

Health Reform and Hospital Financing in Georgia

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Aim. To analyze hospital financing and delivery of inpatient services, financial requirements of the hospitals, and their ability to meet these requirements were determined.

Methods. Data on financial performance of 41 hospitals were collected using a standardized questionnaire. Patient survey, group discussions with hospital administrators, and interviews with policy-makers were also used.

Results. Thirty-three hospitals were unable to recover full costs, and 29 were unable to recover full costs excluding capital consumption cost. Cost recovery rate (CRR) of full costs for 14 hospitals was less than 70% and CRR of full costs minus capital consumption costs was less than 70% for 8 hospitals. Collected actual revenues comprised 75.2% of hospitals' full costs. Mean CRR for the sample was 78.6±25.2%. General and long-term hospitals recover 64.8% of their costs, but pediatric and specialized hospitals collected revenues to cover full costs excluding the capital consumption costs. Medium-sized hospitals recovered only 63.5% of full costs. The hospitals operated with low efficiency, low occupancy rates (31%), and excessive staffing (1.5 physicians per occupied bed). They employed salary equalization policies, which increased the share of fixed costs, perpetuated the oversupply of medical personnel, and yielded low pays. Hospitals charged in excess of their officially accounted costs but, and due to the low collection rates, cost recovery rates were below the officially accounted costs (87.6%).

Conclusions. Low official reimbursement rates and patient unawareness of official hospital costs creates conducive environment for shifting major turnover of the real hospital costs to the patients, resulting in illegal patients charging.

Health care reform, initiated by the Government of Georgia in mid-nineties was dictated by a deep crisis of the health care system after the dissolution of the Soviet Union. After restoring its independence in 1991, the Republic of Georgia has faced major political turmoil, civil war, ethnic conflicts, and dramatic economical breakdown. As a result of these events, inevitable severe deterioration of the federally financed social security and health care systems occurred. The federal government became virtually unable to further support a centrally regulated and financed health care delivery system.

This led to an extreme deficit of medical supplies and pharmaceuticals. Patients seeking medical assistance in the national hospitals were obliged to purchase drugs and medical supplies, which were available only on the black market, at prices unaffordable for most Georgians. Moreover, due to disruptions in energy sector and subsequent total lack of power supply and heating, conditions in the hospitals became unbearable. The degree of distortion in electricity supply was so severe, especially during the wintertime, that there were anecdotal reports on deaths during the surgical operations induced by the sudden cuts of energy supplies (1).

All these factors determined a dramatic decrease in demand for hospital care in under-supplied, unequipped, unheated, and dark facilities. Unable to pay increasing treatment and pharmaceutical costs, impoverished people were postponing, in some cases fatally, their contact with traditional medical profession and turning to self-treatment and dubious alternative caregivers. Annual admissions to hospitals and total inpatient days decreased dramatically. Average bed occupancy rates throughout the country dropped to as low as 10-15%.

Deterioration of hospital inpatient care, declining quantity and quality of provided primary care, total failure to perform the basic preventive public health measures, including the immunization during 1992 and 1993, overall lack of basic nutrition, erratic water and energy supply, and the declining quality of water contributed to worsening of the population's general health status. Due to the absence of most important health statistics and complete unreliability of the available data, it is impossible to entirely comprehend the degree of this decline. However, increased infant (21 per 1,000 live births) and maternal mortality rates (24 per 10,000 live births) (1), increased morbidity and mortality rates for tuberculosis, and diphtheria epidemic are convincing evidences of this process (2).

Although a heroic commitment of severely underpaid medical personnel and significant international humanitarian assistance with essential medicines, vaccines, food, and fuel temporarily prevented a complete breakdown of the entire health care system, there was unanimous need for sustainable long-term treatment of the eroding system.

Acknowledging this urging need, the Ministry of Health of Georgia designed and in August 1995 officially launched ambitious health care reform initiatives. Worked out in cooperation with the World Bank, which provided US\$20 million long-term credit for structural reorientation, the central objective of the reform package is "to improve health of the entire population through design and implementation of primary care-based system that emphasizes health promotion, diseases prevention, and health protection" (3).

The reform initiatives envisioned transformation of national health services into a form of social

insurance system, with substantial changes in roles and responsibilities of the central and local governments (Table 1). It was intended that, while moving away from the actual provision of the health care, the state would maintain its influence on the future health system by means of strong regulatory, financing, and licensing mechanisms.

[Table 1.](#) Main characteristics of the health care reform in Georgia (3)

[Table 2.](#) Federal and municipal programs in the Georgian health care system

Macro-financing of the Health Care System

Under Soviet rule, health care system in Georgia had a form of national health services, financed exclusively through the central budget. Since 1995, a reorientation to the social insurance model of health financing is underway. There are two principal sources for financing public programs in health care, central (federal) and local (municipal) (Table 2). A payroll-based obligatory health premium was introduced for the financing of the Federal Programs. Employers and employees in the formal sector contribute 3% and 1% of the payroll respectively. These funds are accumulated in the State Medical Insurance Company (SMIC), which is a quasi-governmental entity independent from the Ministry of Health of Georgia. SMIC also receives direct transfers from the federal budget (about 40% of the SMIC's total budget) to cover the difference between the collected revenues through the payroll tax and SMIC's expenditures. Conceptually, direct transfers from the federal budget (general taxation) are intended to cover Federal Programs in health for those not employed in the formal sector (unemployed, self-employed, pensioners, etc). SMIC is responsible for execution, monitoring, and financing of the Federal Programs. Municipal Programs in 1997 were financed through 65 Municipal Funds (since 1998, these 65 Municipal Funds were merged into 12 Regional Funds), where earmarked funds from local governments were accumulated. Local governments were required to allocate at least Georgian Lari (GEL)2.5 (1 GEL=US\$0.77 for 1997) per capita of local population for transfers to respective regional funds. They are responsible for determining the scope of Municipal Programs and volume of health services to be included in these programs.

The actual structure, number, and composition of the programs selected by the Ministry of Health for the inclusion in the "basic package" became the subject of intense, still continuing debates among health professionals throughout the country. The implications and cost-benefit analysis underlying the decisions regarding the allocation of funds among these programs were more political than based on the "medical need" or economical efficiency. Since the introduction of the basic package in 1995, when package was comprised from 9 Federal and 5 obligatory Municipal Programs, the package was gradually expanded to 28 Federal and 5 Municipal Programs. This expansion happened without adequate increase of available financing. Moreover, from 1995, consolidated health budget was increasing only on paper – actually allocated funds to all public programs (both Federal and Municipal) in health remained almost the same in 1997-1998, about GEL65 million (approximately US\$50 million) – only GEL13 (US\$10) per capita.

Reimbursement to Health Providers

During the Soviet times, medical services were officially free of charge but were accompanied by a well-developed system of clandestine payments, accepted by both patients and doctors. All practicing doctors were associated with either hospitals or special outpatient clinics called policlinics. The most distinguished physicians were allowed to have limited private practice and officially charged private patients for office and home consultations. This type of physician income was heavily taxed.

As a whole, the system remained "flexible", since the medical professionals were receiving their official salary (due to the ideological reasons, their average salary was lower than that of workers and peasants), as a basic income source, and the patients were never refused care because of their inability to pay. In some cases the reimbursement to the hospital staff was made by return favors or through various kind of presents.

The intended shift from the capital budgeting to performance-based diagnosis-related payment is one of the main innovations of reforms. The state declared that it guarantees to the entire population a "basic package" of health services via allocation of funds through federal and municipal programs directly to the health care providers. Providers contracted for these programs are formerly entirely state owned and administered, and currently state owned but managerially independent medical institutions – hospitals and policlinics. Contractual relations between SMIC and medical providers were introduced as an attempt to clearly delineate roles and responsibilities of the contracting parties. Contracting medical providers were supposed to be selected on competitive basis, according to the qualifications, competence, and quality of their services. This should encourage competition over the quality and in certain cases over the prices of the provided health services, and at the same time serve as an effective tool to optimize oversupplied sector of medical institutions in Georgia. But due to the political reasons, no selective contracting was conducted during the last two years and almost all providers are contracted presently. Publicly financed "basic package" includes (a) basic public health measures, such as immunization,

sanitary, and epidemiological services; (b) limited primary care services provided in the polyclinics and reimbursed on capitation basis; (c) various inpatient services provided in hospitals, which are typically reimbursed on case-base, according to the preliminary approved rates, the so-called Federal and Municipal Standards. In 1997, two Federal Programs (inpatient care for psychiatric and tuberculosis patients) were using different reimbursement method – per diem reimbursement for the long-term hospitals enrolled in those programs.

There is no co-payment for the patients eligible for treatment in the Federal Programs, i.e., they are not supposed to pay anything for hospital services. In Municipal Programs, the patient co-payment varies across municipalities from 15% to 50% of the standards' price (e.g., in Tbilisi, the co-payment rate for Municipal Programs was 40% in 1997).

All other medical services not included in the "basic package" are reimbursed by patients, their families, or any other third party payer (private insurance companies, patient's employer, etc). The user fees for these services are also charged according to the preliminary approved rates, the so-called Internal Standards. Each medical service was assigned a standard price based on an "average level of the health services" (3). This standard price depends on the quantity of physician services provided (doctor's consultations), diagnostic tests, the cost of the "required" pharmaceuticals and other treatment, and some indirect costs, depending on the average number of inpatient days for each category.

This reimbursement mechanism closely resembles the Prospective Payment System based on DRGs, practiced by the Medicare. The crucial differences are inadequate reflection of case severity, resource intensity, and absence of relative cost based pricing system in the Georgian variant. For the classical case-mix method, Georgian standards based on nosological codes are too desegregated. Prices for the service items included in the diagnostic groups are determined mostly on dubious judgment values, subsequently giving the ground for allegations from the provider's side that some services are severely under-priced. Similarly, SMIC administration and the Ministry of Health claim that some services are relatively overpriced.

In order to assess the extent of problems in hospital financing and delivery of inpatient services and propose possible short term and long term solutions for the existing problems, the Ministry of Health, in cooperation with non-governmental organization Curatio International Foundation and with technical assistance of the Abt Associates, Inc., conducted a study of hospital financing in Georgia.

The goal of the study was to derive policy recommendations for the Ministry of Health and other stakeholders for the improvement of financing of the hospital sector and financial management of the hospitals in Georgia. In order to achieve this goal, the following study objectives were proposed: (a) to analyze existing financing schemes and payment methods in hospitals, resource base, cost allocations, internal flow of funds, and produced output in the facilities; (b) to determine the hospital's ability to recover the costs of hospital services on a sustainable basis; (c) to identify weaknesses and inefficiencies of macro- and micro-level financing mechanisms; (d) to determine critical factors causing the weaknesses and problems; and (e) to propose solutions custom-tailored to the country's specificity, based on the local and international experience.

In order to achieve these objectives, the methodology was designed to collect data on the organizational structure, ownership status, clinical profile, capital and human resources, clinical capacity, performance and utilization, operational and financial indicators, and cost structure of the hospitals.

Other main goal of the patient survey was to explore certain aspects of the hospital services from the patients' perspective: (a) the degree of public awareness about financing aspects of health care/health care reforms, particularly regarding state health programs that cover hospital care; and (b) the actual behavior of the hospital and patients during the payment process.

It was logical to propose that patients once exposed to hospital care should be more informed than the general population about: (a) their rights and responsibilities within the hospital setting; (b) the rules for the reimbursement of hospital services; and (c) portion of hospital care costs covered by various public programs and part of those costs that should be officially paid by a patient. However, other similar surveys (4,5) indicated extremely low level of awareness of these issues among the population exposed to hospital care. This rises serious concerns that general population is almost completely uninformed about the state benefits, but baseline data for Georgia are not available.

Methods

Methods employed in the study were based on the internationally accepted principles of management accounting (4,5) and cost-finding, custom-tailored to the current realities of the hospital sector in Georgia. The American Hospital Association definitions and terminology were used since they reflect an internally consistent set of rules and procedures established in the hospital sector of the United States and widely transferable to other country settings. Several research tools were used for the study purposes: (a) on-site assessment and mail survey of selected hospitals nationwide; (b) survey of patients discharged from study hospitals; and (c) focus group discussions with local policy makers, hospital managers and financial accountants. Field assessment and mail survey was conducted on 41 hospitals throughout the Georgia (accounting for 14.2% of the total number of inpatient facilities and 30.5% of national hospital bed capacity). Sample bias included under- representation or over-representation of certain types of hospitals

(by their clinical profile or bed size). The patient survey included 404 patients discharged from all 41 hospitals. Questionnaire for the hospital survey allowed collecting data on general characteristics, organizational structure, capital assets, human resources, expenditures, and clinical outcomes of the study hospitals. Especially designed data base and software application were used to process the collected information, develop master internal structure for study hospitals, conduct resource flow and cost finding analysis, identify final unit costs for produced outputs, and determine key operational and financial indicators for study hospitals. Questionnaire for the patient survey focused on identifying the costs for the hospital services carried by the patients, attitudes towards and awareness of different aspects of hospital care, and overall satisfaction with hospital services.

Results

The descriptive statistics, revenue sources, expenditure line items, performance and utilization ratios, input to output ratios, cost structure and cost recovery, and key financial indicators for study hospitals were estimated for separate hospitals and for hospitals grouped by their clinical profile and bed size. Average figures for the entire sample and for the hospital groups were calculated. Specific attention was given to the identification of final unit costs for hospital services (per hospital bed, per patient discharge, and per patient day) and cost recovery rates for study hospitals.

Patient survey findings included descriptive statistics for the patient sample, level of patient awareness of official costs of services, and overall satisfaction with hospital care. Significant part of the patient survey results were dedicated to the presentation and discussion of explicit and implicit costs associated with the hospital care and carried by the patients.

Finally, the attempt was made to calculate total production costs of hospital services based on final costs incurred both by hospitals and patients.

Study hospitals represent 14.2% (41 out of 287) of all hospitals in Georgia (2). Total number of beds in these hospitals comprised 30.5% (7,460 out of 24,481) of hospital beds throughout the country (5). Doctors employed in study hospitals represent about 15% of all physicians (21,706) in Georgia. Other medical personnel (nurses and midwives) comprise about 16% of the total number of respective personnel in the country (2).

Total number of discharged patients for the study hospitals in 1997 was 118,090, which is 50.7% of the total number of patients treated in inpatient facilities nationwide. Majority of study hospitals were short-term general and specialized hospitals. Only 3 hospitals out of 41 (7.3%) were long-term facilities: tuberculosis and psychiatric hospitals.

Average length of stay for all study hospitals was 6.96 days, significantly lower than the national average of 10.49 (Table 3).

Total annual expenditures for all study hospitals for 1997 were GEL12,417,200, i.e., 4.8% of total national health expenditures of GEL257,550,000 (6).

Salary for the hospital personnel was the largest share of hospital's official annual expenditures, accounting in average for 53% of annual expenditures and 60% of actual revenues.

Average salaries for the medical personnel (physicians, nurses, and lower medical personnel) were in general lower than for non-medical personnel: administrative staff had salaries about 1.5 times higher than physicians and more than three times higher than nurses (Table 4).

[Table 3.](#) Operational indicators of the Georgian health care system by hospital type

[Table 4.](#) Average salaries of hospital personnel in Georgian health care institutionsa

Average salaries in most of the study hospitals for all personnel were below the minimal subsistence income level for one person in Georgia (GEL1,080 per year). Only in four hospitals, the physicians had an average salary exceeding this threshold. At the same time, average salary for administrative staff exceed minimal subsistence level in 11 out of 41 study hospitals.

Hospital Revenues

Total amount billed (charged) to all payers by the study hospitals during the year 1997 was GEL14,631,000. Out of this, GEL11,032,100 or 75% was collected either in cash or as "debt write-offs". The "debt write-offs" were a common practice for the last three years with which public payers (Federal and Municipal governments) used to pay their bills to medical providers when out of cash. Federal and municipal governments made medical providers write a part of their debt for the treatment of the patients enrolled in the federal and municipal programs in amounts that medical providers owed to federal and municipal governments in various taxes, tax fines and utility payments (electricity, water). Percentage of the bills for the study hospitals paid by means of "debt write-offs" was 9% (GEL1,369,900).

Twenty five percent of the billed amount (GEL3,598,900) remained as a debt. Most part of this money was owed by the public payers, federal (SMIC) and municipal (Regional Funds) programs.

The study hospitals received their revenues from four principal sources: 1. State medical Insurance Company – for the patients eligible for 12 federal programs; 2. Regional Funds – for patients eligible for

the Municipal Programs; 3. patients and their families or sponsors paying (a) co-payment for the hospital services covered by the municipal programs, or (b) full payment according to the internal standards for the hospital services not included in the public programs; and 4. other sources – physical and judicial entities that rent building space for teaching and other non-medical activities conducted by the study hospitals.

Share of each of the charged and collected revenue sources for different study hospitals grouped by profile is presented in Tables 5 and 6.

[Table 5.](#) Amounts charged by study hospitals to major payers

[Table 6.](#) Revenues by the type of hospital and activity/operation

In average, 54.2% of total charged and 52.2% of collected revenues came from federal sources (mostly SMIC). Municipal programs accounted in average for 20.3% of charged and 18% of actual revenues, and internal standards (user charges) accounted for 14.2% of charged and 18.1% of collected revenues, reflecting better collection rates for user charges than revenues from public sources. Co-payment accounted for 5.2% of charged and 5.1% of collected income, and other sources accounted for 6.1% and 6.7% of charged and collected revenues, respectively.

Revenues for long-term hospitals were coming almost exclusively from federal sources. Maternity and specialized hospitals were also primarily financed by the federal programs.

Municipal Programs provided the highest share of revenues to general hospitals. General hospitals were also collecting highest share of their revenues from user charges.

The study hospitals received revenues for the following activities: (a) inpatient services, the main hospital activity, performed by all study hospitals; (b) outpatient services provided by study hospitals; and (c) other services, e.g., teaching, leasing the building space, internally displaced persons hosting, earmarked funds for capital investments for construction, etc (Table 6).

Reimbursement for inpatient services accounted in average for 88.5% of revenues received by the study hospitals. At the same time, the debt accrued for provision of inpatient services comprised 75% of the total debts owed to the hospitals. In other words, collection of inpatient charges was worse than collection of revenues charged for other activities.

Outpatient services accounted for 7.5% of total hospital revenues in the sample. Specialized hospitals charging highest share (15%) for outpatient services.

Capital investments for major construction accounted for 2.3% of the total revenues, maternity hospitals having highest ratio of capital investments.

Other services comprised the remaining 3% of total revenues. It is notable that share of total revenues received for the teaching activities performed by the teaching hospitals that are the majority of the sample, was insignificant (below 0.1%) compared to other activities.

Costs

Costs incurred by the study hospitals were classified into direct, indirect, and capital consumption cost categories (Table 7). Direct costs comprised the major part of the total hospital costs (in average 60.5% of the total costs). Indirect costs in average accounted for 24.7% of the full costs (direct+indirect+capital consumption costs).

Study hospital costs were also classified into fixed, semi-fixed and variable. Fixed costs comprised 83.5% of full costs of the study hospitals, or 80.1% of the total costs incurred by all study hospitals. For selected study hospitals, the fixed portion of full costs exceeded 90%, reaching more than 95% (Table 7).

[Table 7.](#) Total expenditures, direct and indirect costs for study hospitals

Only 16.5% (19.9%) of the full costs were variable costs. For 8 out of 41 study hospitals the variable costs comprised less than 10% of the full costs.

Capital Consumption Costs were calculated from the annual depreciation of capital assets that belonged to the hospitals. The total annual capital consumption cost for 41 study hospital was GEL 2,042,700 or 13.9% of the full costs.

In average, the capital consumption cost comprised 14.6% of the full costs.

Total Financial Requirements (Cost Recovery)

One of the study goals was to define the total financial requirements (TFR) of the hospitals and determine their ability to meet these requirements. Problems in recording and collecting information on revenues and costs of teaching (e.g., salaries for the faculty members employed in the teaching hospitals) in study hospitals, precluded current study from inclusion of teaching as one of hospital cost and revenue centers. In addition, hospitals in Georgia conduct almost no public health activities, as special outpatient facilities, polyclinics, and sanitary-epidemiological stations are responsible for carrying out these activities. As a

result, hospital activities are limited to provision of inpatient and in certain instance outpatient services. That is why the American Hospital Association definition of TFR were not fully applicable for the hospitals in Georgia and in this study we will use the terms Cost Recovery and Cost Recovery Rate (CRR). It should be noted that the full costs, as calculated in this study, not only include basic production costs of the hospitals, such as labor, supplies, depreciation, and administrative overhead, but also components of financial (taxes and maintenance of the working capital) and economic costs (financial losses and reserves).

CRR is defined as a part of costs that an organization (hospital in this case) is able to recover by means of collecting revenues for the rendered services. The Cost Recovery Rates (CRR) for the study hospitals are calculated by dividing the billed amounts and received revenues by incurred costs. The resulting average CRRs for billed amounts and actually received revenues in cash and debt-write offs for the study hospitals grouped by size and profile is presented in Tables 9 and 10. CRR of full costs for all study hospitals would have been 99.7% if the entire amount of billed charges could have been collected (Table 9). Mean CRR for the sample is $104.1 \pm 29.2\%$ (median 99%). Exempt of general hospitals, all other profiles of the study hospitals, charged more than their incurred costs. Among the study hospitals grouped by size, small and national level hospitals with more than 500 beds also charged more than 100% of incurred costs.

[Table 8.](#) Fixed and variable cost shares (GEL1,000) in the study hospitals

[Table 9.](#) Cost recovery rates (CRR) based on charged amounts by study hospitals

More than half of the study hospitals (22 out of 41) charged less than their incurred costs for the hospital services. Five hospitals charged less than 80% of their full costs.

Collected actual revenues by all study hospitals comprised 75.2% of their full costs (Table 10). Mean CRR for the sample was $78.6 \pm 25.2\%$ (median 75.3%). Among hospitals grouped by profile, general and long-term hospitals recovered the least portion of their costs (in average 64.84%). Only pediatric and specialized hospitals were able to collect revenues enough to cover their full costs, excluding capital consumption costs. Medium hospitals performed worst among hospitals grouped by size, recovering only 63.5% of the full costs. Average CRR for all four hospital size groups was below 100%.

Among individual hospitals, 33 hospitals out of 41 (80.5%) were not able to recover full costs and 29 hospitals (70.5%) were not able to recover full costs excluding capital consumption cost. CRR of the full costs for 14 hospitals (34.4%) was less than 70% and CRR of the full costs minus capital consumption costs was less than 70% for 8 hospitals (19%).

Financial Indicators

Selected financial indicators (5) were calculated for the study hospitals (Table 11).

[Table 10.](#) Cost recovery rates (CRR) based on actual revenues (GEL1,000) of study hospitals

[Table 11.](#) Financial ratios as turnover and performance indicators in study hospitals

1. Asset Turnover Ratio (ATO, net operating revenues/total assets). This ratio is a key indicator of how efficiently assets have been used to meet financial requirements of a hospital.
 2. Accounts Receivable Turnover (ART, net patient revenues/net accounts receivable) and Average Collection Period (ACP, 365/accounts receivable turnover). These ratios show the length of the time it takes to collect pays from third-party payers.
 3. Net Operating Margin (NOM). This ratio expresses the difference between the revenues received from providing services and the expenses required to support those revenues as a percentage of net operating revenues.
 4. Return on Assets (ROA, net income from operations/total assets). It shows the net operating margin as a percentage of the assets employed to provide patient care.
- For most of the selected indicators, the sample mean was within the US industry norms (Georgian norms are not available). Mean NOM and ROA even exceeding the norms more than twice (0.15 vs. 0.07). For most of the selected indicators, the group averages of the hospitals in all categories fell in the range of the industry norms, except for the general hospitals, which had negative NOM and zero value for ROA (Table 11).

In summary, study hospitals operated at very low efficiency levels, with very low occupancy rates (about 31%) and excessive staffing demonstrated by the ratio of 1.5 physicians per occupied bed.

Most of the hospitals employed salary equalization policies (despite the recommendation from the Ministry of Health), which significantly increased the share of fixed costs, perpetuated the oversupply of medical personnel and resulted in unreasonably low payroll levels for the medical personnel. Hospitals generally charged in excess of their officially accounted costs but, due to the low collection

rates, cost recovery rates for study hospitals were below the officially accounted costs (87.6% was the sample average). At the same time, officially accounted costs comprised only the lesser portion of real total costs for hospital services, as significant portion of capital consumption costs are unaccounted and labor and supply costs were artificially lowered (Table 12).

[Table 12.](#) Supplies per service and output in study hospitals (GEL)

Low official reimbursement rates and patient unawareness of official hospital costs created a conducive environment for shifting the major part of the real hospital costs to the patients, resulting in the high level of unofficial (illegal) payments extracted from the patients by the medical personnel.

Patient Awareness and Satisfaction with Hospital Care

First of all, patients were asked whether they knew official hospital care rates.

The survey revealed that 239 out of 404 patients (59.2%) did not know of hospital service rates.

The breakdown of the knowledge by hospital types is presented in Figure 1. The best results were found in maternity hospitals (58%) the lowest in pediatric hospitals (31%). The explanation of this phenomena could be the following: because of non-urgency, a customer of a maternity hospital has more opportunity (i.e., time) to learn about hospital service rate in advance compared to customers of other types of hospitals. It looks like the factor of urgency became significant, concerning awareness of service rates.

Tertiary hospitals were next after maternity hospitals in terms of the awareness level (38%).

Hospitalization in tertiary hospitals is usually as non-urgent as in maternity hospitals. In other words, it can be assumed that it is better and/or easier to learn about hospital rates before you get in rather than when you are urgently referred to a hospital.

Further analysis of the knowledge of official service rates revealed some interesting findings (Fig. 2). A large part (48.5%) of the sample simply was not interested (!) to learn about official service rates. Only 4 patients tried, but failed to find out official service rates.

[Figure 1.](#) Patients' knowledge of official service rates by hospital types.

[Figure 2.](#) Patients' knowledge of official service rates in Georgian hospitals.

[Figure 3.](#) Patients' awareness of the portion of money paid by the state for their treatment.

Although these figures give explicit explanation/reason for low patient awareness, they rise a more interesting and important question: "Why almost a half of patients is not interested in official service rates?" Because of the fact that 56.4% of payment is unofficial? Because neither patients nor hospital personnel are enough concerned about official cash flow? Below we will try to find partial answers, but this question really deserves a deeper study involving experts in psychology and sociology.

Another noteworthy finding is the source of information for official service rates. Only 14.6% of respondents mentioned official papers as a reference. The remaining two thirds were just told about service rates (Fig. 3). We did not explore the source of verbal information, but we can assume that those 106 patients had less reliable information about official service rates. Consequently, they easily could have been the objects ("victims") of misinformation/fraud.

One of the most interesting findings of the survey is the level of awareness of state health programs and reimbursement of hospital services from public sources. As it was (unfortunately) expected, only 80 patients, or 19.8% of the sample were aware of the funds paid by the state (Fig. 3). It is noteworthy that 72.5% of maternity hospital patients had absolutely no idea that delivery costs are completely covered by state. At the same time, maternity hospital patients had the highest awareness of official rates of the hospital services (58%).

General satisfaction of patients with hospital services was considerably high. Only in 9% of the cases, the respondent/patient was dissatisfied. More than half (210 out of 404 respondents) expressed complete satisfaction (Fig. 4).

[Figure 4.](#) Patients' overall satisfaction with hospital care in Georgian hospitals.

Maternity hospitals tended to have more satisfied customers: 118 out of 127 patients (92.9%) treated in maternity hospitals were satisfied with the services.

What was valued most of all while receiving hospital care? The respondents were asked to rank 6 factors: building services, food, hygiene, availability of pharmaceuticals, and qualification (professionalism) of medical staff.

All these factors received almost equal ranking, except the food: only 33.8% out of 240 respondents (22.1%) who responded to this question expressed positive opinion.

Finally, the customers were asked if they would recommend others with similar medical problems to go the same hospital. In overall, positive answer was given by 89.1% of the cases. Compared to other types of hospitals general hospitals got less, but still high "support" – 83.1%.

Discussion

Study hospitals encompassed almost all types of hospitals currently operating in Georgia and differed in their size, profile, ownership status, teaching status, and geographical location. Because of the small number of observations in certain hospital categories, e.g., categories "long-term hospitals", "national hospitals with >500 beds", statistical significance of the sample results for these categories was limited and did not allow nationwide generalization of findings on all hospitals of such types. However, findings for study hospitals grouped in other categories and number of findings for the entire sample could be used to characterize the hospital sector in general. It is quite likely that many achievements and problems identified in study hospitals are generic for all other hospitals in the country, particularly those problems that reflect the failures in the common accounting practices and reimbursement mechanisms.

Average length of stay in hospitals has decreased dramatically during the years of health reform, from 15.3 in 1991 to 9.8 (for acute care beds) in 1997. Average length of stay for the study hospitals was even lower, 6.96. This decrease in average length of stay is likely to be closely associated firstly with the introduction of new reimbursement mechanisms for inpatient care, which provide financial disincentive to the hospital management for extending hospital stay by reimbursing only for the defined number of inpatient days per case. Secondly, high cost of each additional day in a hospital, regardless of official public financing, i.e., free of charge) as demonstrated by this study, also discourages a patient to spend more time in a hospital.

The same factors could have contributed to the alarmingly low average occupancy rates throughout the nation's hospitals (national average 27.6% and study average 31.9%). In addition to the financial disincentives for extended hospital stay, introduction of internal standards (user charges) and co-payments for hospital services were likely to erect considerable financial barriers in access to hospital care for the significant part of the population. These barriers changed patterns of admissions to hospitals. According to the expert evaluation, only urgent cases and patients objectively requiring inpatient care are referred to the hospitals, unlike the Soviet times of "free" care when patients were admitted in hospitals for medical or even social rehabilitation (such as lone pensioners needing attention and care). As annual admissions and average length of stay decreased dramatically over a short period of time, the capacity of the hospital network created in the country during the Soviet times became highly excessive. Oversupply of hospital beds and medical personnel is obvious, requiring immediate measures to solve this problem. This does not apply only to long-term psychiatric and tuberculosis hospitals, where occupancy rates were very high, up to 87%, which could be explained by the specificity of long-term care and in almost 100% public financing of treatment in these hospitals, which removes financial barriers mentioned above. The oversupply of medical personnel in hospitals is demonstrated by labor per service and output unit indicators. These indicators were beyond rational for any type of hospital and for the whole sample is average. Sample average ratio of 0.44 physician per hospital bed and 1.5 physician per occupied bed also illuminate this.

Over-staffing and salary equalization policies implemented by the hospital management despite the recommendations from the Ministry of Health, caused the high share of fixed costs (80%) in the cost structure of the hospitals, which makes hospitals less flexible in adjusting the changing competitive environment. It will eventually lead to their complete dysfunction. The reasons why these hospitals still function and even considerable number of them have surprisingly high cost recovery rates and financial indicators (NOM, ATO, ROA) are the following:

1. Salaries officially paid to hospital personnel are unreasonably low. For most of the staff the salary level falls below the minimal subsistence level for the general population, artificially lowering labor costs.
2. Hospital expenditures on drugs and other supplies are also inadequate even for the given operation level, some of the hospitals reporting treating couple thousands of patients per year with drugs and supplies worth of GEL2-3 thousand. The figures for cost of supplies procured and expanded per unit of output for the study hospitals strongly support this statement: GEL3.9 per admission and GEL0.5 per patient day (!) are far below any reasonable level.
3. "Missing" labor costs (difference between the official salary and real income of the hospital medical personnel at least reaching the subsistence level) and medical supply costs are shifted to the patient, who is obliged to pay unofficial "gratuities" and buy drugs and other supplies, spending several times more than the official cost of care and price for received hospital services. Another finding indirectly supporting this assumption is lower official average salary figures for the medical personnel (including the physicians) compared to the average salaries of administrative and technical personnel. This fact may indicate higher opportunity for medical personnel, directly dealing with a patient, to supplement their income via extracting unofficial payments from the patient, than for the administrative and technical personnel.
4. Expenditures of maintenance of buildings and medical equipment, and on major repairs and rehabilitation of assets are inadequately low. Many assets are unaccounted for and, even if accounted,

their book values are far from the replacement value at market price. Most hospitals operate with depreciated assets and buildings, which artificially lowers the depreciation allowance.

5. No funds were accumulated for capital investments and asset replacement in 95% of the hospitals. In close future this will lead to gradual complete consumption of capital assets and result in a breakdown of the hospital network. This situation is aggravated by the fact that, during the Soviet times, when these hospitals were constructed and exploited, economic formation and accounting practices were completely different, lacking the notion of capital accrual for replacement of depreciated buildings and equipment. It is unclear where in the system the capital replacement costs were "accumulated". Even if capital funds were accumulated or more precisely, planned for these purposes, after dissolution of the Soviet Union and change of the economical formation, these "saved" funds ceased existing.

All factors mentioned above allow the conclusion that only a small portion of real hospital production, accounting, and financial and economic costs are accounted in the Georgian reality and that official prices for hospital services set according to the reimbursable accounted costs are not adequate. According to the study findings, the payments received in 1997 through official sources (federal, municipal and official user charges) reimbursed only 30%-35% of the total cost of hospital services.

This led to the widespread corruption, as hospital personnel requested (and received) considerable illegal payments, several times exceeding the official standard price of hospital services. Although these illegal payments reimbursed a part of the unaccounted costs (labor, medical supply, and food), a significant portion of unaccounted costs of capital consumption remained almost totally unrecovered, which cause significant financial disbalance in the operation of the hospital sector.

Current system of hospital reimbursement achieved a certain positive impact in motivating hospitals and patients for more rational consumption of scarce resources. But utilized standards for reimbursement obviously do not fully reflect even basic production costs of the hospitals, which resulted in under-pricing services for certain types of hospitals participating in specific public programs (e.g., general hospitals) and overpricing services for others (long term hospitals). This is demonstrated by the wide range of variation in the cost recovery rates for these hospitals. For example, tuberculosis hospitals charged 140-170% of the accounted costs, whereas most general and pediatric hospitals were only allowed charging 80-90% of their accounted costs. Again, it should be noted that using the term "overpricing" here is highly conventional, as costs officially incurred and accounted are only the lesser portion of the real total costs of hospital services.

The survey of the patients' satisfaction with health care services showed that maternity patients, compared to the patients discharged from other hospitals, were most informed regarding the "official" service rates and least informed regarding the public coverage of hospital services. These two results seem to be contradictory: how is it possible that most of the respondents from the maternity hospitals were aware of official costs, not knowing that they are not supposed to pay anything officially?! The only explanation to this paradox can be that patients from maternity hospitals understand under official rates the fixed unofficial payment rates, because information about those rates are widely and openly disseminated among patients by the hospital personnel. This again demonstrates the inability of the State Medical Insurance Company to inform the population of the publicly guaranteed free delivery services in the maternity hospitals. The ignorance of the population about their rights for free maternity services provides conducive ground for medical personnel to easily cheat the patients and extract from them considerable unofficial payments.

It is obvious that the state does not work on the publicity of its most successful programs, both in terms of financing and administration.

Satisfaction of citizens with the current state of health care and health care reforms is surprising because almost three fourths of primary beneficiaries – maternity hospital patients have no perception of tangible achievements/benefits of health care reforms?!

The total costs of hospital services carried by the patients (both official and unofficial) in average exceeds more than three times the reported household's monthly income for the sample (GEL323 vs. GEL93.5), and is almost twice as much as the average household income (both cash and indirect) of GEL174.4 for the year 1997 (8,9). Even if the surveyed patients are underreported their income, these proportions show that patient expenses on hospital care are catastrophic for the majority of the Georgian households.

It is very hard to find an explanation for the high degree of satisfaction found in the patient survey.

Objective assessment of the situation in hospitals of Georgia shows that most of them did not meet even basic standard requirements for the provision of medical care, quite a few of them being simply unsafe for the patients. The study conducted by the US consulting firm Kaiser Permanente International, under the contract with the Ministry of Health, revealed that up to 90% of the hospital buildings were unsafe and their equipment depreciated or obsolete, 80% of hospitals did not meet basic safety criteria, infection control mechanisms were inadequate and hygienic conditions highly unsatisfactory (10). Therefore, the customer's perception established in the current survey seems to be inadequate. However, several things have to be emphasized.

First of all, the survey instrument was not specifically designed to measure patients' satisfaction (using direct and indirect measurements). Thus it was impossible to distinguish what was the major determinant

of satisfaction: medical/health outcomes, the process of health care in the hospital, or both. Although the survey did not assess medical outcomes, it could be assumed that in most cases, particularly concerning pediatric and maternity hospitals, health care outcome was definitely positive. This fact probably outweighed many minor negative components/episodes of inpatient care.

Secondly, when expressing their satisfaction with rendered services in the hospitals, many patients could be judging in comparative terms, considering the conditions in hospitals during the last 3-4 years. Three years are enough to assume that most of the households had direct or indirect experience of hospital encounter in unheated, dark, and empty facilities with no pharmaceuticals and no conditions at all even to provide emergency life-saving medical assistance in the hospitals from the years 1992-1995. Compared to those days, there is no doubt that the situation had improved during the last three years and current patients have enough grounds to be satisfied with hospital services.

Thirdly, respondents/patients were selected from the hospital lists, so the interviews were not anonymous. It's likely that respondents refrained from strict negative answers preferring terms like "more or less satisfied or dissatisfied". But even if this assumption is true, still 52% cases of "completely satisfied" answers needs further study and explanation. If the reliability of aforementioned figures is proved, proponents of health care reforms will get strong arguments in favor of the reforms.

Policy Recommendations

Findings of this study demonstrated that there is an obvious need to introduce contemporary cost accounting methods to improve the resource and cost accounting systems in the hospitals nationwide and allow hospitals to perform management accounting to identify full costs of producing the hospital output, more reliably project their funding needs, and better manage costs.

Methodology and software application developed for the study purposes may be used (a) by policy makers to conduct sector-wide monitoring of hospital performance with the emphasis on financial management; (b) by hospital managers to start implementing resource and cost accounting techniques; and (c) by product line management to improve the efficiency of their institutions.

Thus, it will be reasonable for the Ministry of Health to consider adopting the methodology and adjusted software application for continuous monitoring of the performance of the hospital sector and competitive selection of the most efficient hospitals for contracting under public programs. The methodology and custom-tailored software application might be recommended to the hospital managers nationwide for unified resource and cost accounting purposes.

Cost accounting methodology employed in the study and the study findings on final costs for patient care costs per product of output (per case, per patient day, and per hospital bed) may serve as an essential support for the implementation of the case-mix reimbursement system in Georgia. They may also serve as useful baseline data (the data from years 1996 and 1998 can be collected in similar fashion and averages can be calculated for three years) for considering more aggregate methods of reimbursement, such as performance-based global budgets and region-wide capitation. All three options are currently actively discussed by the policy makers in Georgia as an alternative supplement for the current reimbursement system.

High level of unofficial payments and striking unawareness of patients regarding the official price for hospital services and service benefits should motivate policy makers to (a) conduct intense public awareness campaign on public programs fully or partially covering the cost of hospital services for patients; (b) disseminate information leaflets in the hospitals and as an attachment to SMIC insurance cards; and (c) reintroduce the obligation for medical providers to obtain signature of the patient under the financial claim that the providers submit to the SMIC, Municipal Funds, and Tax Inspection. This requirement was initially used, but was abolished in 1996 under the pressure of medical providers. One of the ways to protect the population from significant financial burden (both official and unofficial) associated with the hospital care, private health insurance, and informal insurance schemes should be promoted by the creation of a relevant regulatory and economic environment. With appropriate regulation and economical motivation, private insurance may effectively supplement currently limited public insurance system and redistribute the financial risks associated with ill health from the sick to the healthy, from the poor to the rich and extend them over time.

Immediate preventive actions should be taken to stop hospital sector from further deterioration. According to the technical report of Kaiser Permanente International (10), the required funds to upgrade hospitals to minimal standards are around US\$102.5 million in Tbilisi only, and if, according to the preliminary recommendations of this consulting company that performs the assessment of hospital network in Georgia, this capital requirements are to be recovered in the next five years, this will result in average US\$20.4 million of capital consumption cost per year only for Tbilisi hospitals (67 out of 261 nationwide). This figure may be even higher if the annual inflation and real interest rate on capital are taken into account). If these costs will be reflected in the full costs of hospital services that are subject of reimbursement, the prices for services will become unaffordable for both public and private payers. For comparison, total amount of funds officially paid to the hospitals, including the actual reimbursement for services by public and private sources did not exceed 25 million dollars in 1997. Thus, it will be more realistic and reasonable to finance these capital requirements in some other way, e.g., by allocating

earmarked funds for capital construction and rehabilitation of health facilities from the governmental budget each year rather than to fully include the real capital consumption costs in the reimbursable costs of hospital service.

Our study demonstrated that there is an obvious need for the optimization of the hospital network in Georgia. Low utilization rates, significant excess of the medical personnel, and scarcity of public and private financial resources to support this inflated infrastructure calls for immediate and radical actions for restructuring of the hospital sector in Georgia. In order to optimize the hospital sector nationwide and achieve the acceptable occupancy rates of 75-80%, the excess bed capacity should be reduced by significant 45-50%. Respective adjustments should be made to the staffing levels in nation's hospitals, which means not only reducing the number of medical personnel, but also changing the ratios of different levels of medical personnel, shifting some of the functions and responsibilities currently held by physicians, whose labor costs are higher, to nurses and middle medical personnel with lower labor costs. Proposed strategy for the achievement of these objectives could be liquidation of excess beds and services in excess of needs assessed in their catchment areas and consolidation of low-utilized, under-equipped, old and unsafe facilities, requiring major renovations into newer, more perspective medical institutions. The vacated buildings after liquidation and consolidation could be sold or leased out, with the condition of reinvesting the proceeds from sale and lease in the health sector to: (a) rehabilitate and re-equip strategic and perspective inpatient facilities; (b) retrain medical personnel for new positions and responsibilities; and (c) pay out the compensations and pensions to the medical staff that will be laid out after the optimization of hospital network.

Implementation of this strategy will achieve the following: (a) renovated and well-equipped hospitals closely matching the populations' need for inpatient care, operating at much higher levels of efficiency and managed as the business centers; (b) optimized capital resources and investments in hospital sector; (c) higher, more realistic salaries for physicians and reasonable salaries for other hospital personnel; (d) decreased total costs and more affordable prices for hospital services achieved through optimization of capital assets and restructuring of staffing; (e) long term sustainability of the hospital sector in Georgia; and (f) improved access and affordability of quality hospital care.

Wide-scale optimization of the hospital network in Georgia is a critical precondition for the improvement of hospital financing in the country. It is unrealistic that the major problems eroding the hospital sector (inadequately low official prices for hospital services, high level of illegal payments and unrecovered costs) could be addressed without substantial restructuring of excess bed capacity and staffing levels. In order to satisfy the real financial needs of currently inflated hospital infrastructure and medical personnel and prevent entire hospital sector from complete deterioration, official spending (both public and private) on hospital care should be increased 4-5 times (Table 13).

Table 13. Expected changes of price for hospital services for different policy options

Funds coming from official sources of payment would cover only 30-35% of total hospital costs plus unaccounted capital consumption costs assumed at minimum 25% of total costs and 10% of additional taxes, as the unregistered unofficial payments will become legal and hence taxed hence total hospital financing requirements will amount up to US\$100-125 million per year. Considering that total public expenditures on health did not exceed US\$50 million and spending on hospital care was about US\$25 million per year for the last three years, it is unlikely that third party payers and patients can afford paying real prices. However, if the optimization of the hospital sector will be implemented, 50% of existing beds will be removed, and 40-45% of the medical personnel will be laid out, the total costs for providing hospital care will decrease at least by 35-40%. Moreover, if the proceeds from privatization and lease of vacated hospital buildings will be invested in the rehabilitation of remaining hospitals and replacement of their equipment, significant part of capital consumption costs could be removed from the reimbursable costs of hospital services, which will result in further savings. In these conditions, the adjustment of official reimbursement rates towards real costs of hospital services becomes more feasible.

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