, age, sex.</p> <p>HUES also does not gather service utilization information by functions of care. Therefore, stratifying findings by functions of care (planned/urgent inpatient, outpatient services, stratified by oncology, therapy, cardiology and etc.) and inform decision makers about MAP impact on utilization of health services according to each service category of MAP benefit package.</p> <p>Because of the fact that indicator #13 is crucial to assess MAP's impact on health service utilization,</p>

						<p>indicator was included in selected list of indicators and was followed with proper recommendations to improve routine reporting system and HUES. For pilot evaluation, we used indicators that are currently available through HUES: 1) Share (percent) of population hospitalized (inpatient) during year prior to survey (stratified by beneficiaries, non-beneficiaries, by consumption quintiles); 2) Overall number of consultations per capita per annum and 3) percent of population utilized health services when sick, stratified by beneficiaries, non-beneficiaries, by consumption quintiles.</p> <p>As the health status might differ in beneficiaries/non-beneficiaries (with different poverty status), comparison of health service utilization rates among them might be influenced by other variables and thus, not fully reflect MAP's influence.</p> <p>Data reflect self-reported visits and might not be accurately measure what it intends to measure (problem of validity)³¹.</p>
Outcome measures:						

³¹ This limitation is applicable to all indicators that are drawn from HUES

14. Percent of respondents who reported sickness in last 30 days where no medical care outside the house was taken up because it was too expensive/not enough money available (stratified by beneficiaries/non-beneficiaries, by consumption quintiles ³²) (CDC, 2010) *	+1	+1	+1	0	0	A +3	Data reflects self-reported needs on health services and thus, might be biased.
15. Percent of population who were reported to need hospitalization in the last year but were not hospitalized because it was too expensive/they did not have enough money (stratified by beneficiaries/non/beneficiaries; by consumption quintiles) (CDC, 2010) *	+1	+1	+1	0	0	A +3	Data reflects self-reported needs on health services and thus, might be biased.
16. Percentage of consultations where lab test was prescribed but not done because it was too expensive. stratified by beneficiaries, non-beneficiaries, by consumption quintiles (CDC, 2010) *	+1	+1	+1	0	+1	A +4	
17. Percentage of consultations where medicine was prescribed, but not purchased because it was too expensive (stratified by beneficiaries/non-beneficiaries; stratified also by consumption quintiles) (CDC, 2010) *	+1	+1	+1	0	+1	A +4	
3. Percentage of population who where hospitalized in last year but left	+1	+1	0	0	-1	B	Currently, information on this indicator is not available, but this indicator could be served to fully

³² Decomposition by consumption quintile better assesses equity of access (see dimension 2.3.2.), but in order to avoid repetition of indicators (this note reflects to all 4 indicators under 2.1. dimension), both decompositions are shown in dimension #2.1.

hospital early because they run out of money in total number of population reported hospital treatment (stratified by beneficiaries/non/beneficiaries; by consumption quintiles) (UNDP, 2008)**						+1	identify unmet needs of population. Due to its high importance, I recommend to include this question in future HUES.
4. The share MAP beneficiaries in population who have any kind of health insurance, stratified by government, private, employer health insurance (CDC, 2010) , (Gotsadze et al., 2001)*	+1	+1	0	0	0	A +2	
5. Percentage of population reporting being covered by health insurance (government, private, employer) stratified by source of payment (CDC, 2010) *	0	0	0	-1	-1	C -2	Is very similar to Indicator #19 but Indicator #19 better shows impact of the MAP in total population protected from catastrophic health expenditure through insurance scheme
6. Percentage of the uninsured population stratified by consumption quintiles (CDC, 2010) *	+1	+1	0	0	0	A +2	This indicator shows unmet needs of different consumption quintiles to be protected from catastrophic health expenditure through insurance scheme
7. Percentage of the population incurring catastrophic health expenditure (stratified by consumption quintile, by beneficiary, non-beneficiary**) in total population incurring any kind of medical expenditure during reporting period; (Economic Development and Poverty Reduction Program of Georgia [EDPRP Georgia], 2003) *	+1	+1	0	0	0	A +2	Although this indicator does not assess occurrence of catastrophic health expenditures in beneficiaries and non-beneficiaries, it gives valuable information to a) understand how equitably the financial access to health services are distributed among consumption quintiles and b) assess unmet needs of each consumption quintile to protect from catastrophic health expenditures; Decoposition by beneficiary-non-beneficiary is important to assess MAP's impact.

<p>23. The share of households consumption, devoted to health (stratified by beneficiaries/nonbeneficiaries and by household consumption quintiles (from poorest fifth to richest fifth) (CDC, 2010) *</p>	+1	+1	0	0	0	A +2	<p>The survey captured only the direct cost of care to the patient/household. The survey tool does not include:</p> <p>(a) the portion of the cost of services paid by third party payers (government, insurance companies and etc) and</p> <p>(b) expenditures for paying taxes, a portion of which goes to finance health services;</p> <p>(c) Household expenditures estimated in HUES are those mainly made in cash. <i>“NB in-kind payments in Georgia’s health care system are rare and therefore could be ignored”</i> (Gotsadze, Zoidze& Rukhadze, 2009)</p> <p>(d) the cost of transportation and economic costs to the households to get needed services are also not taken into account;</p> <p>(e) health status as well as estimated expenditures are self-reported and may not be fully accurate. (Gotsadze, Zoidze& Rukhadze, 2009)</p> <p>These limitations hinder opportunity to reliably assess the impact of MAP on equity of finance.</p>
<p>24. Mean monthly household spending on health by functions of care** (stratified by beneficiaries/nonbeneficiaries, by household consumption quintiles (from poorest fifth to richest fifth) (CDC, 2010) *</p>	+1	+1	0	0	0	A +2	<p>All Limitations of indicator #23 apply to this indicator</p> <p>Currently, the information is not stratified by functions of care. For in-depth analysis, as the sample size gives opportunity, it is advisable to stratify mean monthly household spending on health by functions of care, as it is recommended in Appendix #6Appendix #5</p>

25. The share of households monthly consumptions devoted to recurrent costs on cronic conditions (stratified by consumption quintile, by beneficiary, nonbeneficiary**)(CDC, 2010) (Gotsadze, Zoidze& Rukhadze, 2009) *	+1	+1	0	0	0	A +2	All Limitations of indicator #23 apply to this indicator In final HUES reports (CDC, 2010) (50), corresponding information is not stratified by beneficiary/non-beneficiary. This problem should be addressed in follow-up surveys.
26. The share of households monthly consumptions devoted to outpatient care costs (stratified by consumption quintile, by beneficiary, nonbeneficiary**) * (CDC, 2010) (Gotsadze, Zoidze& Rukhadze, 2009)	+1	+1	0	0	0	A +2	All Limitations of indicator #23 apply to this indicator In final HUES reports (CDC, 2010) (50), corresponding information is not stratified by beneficiary/non-beneficiary. This problem should be addressed in follow-up surveys.
27. The share of households monthly consumptions devoted to self treatment costs (stratified by consumption quintile, by beneficiary, nonbeneficiary**)(CDC, 2010) (Gotsadze, Zoidze& Rukhadze, 2009) *	+1	+1	0	0	0	A +2	All Limitations of indicator #23 apply to this indicator In final HUES reports (CDC, 2010) (50), corresponding information is not stratified by beneficiary/non-beneficiary. This problem should be addressed in follow-up surveys.
28. Mean amount per case of drug purchase as the percent of monthly household consumption (stratified by consumption quintile, by beneficiary, nonbeneficiary**) (CDC, 2010) (Gotsadze, Zoidze& Rukhadze, 2009) *	+1	+1	0	0	0	A +2	All Limitations of indicator #23 apply to this indicator In final HUES reports (CDC, 2010) (50), corresponding information is not stratified by beneficiary/non-beneficiary. This problem should be addressed in follow-up surveys.
29. Mean amount of hospitalization as the percent of monthly household	+1	+1	0	0	0	A	All Limitations of indicator #23 apply to this

consumption (stratified by consumption quintile and by beneficiary/nonbeneficiary**) (CDC, 2010) (Gotsadze, Zoidze& Rukhadze, 2009)						+2	indicator In final HUES reports (CDC, 2010) (50), corresponding information is not stratified by beneficiary/non-beneficiary. This problem should be addressed in follow-up surveys.
8. Fairness in Financial Contribution (FFC), (mean of cubed absolute difference between the out-of-pocket health payments share of household capacity to pay (EDPRP Georgia, 2003)	0	-1	0	-1	0	C -2	Based on the methodology, suggested by WHO, FFC index measures whether a country collects contributions from households to finance health in an equitable manner. As the MAP has only partial contribution on equitable collection of households' contribution to finance health, this indicator lacks importance and is not a valid measure of MAP's impact.

Appendix #4: Detailed description of available selected indicators

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
Indicator	Input/output /outcome	Numerator/ and denominator	Organization, File, Key data contact	Date/ period when data are available	Remark on definition/term used, other remarks
1. Percent MAP expenditures ³³ in government expenditures ³⁴ on health	Program input	<u>Numerator:</u> MAP expenditures for fiscal year <u>Denominator:</u> Total Government expenditures on health for the corresponding year	Numerator: HUES, State Budget for corresponding year; Denominator: NHA	2006 partial, 2007 and 2008 fiscal year ³⁵ ,	Detailed methodology of calculation of total government expenditures on health is not provided in the NHA report);
2. Percent MAP expenditures in total health expenditures	Program input	<u>Numerator:</u> Total MAP expenditures for fiscal year <u>Denominator:</u> Total expenditures on health (from all sources: Government, private, financial aid) for the corresponding year	Numerator: State Budget for corresponding year; Denominator: NHA	2006 partial, 2007 fiscal year, 2008 fiscal year	Detailed calculation (methodology) of total expenditures on health is not shown in the NHA report

³⁴ Expenditures, costs in all relevant indicators are shown in local currency, GEL

³⁵ Fiscal year: January 1st to December 31st

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
4.Per capita MAP expenditure	Program input	<u>Numerator:</u> Total MAP expenditures for fiscal year <u>Denominator:</u> Number of MAP beneficiaries in each year	Numerator: State Budget for corresponding year; Denominator: MAP of corresponding year, HeSPA	2006 partial, 2007 fiscal year , 2008 fiscal year	
5. Percent of administrative budget (assigned administrative costs) of the program in total budget of MAP	Program input	<u>Numerator:</u> administrative budget of MAP for fiscal year <u>Denominator:</u> Total MAP budget for corresponding year	Approved MAP program for corresponding year	2006, 2008 years	
7.Annual insurance premium offered by the MAP as a percent of insurance premium according actuarial estimate, developed for MAP of corresponding year	Program input Units of analysis: Annual insurance premium in GEL	<u>Numerator:</u> Annual insurance premium, defined by MAP <u>Denominator:</u> Annual Insurance premium of corresponding year, estimated by actuaries	Numerator: Approved MAP program for corresponding year, GoG Resolution #166 (Government of Georgia, 2007) Denominator USAID premium estimates for MAP (US Agency for International Development [USAID], 2008)	For fiscal year 2007, 2008	

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
8. Percent of each consumption quintile covered by MAP	Program output/ Units of analysis: individual, beneficiary of MAP	<u>Numerator:</u> number of respondents reported to be MAP beneficiary in each consumption quintile <u>Denominator:</u> Total number of respondents having same consumption quintile	HUES ³⁶	2007 year ³⁷	In 2007, MAP Beneficiaries are individuals, registered in Database of socially vulnerable families, who has 70,000 or less welfare score; Each family, registered in the database and each individual have own family and individual ID number and thus, data are available for both units of analysis; HUES does not provide detailed method of calculation of consumption quintiles
10. Percent of the beneficiaries of the MAP in the total number of population, registered in socially vulnerable database;	Program output Units of analysis: individual	<u>Numerator:</u> number of beneficiaries of the MAP in fiscal year; <u>Denominator:</u> total Number of population, registered in socially vulnerable database in corresponding year	Numerator:HeSPA Denominator:SAESA	2007 fiscal year	SAESA has database of socially vulnerable families which is used by HeSPA to identify MAP beneficiaries

³⁶ HUES uses nationally representative sample of 3218 households

³⁷ Although the HUES was conducted in May/June 2007, the number of beneficiaries throughout the fiscal year remained the same.

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
11. Percent of the beneficiaries of MAP in total number of the poor	Program output/ individual Units of analysis: Individual	<u>Numerator:</u> number of beneficiaries of MAP <u>Denominator:</u> total number of the poor in the country, based on poverty incidence rate ³⁸	Numerator: HeSPA Denominator: SDS		Total number of the poor is defined by State Department of Statistics as number of population of Georgia multiplied on poverty incidence (in percent), with respect to 60 percent of median consumption and divided by 100
12. Local Average Treatment (surgeries) effect (LATE) of the MAP beneficiaries vs non-beneficiaries	Program output Unit of analysis: surgery (as 1 unit of clinical intervention)	<u>Numerator:</u> Number of surgeries, utilized by MAP beneficiaries (per person per year), who have 98,000 to 100,000 welfare score <u>Denominator:</u> Number of surgeries, utilized by non-beneficiaries (per person per year), who have 100,001 to 102,000 welfare score	HeSPA, (MoLHSA, 2006) Numerator: HeSPA MAP program Denominator: HeSPA, Urgent Care Program	2007	(MoLHSA, 2006) Study used two cells model of quasi-experimental design (participant and comparison group; no “before” and “after” comparison) and Regression Discontinuity Method to define LATE; Participant Group _just below the cut-off score _from 98,000 to 100,000 _MAP participants Comparison group _ just above the eligibility score _from 100,000 to 102,000. _non-beneficiaries;

³⁸ Millennium Development Goals define poverty incidence as the proportion of population whose annual per capita income falls below the per annual per capita poverty threshold to the total number of population.

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
13.1.Share (percent) of population hospitalized (inpatient) during year prior to survey (stratified by beneficiaries, non-beneficiaries, by consumption quintiles)	Program output Unit of analysis: surgery (as 1 unit of clinical intervention)	<u>Numerator:</u> number of hospitalizations ³⁹ in total number of household members <u>Denominator:</u> total number of household members, whose members were interviewed ⁴⁰	HUES	2006-2007 one year prior to interview	Inpatient services of any household member during 1 year prior to interview
13.2.Overall number of consultations (outpatient services) per capita per annum, stratified by beneficiaries, non-beneficiaries	Program output	“Number of consultations (out-patient services) during last 30 days, multiplied by 12, QF25. i.e. every consultation during the last 30 days multiplied by 12 and divided by the size of the (relevant segment of the) population.”	HUES	2006-2007 one year prior to interview	There are some cases where the period of consultation is ambiguous. If they were all included, overall consultations per person per annum would be 2.26.” HUES assumes to cover outpatient visits from this indicator
13.3. percent of population utilized health services when	Program output	<u>Numerator:</u> number of any inpatient/outpatient visits in six months	HUES	2006-2007 during 6 months prior	HUES assumes to cover all visits in any health care facilities and visits of health

³⁹ Each respondent was asked to provide information on utilized health services about all his/her household members, thus, total number of cases are sum of cases of respondents and their household members

⁴⁰ For each indicator, which is based on comparison of MAP beneficiaries vs. non-beneficiaries using HUES, we could consider that quasi-experimental research design is used, with 2 cells model (participant group: MAP beneficiaries in HUES respondents; comparison group: non-beneficiaries in HUES respondents, no “before” and “after” or follow-up comparison is available)

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
sick, stratified by beneficiaries, non-beneficiaries, by consumption quintiles.		prior to interview <u>Denominator:</u> total number of household members whose members were interviewed		to interview	care provider at home
14. Percent of respondents who reported occurrences of sicknesses in last 30 days where no medical care outside the house was taken up because it was too expensive/not enough money available (stratified by beneficiaries, beneficiaries, by consumption quintiles);	Program outcome _financial accessibility; unit of analysis: occurrence of sickness	<u>Numerator:</u> total number occurrences of sicknesses in last 30 days where no medical care outside the house was taken up because it was too expensive/not enough money available <u>Denominator:</u> total number of occurrences of sicknesses	HUES	2007, last 30 days before interview	
15. Percent of population who were reported to need hospitalization in the last year but were not hospitalized because it was too expensive/they did not have enough money (stratified by beneficiaries/non/beneficiaries; by	Program outcome _financial accessibility; equity of access unit of analysis: individuals	<u>Numerator:</u> number of individuals who needed hospitalization in the last year but were not hospitalized because it was too expensive/they did not have enough money; <u>Denominator:</u> number of individuals who needed hospitalization	HUES	2006-2007/ during one year (before interview)	HUES does not specify the question used for this purposes;

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
consumption quintiles)					
16. Percent of consultations where lab test was prescribed but not done because it was too expensive. stratified by beneficiaries, non-beneficiaries, by consumption quintiles	Program outcome _financial accessibility; equity of access Unit of analysis: consultations	<u>Numerator:</u> total number of consultations where lab test was prescribed but not done because it was too expensive. <u>Denominator:</u> total number of consultations, where lab test was prescribed	HUES	2007, last 30 days before interview	HUES does not specify the question used for this purposes;
17. Percentage of consultations where medicine was prescribed, but not purchased because it was too expensive (stratified by beneficiaries/non-beneficiaries; stratified also by consumption quintiles);	Program outcome _financial accessibility, equity of access; unit of analysis: consultations	<u>Numerator:</u> number of consultations where medicine(s) was prescribed but was not purchased because it was too expensive. <u>Denominator:</u> total number of consultations where medicine(s) was prescribed	HUES	2007, last 30 days before interview	HUES does not specify the question used for this purposes;
19. The share of MAP beneficiaries in population who have any kind of health insurance, stratified by type	Program outcome _financial protection Unit of analysis: Individual	<u>Numerator:</u> number of MAP beneficiaries <u>Denominator:</u> total number of individuals having any kind of health insurance	HUES	2007 year	HUES does not specify the question used for this purposes, but as in other cases of HUES, respondents reported about themselves and their household members. Thus, the total number of individuals equals the sum

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
					number of family members for all respondents of HUES;
21. Percentage of the uninsured population stratified by consumption quintiles	Program outcome _financial protection Unit of analysis: individuals	<u>Numerator:</u> total number of individuals who do not have any kind of health insurance <u>Denominator:</u> total number of individuals	HUES	2007 year	HUES does not specify the question used for this purposes
22. Percentage of the population incurring catastrophic health expenditure (stratified by consumption quintile) in total population incurring any kind of medical expenditure during reporting period	Program outcome _financial protection Unit of analysis: Household Unit of observation : individual	Complex measure, developed by K. Xu et al	(EDPRP Georgia, 2003), HUES	2007 year	(4) <u>Catastrophic health expenditure</u> : (definition by K.Xu et al.) when a household's financial contribution to health care costs equals and/or exceeds 40 percent of non-food expenditure or <u>Capacity to Pay</u> (estimated after subtracting Subsistence expenditure from monthly household expenditure, obtained from HUES, <u>Substance expenditure</u> corresponds to the average food expenditure of the households in the 45 th and 55 th percentile, adjusted to the size of given households (for this purpose, methodology of K. Xu et al. was used).

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
23.The share of household monthly expenditure, devoted to health (stratified by beneficiaries/nonbeneficiaries and by household consumption quintiles (from poorest fifth to richest fifth))	Program outcome _equity of financing Unit of analysis: Household Unit of observation : individual	<u>Numerator:</u> Monthly household expenditure, devoted to health (outpatient, inpatient services and drugs) <u>Denominator:</u> Total monthly expenditures of those households that faced health expenditures	HUES	2007, 30-day period prior to interview	Monthly household expenditure defined as household's total monthly spending on outpatient, inpatient services and drugs
24.Mean monthly household spending on health (stratified by beneficiaries/nonbeneficiaries and by household consumption quintiles (from poorest fifth to richest fifth))	Program outcome _equity of financing; Unit of analysis: Household	<u>Numerator:</u> sum of average monthly household spending estimated by interviewee <u>Denominator:</u> total number of households facing health expenditure	HUES	2007, 30-day period prior to interview	Absolute value of mean household monthly expenditure defined as mean monthly spending on outpatient, inpatient services and drugs

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
25.The share of households monthly consumptions devoted to recurrent costs on chronic conditions (stratified by consumption quintile)	Program outcome _equity of financing Unit of analysis: Household Unit of observation : individual	<u>Numerator:</u> mean households' monthly expenditure, devoted to recurrent costs on chronic conditions of specific quintile <u>Denominator:</u> mean monthly expenditures for corresponding consumption quintile	HUES	2007, 30-day period prior to interview	HUES and (Gotsadze, Zoidze& Rukhadze, 2009) do not provide details how mean households' monthly expenditure, devoted to recurrent costs on chronic conditions has been calculated Mean monthly consumption for the specific quintile was taken from Integrated Household Survey (IHS)
26.The share of households monthly consumptions devoted to outpatient care costs (stratified by consumption quintile)	Program outcome _equity of financing Unit of analysis: Household	<u>Numerator:</u> mean households' monthly expenditure, devoted to outpatient care costs of specific quintile <u>Denominator:</u> mean monthly expenditures for corresponding consumption quintile	HUES	2007, 30-day period prior to interview	HUES and (Gotsadze, Zoidze& Rukhadze, 2009) do not provide details how mean households' monthly expenditure, devoted to outpatient care costs was calculated Mean monthly consumption for the specific quintile was taken from Integrated Household Survey (IHS)

<u>Indicator Name</u>	<u>Purpose/Unit of analysis</u>	<u>Indicator Description</u>	<u>Source</u>	<u>Currency</u>	<u>Remark</u>
27.The share of households monthly consumptions devoted to self treatment costs (stratified by consumption quintile)	Program outcome _equity of financing Unit of analysis: Household	<u>Numerator:</u> mean households' monthly expenditure, devoted to self-treatment of specific quintile <u>Denominator:</u> mean monthly expenditures for corresponding consumption quintile			Most self-treatment costs are attributed to drug expenditures, very little _ to medical supplies, equipment and diagnostic services.
28.Mean amount per case of drug purchase as the percent of monthly household consumption (stratified by consumption quintile)	Program outcome _equity of financing Unit of analysis: Household	<u>Numerator:</u> mean amount per case of drug purchase of specific quintile <u>Denominator:</u> mean monthly expenditures for corresponding consumption quintile	HUES	2007, 30-day period prior to interview	Mean monthly consumption for the specific quintile was taken from Integrated Household Survey (IHS)
29.Mean amount of hospitalization as the percent of monthly household consumption (stratified by consumption quintile)	Program outcome _equity of financing Unit of analysis: Household	<u>Numerator:</u> mean amount per case of hospitalization in specific quintile <u>Denominator:</u> mean monthly expenditures for corresponding consumption quintile	HUES, (Gotsadze, Zoidze& Rukhadze, 2009)	2007, 30-day period prior to interview	Mean monthly consumption for the specific quintile was taken from Integrated Household Survey (IHS)

Appendix 5: Suggested Classification of Health Services by Functions of Care (for HUES)

- 1.1. Inpatient Curative care
 - 1.1.1. Surgery
 - 1.1.2. Cardio surgery
 - 1.1.3. Traumatology
 - 1.1.4. Therapy
 - 1.1.5. Cardiology
 - 1.1.6. Obstetrics
 - 1.1.7. Gynecology
 - 1.1.8. Oncology
 - 1.1.9. Tuberculoses
 - 1.1.10. Infection
 - 1.1.11. Mental health
 - 1.1.12. Pediatric
 - 1.1.13. Ophthalmology
 - 1.1.14. Rehabilitation
 - 1.1.15. Dialyze
 - 1.1.16. Other
- 1.2. Outpatient curative care
 - 1.2.1. Outpatient mental health
 - 1.2.1. Tuberculoses
 - 1.2.3. Pregnancy consultations
 - 1.2.4. Oncology
 - 1.2.5. Prevention and Public Health
 - 1.2.5.1. Immunization
 - 1.2.5.2. STDs
 - 1.2.5.3. HIV/AIDS
 - 1.2.5.4. Prevention of chronicle disease
 - 1.2.5.5. Occupational health care
 - 1.2.5.6. Other
 - 1.2.6. Traditional health care

- 1.2.7. Non-traditional health care
- 1.2.8. Other
- 1.3. Dental care
- 1.4. Emergency
- 1.5. Diagnostic
 - 1.5.1. Clinical and laboratory diagnostics
 - 1.5.2. X-ray
 - 1.5.3. Ultra sound
 - 1.5.4. Tomography
 - 1.5.5. Other
- 1.6. Medical goods and pharmaceuticals
 - 1.6.1. Pharmaceuticals and other medical nondurable
 - 1.6.2. Therapeutically appliances and other medical durables

Appendix 6 - Tables

Table 1

Input measures MAP (indicators #1, #2, #4, #5, #7) (Financial measures are presented in local currency-GEL)	2006 (6 months)	2007	2008
Number of MAP beneficiaries	650,000	673014	750838
Map expenditures	18,000,000	43,990,000	74,993,900
MAP monthly budget	3,000,000	3,665,833	6,249,492
Increase of MAP's monthly budget as a percentage of previous year		22 %	70 %
Per capita MAP expenditures	55	65	100
Increase of per-capita MAP expenditures as the percentage of previous year's expenditures		118 %	153 %
Government's expenditures on health	250,125,047	249,179,486	271,713,780
MAP expenditures as the percentage of government expenditures on health	7 %	18 %	27.60 %
Total Expenditures on health	1,159,568,573	1,386,594,738	1,660,701,695
MAP monthly expenditures as a % of total average monthly health expenditures	3.00 %	3.2 %	5 %
Expenses of program monitoring and administration HeSPA	265,922	-	772,500
Expenses of program monitoring/administration of HeSPA as a % of program budget	1 %	-	1 %
Annual insurance premium, defined by MAP 0-64 years	-	83.04	110.88
Annual insurance premium, defined by MAP 65 and > years	-	93.6	180.12

Source (MoLHSA, 2006), (WHO, 2010), (MoLHSA, 2007) , (MoLHSA, 2008), (MoLHSA, 2009), (Gotsadze et al., 2001), (Government of Georgia, 2007), (US Agency for International Development [USAID], 2008)

Table 2

Quintiles/MAP coverage	Poorest fifth	2 fifth	3 fifth	4 fifth	Richest fifth
Indicator #8: percentage covered by MAP in each consumption quintile	20.30	17.10	12.10	12.70	6.50
Percentage not covered	79.70	82.90	87.90	87.30	93.50

Source: HUES

Table 3

Percent and absolute values	2006	2007	2008
Percentage of the poor not covered by MAP	35.12 %	26.52 %	20.99 %
Poverty incidence (with respect to 60 percent of the median consumption) by SDS	23.30 %	21.30 %	22.10 %
Poverty incidence by UNDP and CIA	56.2% /31 %		
Percentage of the poor in the country covered by MAP	65%	73%	79%
Total number of poor ⁴¹	1001900	915900	950300
Number of beneficiaries of MAP	650000	673014	750838

Source: State department of Statistics, MAP programs of corresponding years

⁴¹ Calculated based on 4.3 million total population

Table 4

Intervention/services covered by MAP	2006	2007	2008
Urgent hospital services ⁴²	17200	26 803	20 383
Obstetric care ⁴³	16450	36 363	25528
Planned hospitalization	13101	11 547	17 620
Oncology		6 956	11 950

Source: HeSPA, (Chitashvili et al., 2009)

Table 5

Indicator #13.1. and 13.2.	Poorest	2nd Quintile	3rd Quintile	4th Quintile	Richest	Beneficiaries	Non-beneficiaries
Indicator 13.1 Share (percent) of population hospitalized during year prior to survey (inpatient)	4.6	4.4	4.9	5.4	4.5	5.3	4.2
Indicator 13.2. Overall number of consultations per capita per annum						2.39	1.05

Source: HUES

⁴² In 2006, urgent hospital services contain both urgent inpatient and outpatient services. In 2007 and 2008, the figure represents only inpatient services

⁴³ Obstetric component of the program also considers the 200 GEL vouchers for all pregnant women who declare that they need financial support during pregnancy

Table 6

Self-reported health status of HUES respondents and their families	Reported to be sick in last 6 months	One chronic disease	2 or more chronic disease	One acute sickness last 30 days	Additional acute sickness
Beneficiaries	63.9	50.0	35.0	16	0.8
Non-beneficiaries	58.3	35.0	10.0	15.6	1

Source: HUES

Table 7

Indicator 13.3 percentage who utilized health services when sick	Poorest	2nd Quintile	3rd Quintile	4th Quintile	Richest	Total	Reported to be sick
Beneficiaries	58.7	54.8	57.7	80.6	66.3	58.3	63.9
Non-beneficiaries	54.1	57.7	60.4	61.7	63.2	59.3	58.3

Source: HUES

Table 8

Financial access and equity of access indicators	Beneficiaries	Non Benef.	Poorest 5th	2 fifth	3 fifth	4 fifth	Richest fifth
Indicator #14: percentage of respondents who reported accuracies of sicknesses in last 30 days where no medical care outside the house was taken up because it was too expensive/not enough money available	24	17.7	21.5	18.7	24.2	15.2	11.3
Indicator #15: percentage of population who were reported to need hospitalization in the last year but were not hospitalized because it was too expensive/they did not have enough money	11.1	19.5	18.8	15.1	11.4	16.1	9.1
Indicator #16: percent of consultations where lab tests were prescribed but not done because of expense	3.2	6.9	6	4.6	3.8	4	3.6
Indicator #17: percentage of consultations where medicine was prescribed, but not purchased because it was too expensive	19.4	10.3	16.4	11.6	11.6	12.2	7.3

Source: HUES

Table 9

Measure	2007	2008
Indicator #19: The share of MAP beneficiaries who have any kind of health insurance, stratified by type (Government, private, employer health insurance)	71.6%	76.1%
Percentage of population covered by health insurance (Government, private, employer)	14.10%	22.9%
Percentage of population being covered by private/employer based health insurance	1.50%	5.5%
Percent of population covered by MAP	10.10%	17.5%

Source: HUES, State Financial Supervision Agency of Insurance

Table 10

Indicator #21: percentage of the uninsured population stratified by consumption quintiles	Poorest	2nd Quintile	3rd Quintile	4th Quintile	Richest
Percentage of uninsured population	81.5	85.2	87.5	85.6	83.1
Percentage of population covered by any health insurance (government, private or employer)	18.5	14.8	12.5	14.4	16.9
Percentage of population covered by state health insurance	17.8	13.9	11.5	13.1	5.4
Percentage of population covered by other health insurance (mainly through employer)	0.2	0.1	0.6	0.4	0.6
Percentage of population covered by private health insurance	0.4	0.9	0.4	0.8	2.6

Source: HUES

Table 11

Indicator #22: Households out-of-pocket expenditures catastrophic health expenditures as a share of capacity to pay	Poorest	2nd Quintile	3rd Quintile	4th quintile	Richest	Total
OOP \geq 40 % of CPT	17.7	12	10.1	8.4	10.3	11.7
OOP=20-40% of CPT	17	22.8	18.6	14.3	11.3	16.8
OOP=10-20% of CPT	10.1	19	20.8	15.6	13.4	15.8
OOP=0-10% of CPT	55.3	46.3	50.5	61.7	64.9	55.7

Source: Gotsadze G., Zoidze A., Rukhadze N. Household Catastrophic Health Expenditure: Evidence From Georgia and its Policy Implications, BMC Health Service Research, April 2009

Table 12

Household health expenditures indicators #23- 29	Poorest	2nd Quint.	3rd Quint.	4th Quint.	Richest	Beneficiaries	Non-beneficiaries
Indicator # 23: The percentage of households monthly consumption, devoted to health	19.1%	16.3%	14.5%	13%	11.2%	17.4%	14.2%
Indicator #24: Mean monthly household spending on health, GEL	43	61	64	72	93	50	71
Mean amount per case of hospitalization, GEL	509	546	481	581	829	414	637
The share of each consumption quintile's out-of-pocket expenditure on inpatient services in total out-of-pocket inpatient expenditures	12%	18%	16%	21%	33%		
Annualized per capita expenditure for outpatient care drugs by population groups, GEL	36.9	43.4	47.1	54	70.3	47.9	48.6
Mean annual recurrent spending per patient for chronic conditions, GEL	215	283	254	288	325	241	287
The share in total expenditure for chronic conditions	12%	20%	20%	22%	27%		
Mean spending per case for self-treatment, GEL	11.00	12.7	11.6	12.3	20.1	12.9	13.5
Monthly household expenditures (consumption), GEL	125.9	232.3	328	457.7	821.7		
Monthly recurrent costs on chronic conditions, GEL	7.3	12.8	17.7	22.1	25		
Indicator # 25: Recurrent costs on chronic conditions as a percentage of monthly household consumption	5.8%	5.5%	5.4%t	4.8%	3.0%		
Monthly outpatient care costs, GEL	3.1	8.1	11.1	18.6	49.4		
Indicator #26: Outpatient care costs as the percent of monthly household consumption	2.5%	3.5%	3.4%	4.1%	6.0%		

Household health expenditures indicators #23- 29	Poorest	2nd Quint.	3rd Quint.	4th Quint.	Richest	Beneficiaries	Non-beneficiaries
Total self treatment costs, GEL	1.7	2	4.5	3.4	6.7		
Indicator #27: Total self treatment costs as a percentage of monthly household consumption	1.4%	0.9%	1.4%	0.7%	0.8%		
Mean amount per case of drug purchase, GEL	23.3	25.3	25.2	26.4	54		
Indicator #28: Mean amount per case of drug purchase as a percentage of monthly household consumption	18.5%	10.9%	7.7%	5.8%	6.6%		
Mean amount per case of hospitalization, GEL	509	546	481	581	829		
Indicator #29: Mean amount per case of hospitalization as a percentage of monthly household consumption	404.3%	235.0%	146.6%	126.9%	101%		

Source (HUES, 2007), MoLHSA, 2006), (WHO, 2010), (MoLHSA, 2007), (MoLHSA, 2008), (MoLHSA, 2009), (Gotsadze et al., 2001), (Government of Georgia, 2007), (US Agency for International Development [USAID], 2008)