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## **ASSESSING THE COSTS OF MEDICATION- ASSISTED TREATMENT FOR HIV PREVENTION IN GEORGIA**

**JUNE 2012**

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The views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the U.S. Government.



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# EXECUTIVE SUMMARY

There is a substantial body of scientific literature demonstrating the efficacy of medication-assisted treatment (MAT) as an HIV prevention tool for people who inject drugs (PWID) (Needle and Zhao, 2010; Larney, 2010; Degenhardt et al., 2010; CDC, 2002; Metzger et al., 2011; Mathers et al., 2009). Georgia has undertaken a formal program to provide MAT to this key population since 2005. Despite progress in enrolling PWID, there is a need to maximize resources to increase the number of PWID enrolled in the program. The results generated from this study will be useful to better understand the costs of offering MAT services in Georgia. The data on expenditures will help planners and policymakers to make more informed decisions regarding the allocation of services and will also prove useful for planning the scale-up of MAT in the country. Decisionmakers could use this data to improve the efficiency of current service provision, especially around issues of optimal use of personnel and physical space for service delivery.

This study assesses the unit costs of MAT provision in Georgia from the perspective of the two service providers in-country—the Ministry of Labor, Health, and Social Affairs (MOLHSA) and the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM). Both MOLHSA and GFATM-funded sites offer MAT in multiple facilities throughout urban and rural Georgia. Treatment protocols and personnel requirements are centrally mandated, thus allowing for little variation per patient characteristics. While service delivery tends to be comparable across MOLHSA and GFATM sites, there is one significant difference—the ministry requires that MAT clients pay for services while GFATM offers free services. The analysis found that a majority of HIV-positive patients are enrolled in the GFATM MAT program.

The study compared average unit costs between two years (2009 and 2010) and found a minimal increase. Unit costs increased only slightly at MOLHSA facilities from 229 GEL (\$133<sup>1</sup>) per month to 236 GEL (\$137) per month. At GFATM sites, the monthly per patient cost of MAT rose slightly between 2009 and 2010 from 217 GEL (\$126) to 229 GEL (\$133). Further, data analysis revealed that GFATM programs are only slightly less expensive than at MOLHSA facilities. An important caveat—unit cost calculations for the MOLHSA sites include patient contributions that amount to 150 GEL (\$87) per month for each patient. In the case of both providers, direct costs of MAT provision far exceed indirect costs. Three inputs—personnel, drugs/medical supplies, and utilities—account for a major portion of costs associated with running MAT programs in Georgia. The most significant budget item in both MOLHSA and GFATM programs is the cost of personnel (salaries of clinical and support staff).

Economies of scale are revealed when comparing MAT sites with increasing numbers of clients—a finding that strengthens the case for MAT program expansion. The unit cost per patient gradually declines as the number of patients treated at the facility increases. In some sites, efficiency gains might be achieved with greater use of existing capacity, but not all sites have excess capacity. Further, of those sites that do have excess capacity, geographic or other factors may make some more desirable than others. In other words, the addition of clients to fill slots in existing facilities could be a more efficient approach, but new facilities will likely need to be developed.

This study assessed the potential for expanding coverage to more patients within the existing infrastructure. 2010 was used as the base year for extrapolation.<sup>2</sup> In one scenario, the coverage of PWID was increased by 15 percent per year until maximum available capacity was reached. In the second,

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<sup>1</sup> Based on a historic foreign exchange rate of 1 GEL = .58 US\$ (January 1, 2009–December 31, 2010 average).

<sup>2</sup> This study collected data from 11 sites for 2009 and 2010 and extrapolated the results to estimate the number of patients at all 16 MAT sites in the country.

coverage was expanded gradually to increase by 5 percent in 2011, 7 percent in 2012, 9 percent in 2013, 11 percent in 2014, and, finally, 13 percent in 2015.

Gradual expansion of sites, as in the second scenario, would not necessitate the creation of additional MAT facilities until 2016 and would allow for the opportunity to increase coverage of PWID in following years. Increasing coverage of this key population (within existing MAT sites) will result in higher drug and medical expenses for each successive year. Since GFATM sites are already filled to capacity, any increase in the number of patients would need to be accompanied by an expansion in the number or capacity of MAT sites. Accordingly, we modeled these scenarios for MOLHSA sites alone.

In part due to the lack of fees, GFATM sites seem to be more accessible to PWID, particularly those that are HIV positive. We hope this data will highlight these capacity and access issues and inform policy decisions to improve MAT program efficiencies in Georgia.

This study also shows variation in methadone doses between sites. Optimal methadone dosage, which is a key indicator of treatment success, was not uniform across sites. Per World Health Organization (WHO) guidelines, optimal methadone doses range between 60 to 120 milligrams per day. With the exception of two facilities, more than 60 percent of patients receive less than 60 milligrams per day. This is likely to impact treatment outcomes and costs, as patients receiving methadone doses within the range of 60 to 120 milligrams are shown to stay in treatment longer, use fewer injection drugs, and have lower incidence of HIV infection than those patients receiving less than 60 milligrams (CDC, 2002.). Despite compelling evidence that higher doses are more effective and doses between 60–120 mg per day are optimal for most patients, clinics appear to be administering less than ideal doses.

## ABBREVIATIONS

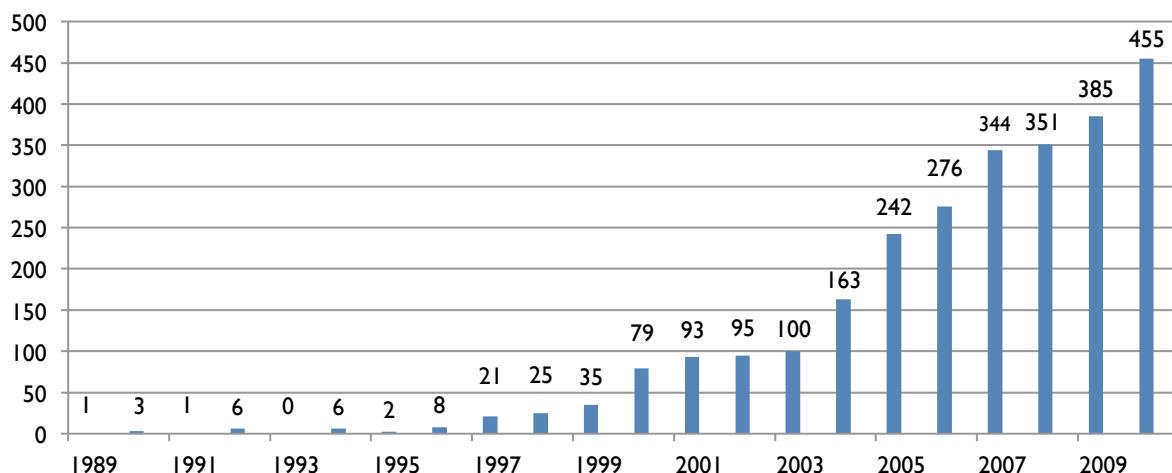
AIDS	acquired immune deficiency syndrome
GFATM	Global Fund to Fight AIDS, Tuberculosis, and Malaria
GEL	Georgian Lari
GRIA	Georgian Research Institute on Addiction
HIV	human immunodeficiency virus
MAT	medication-assisted treatment
MOLHSA	Ministry of Labor, Health, and Social Affairs
MMT	methadone maintenance treatment
MSM	males who have sex with males
MTCT	mother-to-child transmission
PWID	people who inject drugs
QALY	quality-adjusted life year
TP	<i>Treponema Pallidum</i> /Syphilis
USAID	United States Agency for International Development
WHO	World Health Organization



# I. BACKGROUND

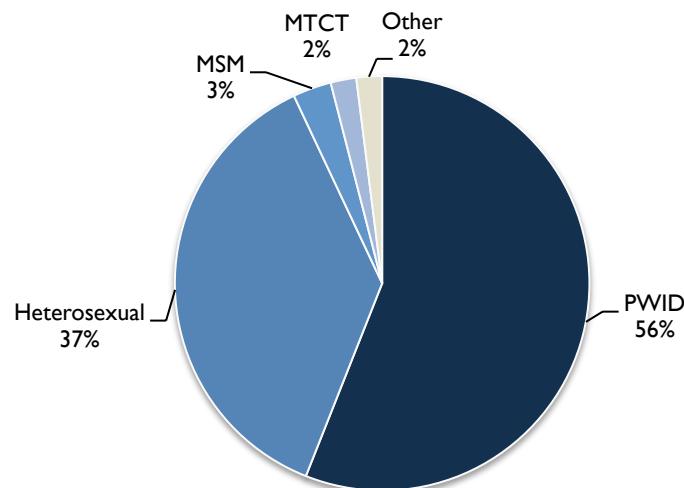
While post-Soviet Georgia has experienced favorable economic, political, and social change in the last two decades, there has been a dramatic increase in illicit drug use. As in other countries with concentrated HIV epidemics, injection drug use remains a major risk factor in the transmission of HIV, and the HIV burden among people who inject drugs (PWID) is growing. Georgia has approximately 4,000 people living with HIV, and the number of new HIV cases is estimated to be growing at around 10–15 percent each year (see Figure 1) (HIV/AIDS and Clinical Immunology Research Center of Georgia, 2012.). The prevalence of HIV among PWID is around 1.1 percent. Injection drug use has been the main route of HIV transmission among the infected population—in 2009, 56.1 percent of the cumulative registered cases of HIV were transmitted through injecting drug use (see Figure 2) (HIV/AIDS and Clinical Immunology Research Center of Georgia, 2012).

**Figure 1: Registered New HIV cases in Georgia**



Source: AIDS and Clinical Immunology Research Centre (2011).

**Figure 2: Distribution of HIV cases by routes of transmission**



Source: AIDS and Clinical Immunology Research Centre (2011).

Georgia's PWID population is estimated to be approximately 40,000 (Sirbiladze, 2010) and opioids—including heroin, the prescription drug buprenorphine, and home-made stimulants—are the most commonly injected group of drugs in the country (Javakhishvili et al., 2006; Otiashvili et al., 2008; Kirtadze et al., 2010). It is estimated that around 60 percent of the PWID population are opioid injectors (Needle and Zhou, 2010).

In recent years, non-medical use of buprenorphine (Subutex), a drug that is used to treat opioid addiction, has replaced heroin as the most frequently used opioid in Georgia (Javakhishvili et al., 2006). In 2007, approximately one-third of PWID seeking treatment cited non-medical use of Subutex (Otiashvili et al., 2008a; Otiashvili et al., 2008b). Studies suggest that the overall use of Subutex may be decreasing and is being replaced by home-made stimulants containing methamphetamine, made from pseudo/ephedrine or phenylpropanolamine found in over-the-counter cough medicines that are easily available from pharmacies without a prescription (Kirtadze et al., 2010; Otiashvili et al., 2008b).

## I.1 Medication-Assisted Treatment in Georgia

Methadone and buprenorphine are listed as effective treatments for opioid dependence by the World Health Organization. Numerous studies have shown that by reducing dependence on illicit drugs, medication-assisted treatment (MAT) decreases the use of injections thereby reducing HIV risk (Bruce, 2007; Larney, 2010; Corsi, 2009). A 2008 study looking at the efficacy of MAT among PWID in Georgia, for example, shows high efficacy in reducing the use of illegal narcotics and significant reduction in drug-related high-risk behavior (Todadze, 2008). A recent study from Ukraine also highlights the cost-effectiveness of methadone substitution treatment in terms of infections averted, and results show that benefits increase with the scale of the intervention (Alistar et al., 2011). Methadone substitution treatment enhances the effects of HIV treatment programs that provide antiretrovirals for people who inject drugs and helps prevent additional infections among PWID, with benefits accruing to non-PWID (Alistar et al., 2011).

MAT was introduced in Georgia in 2005, with support from the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM). In 2008, the Government of Georgia also began providing MAT. As of 2010, there were 16 MAT sites in the country in total. GFATM-funded five sites (one of which is a prison site), and the Ministry of Labor, Health, and Social Affairs (MOLHSA) funded 11 centers. Together, they provide MAT to an average of 1,000 patients each month. Table 1 shows coverage goals for MAT, as outlined in Georgia's National HIV/AIDS Strategic Plan for 2011–2016.

**Table I. MAT coverage goals**

<b>MAT coverage goals</b>	<b>Country strategic plan coverage goals: number of PWID</b>	<b>Country strategic plan coverage goals: % of the total 40,000 PWID population</b>
2011	2,550	6.4%
2012	3,200	8%
2013	3,700	9.2%
2014	4,000	10%
2015	4,100	10.2%

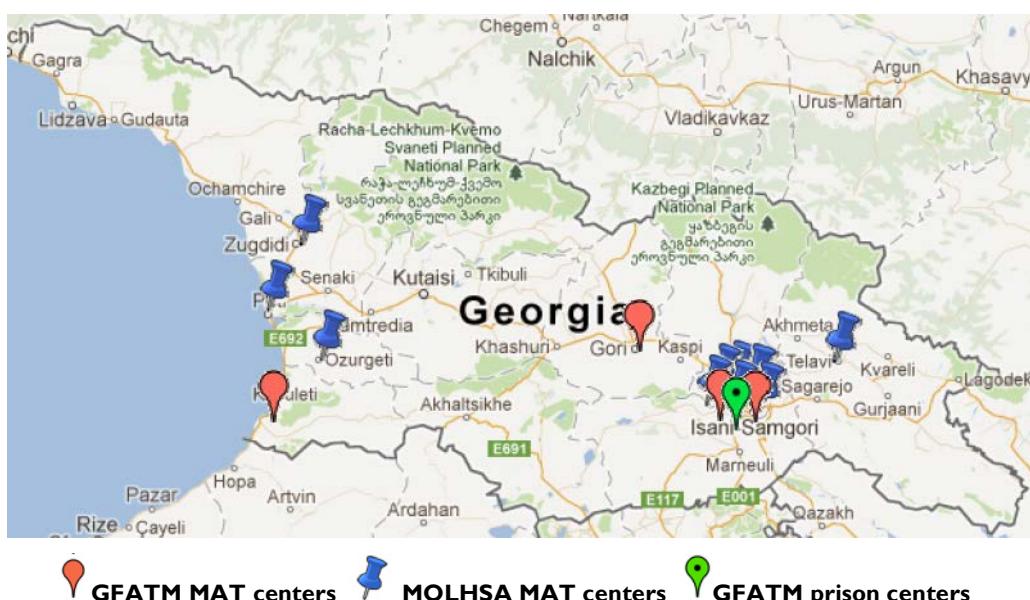
Source: Georgia National HIV/AIDS Strategic Plan for 2011–2016.

Despite progress, overall MAT coverage is still low. While GFATM-operated sites provide services free of charge, only the costs of pharmaceutical methadone are covered at MOLHSA facilities, leaving patients to cover the remaining treatment costs of 150 GEL (approximately \$90<sup>3</sup>) per month. A resolution signed in 2011 by the Georgian prime minister waives this copayment for HIV-positive patients seeking MAT in MOLHSA facilities.

In addition to higher doses and longer duration of treatment, patient counseling has also been shown to enhance the successful effects of MAT (Degenhardt et al., 2010). However, a 2009 report analyzing the state of drug use in the country indicates that there are few trained experts in the field of psychotherapy and suggests a need for improved institutional mechanisms to deliver proper, evidence-based training (Javakhishvili et al., 2011). The limited number of treatment modalities and the insufficient training of psychotherapists, coupled with limited quality assurance and high costs, result in few mechanisms to match treatment with patients' needs and treatment goals.

The geographical distribution of MAT sites (see Figure 3) shows that a vast majority of methadone facilities (9 sites) are located in the capital city of Tbilisi, which has higher numbers of PWID than in other areas of the country. Despite this, however, the GFATM programs have a long waiting list of patients. While we lack data to show patients' reasons for preferring GFATM programs, it may be in part due to the fact that this program is free for patients, while MOLHSA facilities require a fee.

**Figure 3: Distribution of MAT centers in Georgia**



Source: Facility based surveys done for this study.

<sup>3</sup> Based on a historic foreign exchange rate of 1 GEL = .58 US\$ (January 1, 2009–December 31, 2010 average).

## **I.2 Treatment Protocol**

In Georgia, the treatment protocol for MAT is centrally mandated and identical for all service providers. The key treatment elements are as follows:

- Daily dosage of methadone
- Testing for STIs, including HIV
- Testing for Hepatitis B and C, and Tuberculosis
- Psychotherapy sessions
- Group counseling

Clinical staffing is also regulated by Georgian law. All facilities, regardless of population served, are required to staff the following:

- 3 medical doctors
- 1 psychologist
- 1 social worker
- 1–3 nurses
- 1 head of the department or other coordinator
- Other support staff including data entry personnel and pharmacists

## **I.3 Study Objectives**

This study aimed to estimate the current costs of providing MAT for people who inject drugs to prevent HIV infections in Georgia. The team estimated unit costs of MAT provision for both GFATM and government service providers.

The results generated from this study will be useful to better understand the costs of offering MAT services in Georgia. Data on expenditures will help planners and policymakers make more informed decisions regarding the allocation of services and will also prove useful for planning the scale-up of MAT in the country. The analysis will pave the way for an assessment of cost-effectiveness of MAT for PWID in terms of the number of HIV infections averted and the savings gained in averted treatment costs. Decisionmakers could use this data to improve the efficiency of current service provision, especially around issues of optimal use of personnel and physical space for service delivery.

## **I.4 Existing Assessments of the Cost-Effectiveness of MAT Programs**

A 2010 report from the Center for Strategic and International Studies shows the gaps in coverage for medication-assisted treatment in 14 countries globally and the costs that would be incurred to scale up to 20 percent and 40 percent coverage for opioid injectors in each country. The report estimates<sup>4</sup> that Georgia would need to provide treatment to an additional 8,600 PWID at a total cost of \$6,108,795 in order to achieve 20 percent MAT coverage. Increasing coverage to around 40 percent (to cover an additional 18,200) would increase total program costs to \$12,927,915. Both these cost estimates are based on WHO global estimates of an average of unit costs ranging between \$363.65 and \$1,057 per person/year (Needle and Zhao, 2010).

A study evaluated the incremental cost-effectiveness of methadone maintenance treatment (MMT) for HIV-positive drug users in Vietnam. Over nine months, MMT substantially improved the quality-adjusted

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<sup>4</sup> Study calculations are based on estimates of 80,000 PWID in Georgia, as was widely referred prior to 2010. More recently, the PWID population in Georgia has been estimated to be approximately 40,000.

life years (QALYs) of HIV/AIDS patients. The increments in QALY were large and stabilized in those patients taking antiretroviral treatment and abstinent to drug use. For one QALY gained, the MMT program would cost \$3,745.30. Findings of this study indicate that providing MMT for HIV-positive drug users is a cost-effective intervention in Vietnam (Tran et al., 2010).

A U.S. study modeling the cost of methadone maintenance programs (without consideration of HIV prevention) found that providing access to methadone maintenance to opiate addicts offers an incremental cost-effectiveness ratio of \$5,915 per life year gained. So, for each year of life saved, methadone maintenance incurs costs of only \$5,915. The study found that methadone treatment costs are well below \$10,000, even after accounting for a variety of assumptions. This is well under the \$50,000 threshold, which is used to judge the cost-effectiveness of health interventions in the United States (Barnett, 1999).

In another U.S. study looking at the costs of expanding MMT by 10 percent, the authors used a dynamic epidemic model to assess impact on healthcare costs and QALYs. The study considered two scenarios, one with HIV prevalence among PWID of 5 percent and another with an HIV prevalence among PWID of 40 percent. Additional methadone maintenance capacity costs \$8,200 per QALY gained in the high-prevalence community and \$10,900 per QALY gained in the low-prevalence community.

More significant benefits accrued to non-injecting drug use members of the general population as a result of expansion. In the high-prevalence community, 58 percent of the QALYs gained and 28 percent of the HIV infections averted were among members of the general population. In the low-prevalence community, 71 percent of the QALYs gained and 36 percent of the HIV infections averted were among members of the general population. The study showed that developing additional capacity is cost-effective even if it is twice as expensive and half as effective as current methadone maintenance slots (Zaric, 2000).

In another study, authors used an epidemiological model of infectious disease transmission to explore the costs per averted HIV infection. They found that the costs per averted infection are \$113,000, which is below current lifetime treatment cost estimates for HIV (\$195,000), demonstrating that MAT is cost-effective among high-risk PWID because it prevents new infections. The model assumes relapse by 80 percent of clients and examines a range of values of the probability of infection from syringe sharing (Harold and Robert, 2004).

## 2. METHODOLOGY

This study collected data on all program components of MAT. This includes data on diagnosis, dosage, psychological counseling, and STI testing. Since MAT treatment durations are highly variable (sometimes lifetime treatment), the unit cost of treating a patient with MAT was calculated on the basis of service provision for one month.

The study looked at descriptive and analytical components of MAT service. Quantitative techniques included reviewing financial information available in annual reports of the two service providers in Georgia (MOLHSA and GFATM) and using a structured data collection tool. Both quantitative and qualitative data were collected via key informant interviews. At each facility, human resources, financial, and utilization data were gathered from various service personnel. Additionally, semi-structured interviews were conducted with facility managers and the medical and auxiliary officers providing MAT services. The data collection tool was piloted at one urban site in Tbilisi to test the tool and the process for collecting the information. Qualitative data on treatment parameters were collected for March, April, and May 2011, while quantitative cost data were collected for 2009 and 2010.

Eleven sites from a total of 16 across Georgia were sampled. Sites were chosen to ensure representation of the two MAT providers (GFATM and MOLHSA) as well as rural and urban centers. Seven of the 11 MOLHSA sites and four of the five GFATM sites in Georgia were included in the study (see Table 2). The study excluded just one GFATM site located within a prison due to access issues. Of the 11 MOLHSA sites in the country, purposive sampling was conducted to ensure equal representation of rural and urban areas—thus enabling the team to capture differences in costs due to variation in inpatient enrollment.

**Table 2: Study sites**

	<b>Site</b>	<b>Service provider</b>	<b>Location</b>	<b>Maximum # of patients</b>
1	Georgian Research Institute on Addiction	GFATM	Urban	100
2	Medical Center “Uranti”	GFATM	Urban	100
3	Regional Narcological Center of Batumi	GFATM	Rural	100
4	Regional Narcological Center of Shida Kartli	GFATM	Rural	100
5	Division N6 (Kutaisi, Centre on Addiction)	MOLHSA	Rural	150
6	Division N11 (Zugdidi, Centre on Addiction)	MOLHSA	Rural	60
7	Division N3 (Telavi, Centre on Addiction)	MOLHSA	Rural	60
8	Division N1 (Tbilisi, Centre “Uranti”)	MOLHSA	Urban	120
9	Division N7 (Tbilisi, Institute on Addiction)	MOLHSA	Urban	200
10	Division N12 (Tbilisi, Airport Settlement, Polyclinics)	MOLHSA	Urban	170
11	Division N2 (Tbilisi, Institute on Addiction) (Pilot)	MOLHSA	Urban	120

Source: Key informant interviews done for this study.

Financial data were collected for the following categories:

### **Direct costs**

#### *Personnel*

Personnel costs were calculated based on salary information and overtime costs (if any), according to service categories. The various cadres of staff members were obtained from the GFATM and MOLHSA service delivery sites—both of which follow centrally mandated staffing requirements at facilities.

#### *Drugs and supplies*

These costs include the costs of medical consumables, urine screening tests, blood screening tests, medication, and transportation of medication to different MAT facilities. The prices for the drugs and supplies were obtained directly from GFATM health facilities and MOLHSA's global management unit, which manages all expenditures for the ministry sites.

#### *Furniture and equipment*

Cost data on furniture, equipment, and other capital goods were obtained from the MAT centers themselves and the global management unit for MOLHSA programs.

#### *Monitoring trips*

These costs cover regional trips to different MAT sites for monitoring and evaluating the MAT implementation process.

#### *Consumables*

The study identified the list of commodities and supplies (set of disposable/reusable instruments plus pack of consumables) being used for MAT service delivery in Georgia and obtained costs from providers.

#### *Volume of services*

Information on the number of patients was obtained from individual facility managers.

### **Indirect costs**

Indirect costs include the costs of inputs needed to operate the facility and maintain quality, but not directly used in patient care. We calculated indirect costs including the depreciation of nonmedical assets of the MAT site and operational costs (i.e., electricity and water, telephone and communications, bank and car insurances, taxes and rental cost, etc.). For facilities that provided other services in addition to MAT, information was gathered on how costs were allocated across services to calculate the share of indirect costs associated with MAT services.

#### *Utilities*

Utility costs included telephone, water, gas and electricity, maintenance of vehicles, and transport costs.

#### *Land and buildings*

The cost of building ownership and rental costs were obtained from providers and, when not available, were assessed using comparable estimates for rental and purchase costs.

In addition to financial data, the study collected information on MAT program implementation; organizations and working hours; patient flow in 2009 and 2010; facility staffing and functions, and time devoted to each function; as well as provision of auxiliary services. For this analysis, we assigned depreciation periods for medical and non-medical equipment according to the WHO CHOICE database. (See Appendix 1: Amortization and Assumptions for Capital Goods.)

## **2.1 Study Limitations**

We were unable to include certain costs in this analysis, primarily due to lack of data. For example, medical supplies, including cups for methadone and urine, were undocumented in MOLHSA facilities for both 2009 and 2010. International travel costs for personnel were also not included in this analysis, as these were difficult to ascertain.

Accurate patient tracking was a challenge in some MOLHSA methadone facilities, particularly Tbilisi, where patients may have moved from one MAT site to another. Furthermore, individual facilities do not formally track treatment types and regimens, thus making it difficult to separate patients on short-and long-term treatment.

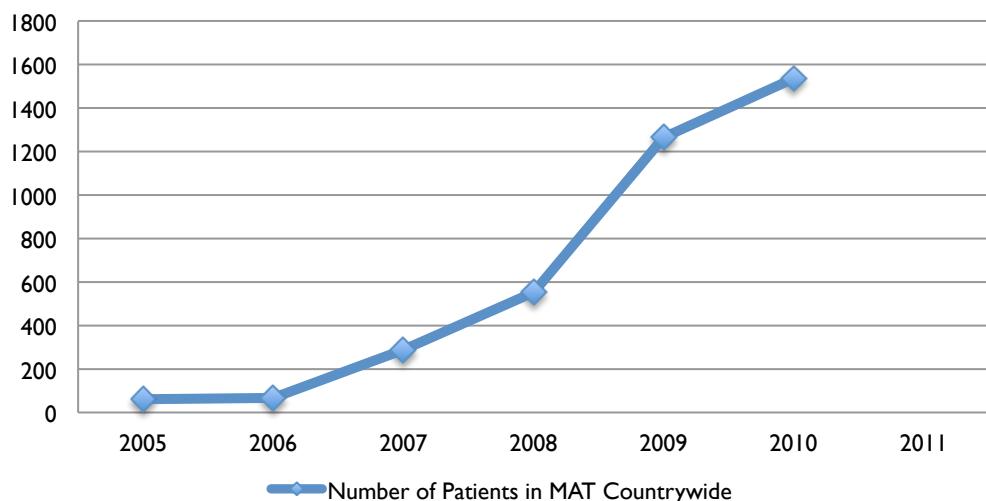
Finally, this analysis focused on the costs incurred by facilities offering MAT services. As such, it does not include the costs incurred by patients as they sought and received services (e.g., transport to the facilities, lost wages while receiving services, etc.) or the opportunity costs of time spent travelling to and seeking services.

## 3. PROGRAM CHARACTERISTICS

### 3.1 Analysis of Patient Enrollment

In Georgia, the number of patients receiving MAT has increased since the start of the program in 2005. When the GFATM first began offering MAT in 2005, about 60 patients were enrolled. By 2008, the number of patients receiving treatment countrywide had increased to more than 550. Figure 4 shows the number of patients enrolled in MAT programs countrywide. From 2005–2008, the number of patients are based on historical reports. Data on the number of patients in 2009–2010 are based on study data collected from 11 sites. Results were extrapolated to estimate the number of patients at all 16 MAT sites in the country. Two of the 11 facilities (MOLHSA's Divisions 11 and 12) included in the sample started operations in October 2009. The National HIV/AIDS Strategic Plan aims to reach 10 percent of the total PWID population by 2014.

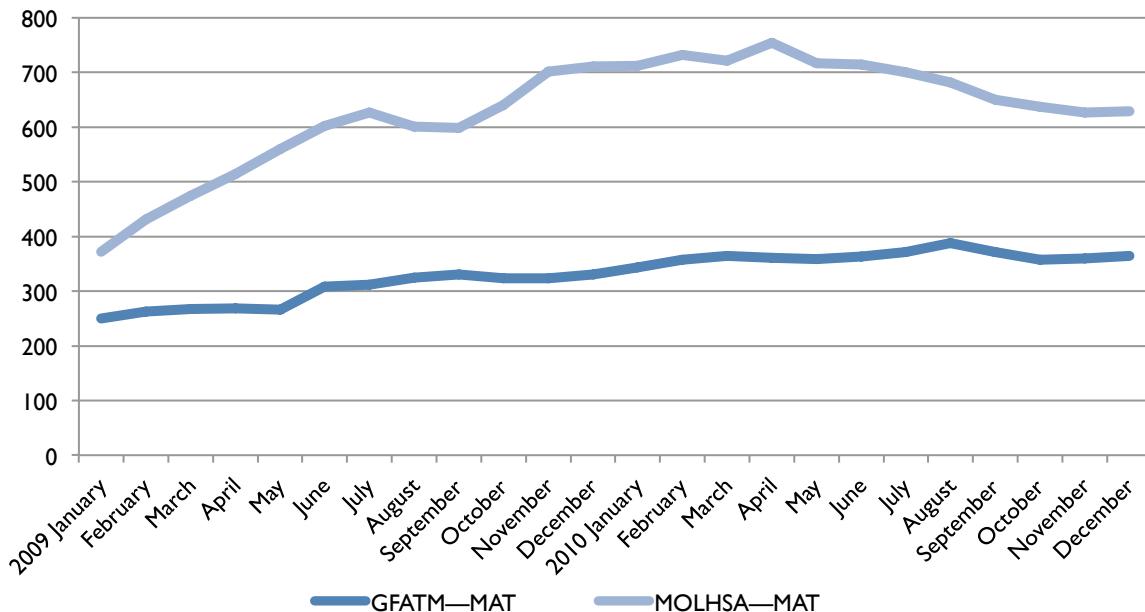
**Figure 4. Increasing the number of patients enrolled in MAT**



Source: Jana D. Javakhishvili et al, 2005; costing study data.

Overall, the number of patients treated in both GFATM and MOLHSA MAT facilities grew during the study period. The number of patients treated during one month is defined as the maximum number of patients at the facility who have received treatment. Figure 5 shows the total number of patients treated monthly at the four GFATM and seven MOLHSA facilities included in the study. From January 2009–April 2010, the total number of patients treated at MOLHSA facilities doubled. GFATM MAT facilities show a steady initial increase in the number of patients treated, reaching maximum capacity from August 2010 on.

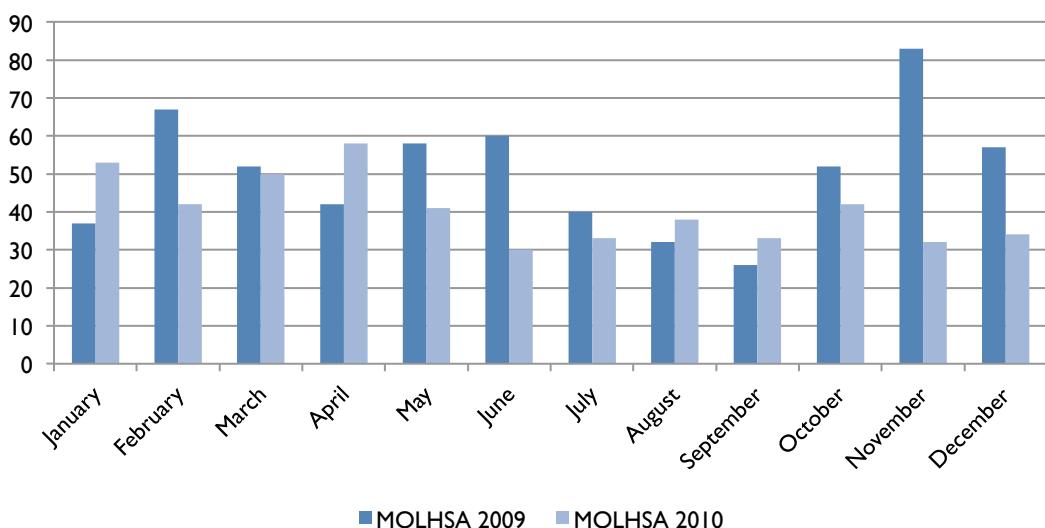
**Figure 5. Average number of patients (January 2009–December 2010)**



Source: Costing study data.

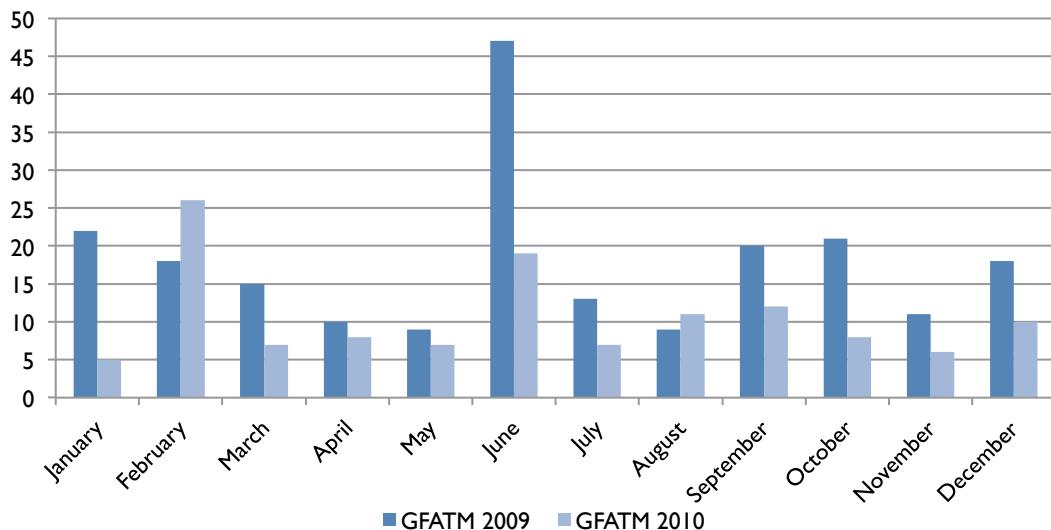
Figures 6 and 7 show the number of new or re-admitted patients each month in 2009 and 2010. A “new” patient is defined as a patient who has been admitted for the first time or readmitted after an absence from treatment for more than 12 months. MOLHSA MAT facilities have relatively higher rates of new patients, largely because they have more capacity to take on additional patients. By contrast, GFATM facilities have a smaller capacity and can accommodate fewer patients at a time.

**Figure 6. MOLHSA patients newly admitted or re-admitted after absence (more than 12 months)**



Source: Costing study data.

**Figure 7. GFATM patients newly admitted or re-admitted after absence (more than 12 months)**



Source: Costing study data.

The study also collected data on the number of patients deemed to have completed treatment (see Table 3) and those who dropped out of treatment during the study period (see Table 4). While centrally mandated guidelines do not clearly define “successful completion of treatment,” key informant interviews yielded some information. Completion of the planned duration of substitution treatment as prescribed by the physician is considered a successful outcome. Patients who missed treatments or were discharged for reasons such as a violation of the treatment plan or facilities rules were considered “drop-outs.” Roughly, study data suggest that 2010 yielded slightly better results for patient outcomes, with an important caveat—there are no data on patient follow-up visits and further evaluation, both of which are crucial to long-term success of MAT treatment. Drop-out rates would also be indicative of program quality—another important measure of program success that influences costs per patient. However, conducting this analysis was a challenge due to the lack of generally agreed-on measures for successful program completion and limited data.

**Table 3. Number of patients completing treatment to the desired clinical outcome**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
GFATM 2009	2	2	2	1	2	6	9	0	4	6	4	1
GFATM 2010	5	2	3	3	8	6	4	4	5	3	2	6
MOLHSA 2009	12	15	10	8	13	17	22	26	20	21	22	23
MOLHSA 2010	24	24	28	24	23	29	49	31	32	27	24	21

Source: Costing study data.

**Table 4. Number of patients who dropped out of treatment**

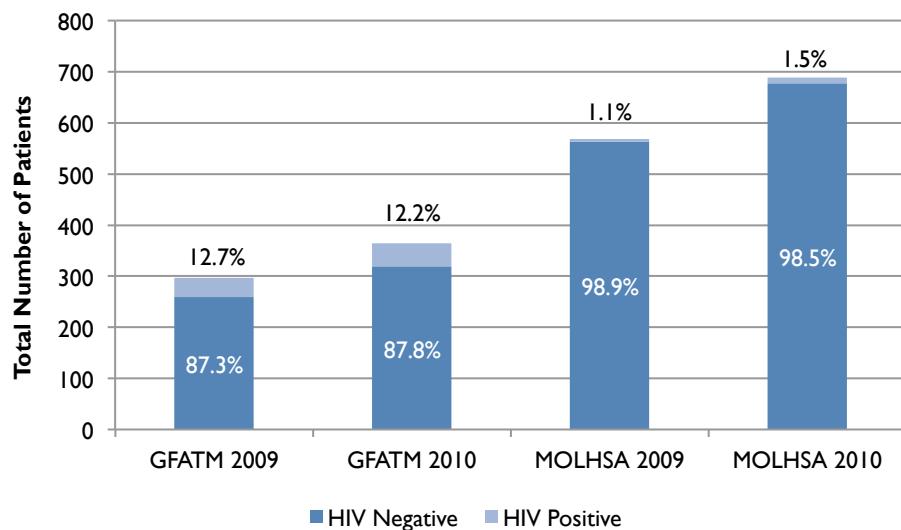
	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sept</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
GFATM 2009	3	3	5	3	1	1	4	1	2	1	3	1
GFATM 2010	4	0	3	3	1	3	3	7	4	4	3	3
MOLHSA 2009	2	1	2	3	0	1	1	6	3	2	1	3
MOLHSA 2010	6	3	3	7	1	9	7	7	3	7	6	2

Source: Costing study data.

### **3.2 Distribution of HIV-Positive Patients Across Service Providers**

HIV-positive patients are disproportionately enrolled in GFATM MAT programs. Figure 8 shows that in 2009, 12.7 percent of GFATM patients were HIV positive, compared with only 1.1 percent of MOLHSA patients. In 2010, 12.2 percent of GFATM patients were HIV positive, compared with 1.5 percent of MOLHSA patients. This may be because GFATM's services are provided at no cost, which is a potential draw for HIV-positive patients who already bear a significant cost burden for treatment. In several cases, HIV-positive patients are transferred from MOLHSA programs to GFATM programs if the geographic location of the MAT facility is appropriate for the patient. It was found that MOLHSA's Division 6 facility treats more HIV-positive patients in comparison with other MOLHSA facilities because there are no GFATM MAT programs in western Georgia.

**Figure 8. Distribution of HIV-positive patients in MAT facilities (2009/2010)**

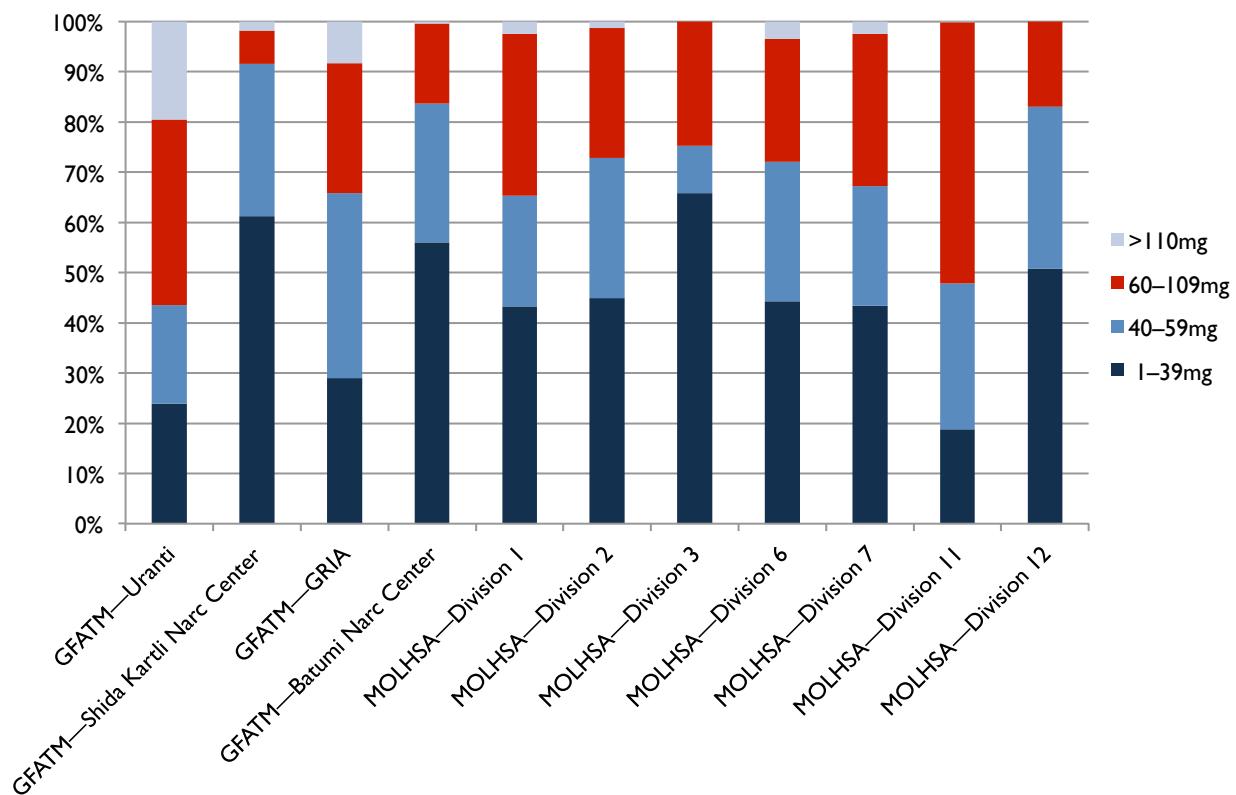


Source: Costing study data.

### 3.3 MAT Dosages Across Sites

The study found great variation in methadone medication doses between facilities. Per WHO guidelines, optimal methadone doses range between 60 to 120 milligrams per day. However, with the exception of the Uranti and Division 11 facilities (see Figure 9), more than 60 percent of patients receive less than 60 milligrams per day. Dose ranges are based on WHO guidelines. Uranti and Division 11 are providing the range of optimal doses to a little more than 50 percent of their patients. Since most doses are not at the WHO recommended optimal level, this likely impacts treatment outcomes and indicators. Compared with patients on lower dosages, patients receiving higher methadone dosages are shown to stay in treatment longer, use fewer injection drugs, and have lower incidence of HIV infection (CDC, 2002).

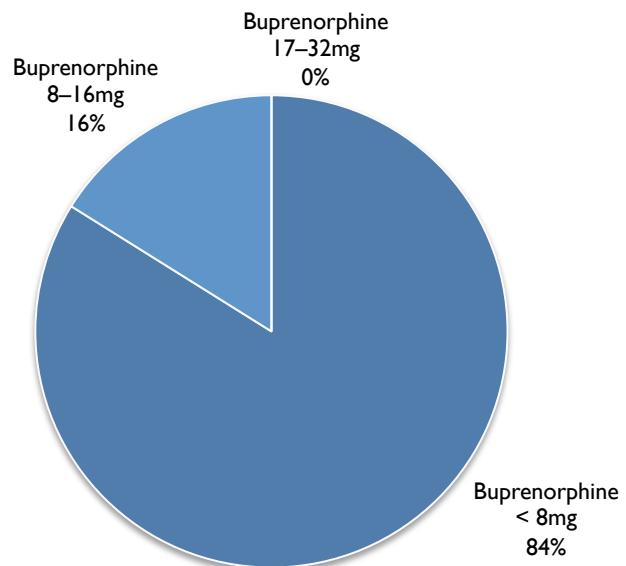
**Figure 9. Methadone doses in GFATM and MOLHSA MAT sites (11 sites)**



Source: Costing study data.

Almost all MAT facilities in Georgia provide only methadone for opioid substitution treatment of PWID. One site, MOLHSA's Division 7, also provides buprenorphine treatment to a limited number of patients. The drug is more expensive than methadone, and the facility provides 16 percent of its patients with the WHO-recommended dose of at least eight milligrams per day (see Figure 10). Thus, expenses on this treatment were factored into our calculation of unit costs for MAT.

**Figure 10. Buprenorphine doses in MOLHSA's Division 7 site (2010)**



Source: Costing study data.

Although the law allows some patients to take medications home, this law is largely not implemented—mainly due to the difficulty in controlling the flow of narcotics. Data from this study show that, over the course of three months, GFATM facilities dispensed methadone for at-home treatment to just 13 patients, and MOLHSA facilities did the same for seven patients. Take-home doses are mainly dispensed to HIV-positive patients who must visit other facilities for HIV care and treatment.

## 4. RESULTS

### 4.1 Unit Cost Analysis

The study estimated the costs of MAT provision per patient for one month. The economic costs of MAT provision in Georgia were assessed from the perspective of the two service providers: MOLHSA and GFATM. The cost calculations include direct and indirect costs of MAT programs. For this assessment, we excluded the opportunity costs of time and money that patients incur for their treatment, as well as transportation and other informal costs. Unit costs for MOLHSA facilities include 150 GEL (\$87) in patient contributions for MOLHSA programs. Expenditure data from 2009 and 2010 were used to calculate the monthly unit cost.

Unit costs remained at roughly the same level in 2009 and 2010 at MOLHSA facilities (see Table 5). The cost per patient was 229 GEL (\$133) monthly in 2009 and 236 GEL (\$137) monthly in 2010. The rise could be attributed to an increase in drug costs, which rose from 36 GEL (\$21) in 2009 to 54 GEL (\$31) in 2010, primarily because treatment with buprenorphine was introduced in one site (Division 7) in 2010. This site offers this alternative to around 80 patients (in addition to methadone treatment). Since buprenorphine is far more expensive than methadone, medication costs rose. GFATM programs are only slightly less expensive than MOLHSA programs.

**Table 5. Unit cost per patient month in MOLHSA sites (GEL)**

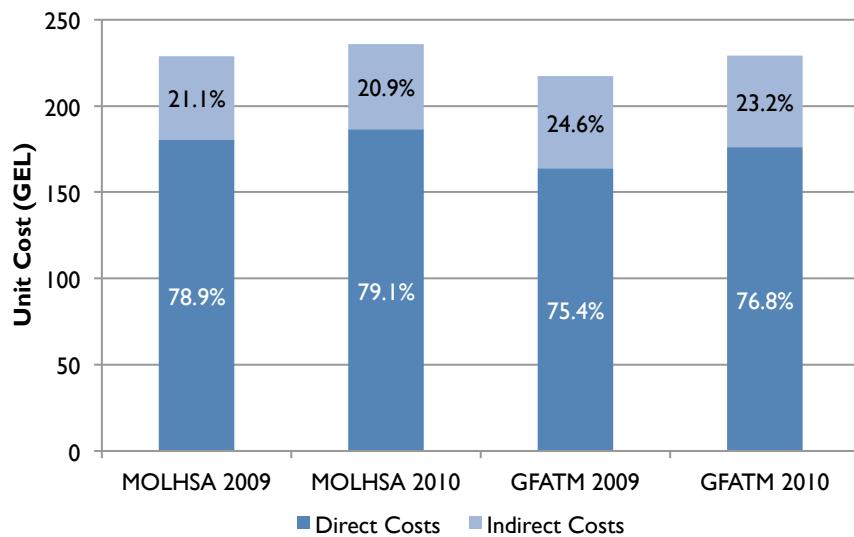
<b>MOLHSA—7 MAT facilities</b>	<b>Patient month—2009</b>	<b>Patient month—2010</b>
<b>Direct costs</b>	<b>180.52</b>	<b>186.51</b>
Salaries of clinical & support staff	132.17	118.81
Regional monitoring trips	0.50	0.46
Office supplies	1.69	0.57
Medical supplies	0.00	0.00
Medication	36.11	53.67
Distribution of medication	0.81	1.09
Vaccinations	0.00	0.00
Drug Screening Tests	6.51	7.60
Blood Screening Tests	0.49	0.29
Other medical equipment	2.22	4.01
<b>Indirect costs</b>	<b>48.38</b>	<b>49.29</b>
Rental cost	13.85	11.70
Utilities	32.26	31.91
Bank/car insurance fees	0.04	0.48
Nonmedical equipment	2.24	5.20
<b>TOTAL</b>	<b>229 GEL</b>	<b>236 GEL</b>

At GFATM sites, the monthly cost of providing medication for each patient was approximately 38 GEL (\$22) in both 2009 and 2010, corresponding to a daily cost of medication of approximately 1.26 GEL (\$0.73) per patient (see Table 6). In the case of both providers, direct costs far exceed indirect costs (see Figure 11).

**Table 6. Unit cost per patient month in GFATM sites (GEL)**

<b>GFATM—4 MAT clinic</b>	<b>Patient month—2009</b>	<b>Patient month—2010</b>
<b>Direct costs</b>	<b>163.86</b>	<b>176.08</b>
Salaries of clinical & support staff	117.80	126.16
Regional monitoring trips	0.86	0.94
Office supplies	1.46	1.14
Medical supplies	1.13	1.20
Medication	37.42	38.31
Distribution costs	1.22	1.50
Vaccinations	0.00	0.00
Drug Screening Tests	2.16	3.75
Blood Screening Tests	0.00	0.00
Other medical equipment	1.81	3.07
<b>Indirect costs</b>	<b>53.36</b>	<b>53.06</b>
Rental cost	13.11	10.73
Utilities	31.93	28.94
Bank/car insurance fees	0.74	1.00
Nonmedical equipment	7.57	12.39
<b>TOTAL</b>	<b>217 (GEL)</b>	<b>229 (GEL)</b>

**Figure 11. Share of direct and indirect costs in MAT facilities**

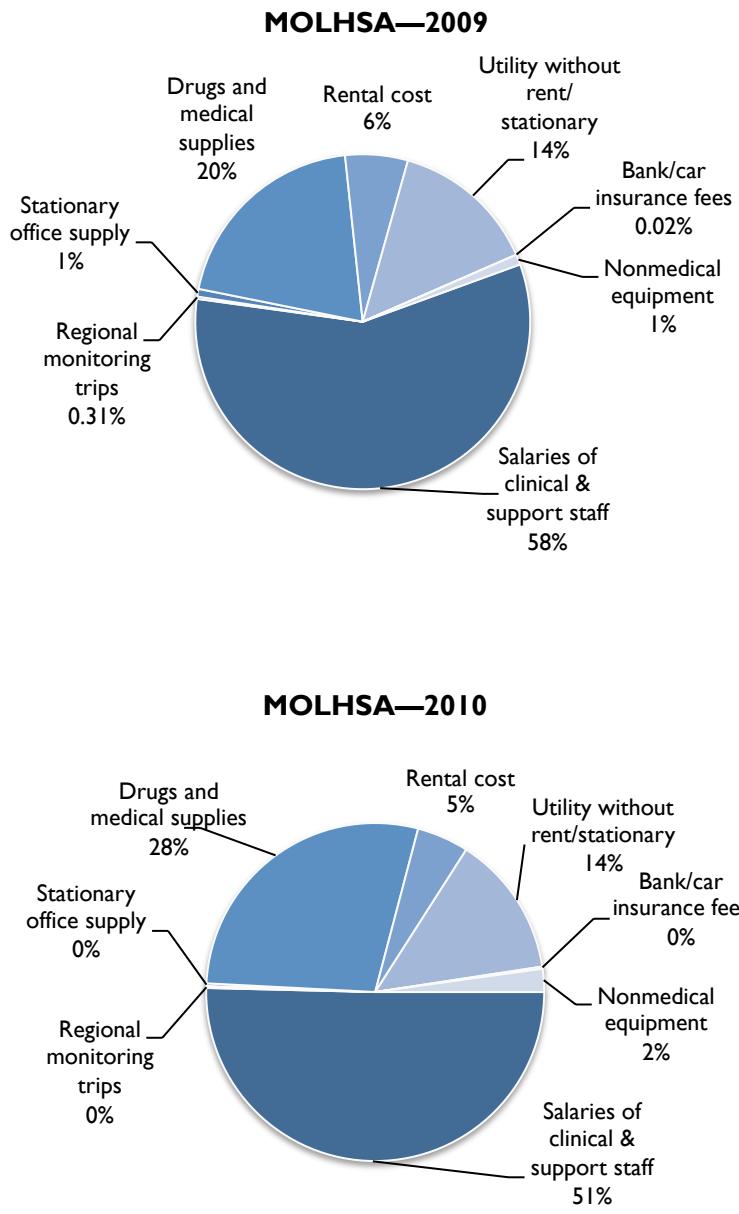


Source: Costing study data.

### Key drivers of unit cost

Three inputs account for a major portion of costs associated with running MAT programs in Georgia: personnel, drugs/medical supplies, and utilities (see Figure 12). The most significant budget item in both MOLSHA and GFATM programs is the cost of personnel (i.e., salaries of clinical and support staff). As discussed earlier, the number of providers at each site is centrally mandated, which leaves no room to manoeuvre and plan for changes in number of patients. As a result, sites that do not have enough patients must continue to support expensive personnel even when the number of patients is low. Similarly, heavy volume sites are unable to plan for additional personnel. Effective use of personnel time is crucial for maximizing program efficiency and improving the cost-effectiveness of MAT programs in Georgia.

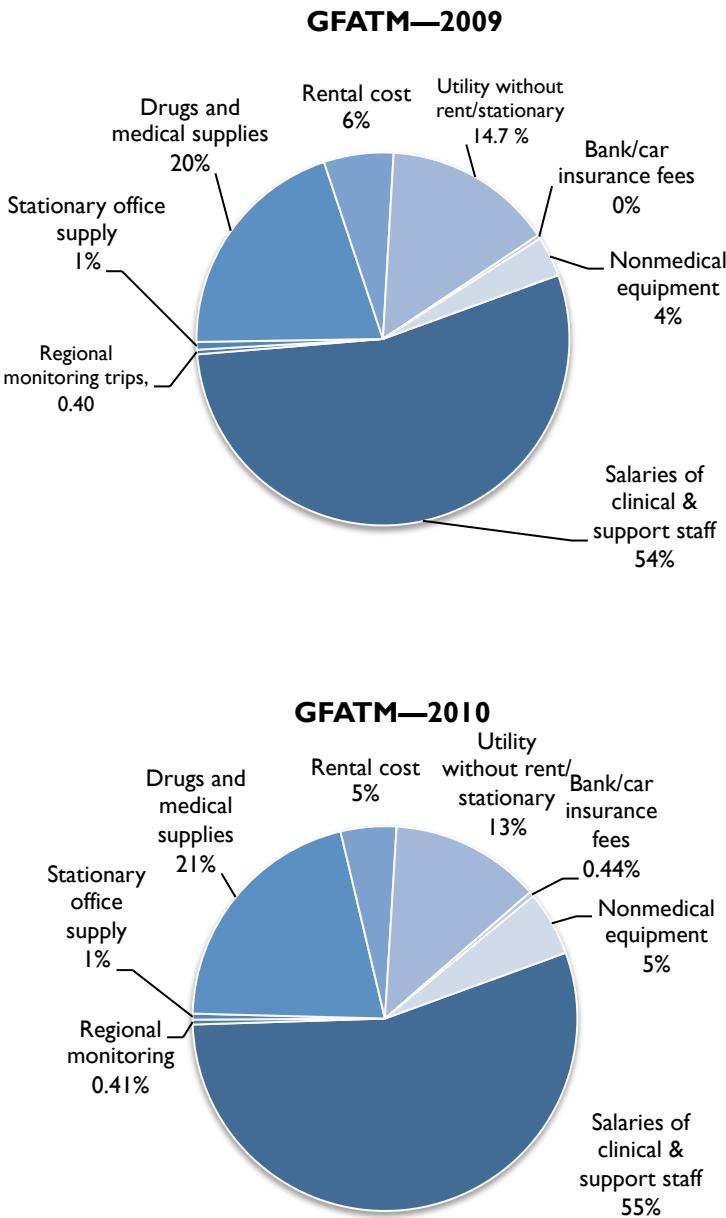
**Figure 12. Key drivers of unit costs for MOLHSA MAT sites (2009/2010)**



Source: Costing study data.

As shown in Figure 13, GFATM facilities face the same personnel costs: salaries accounted for more than half of unit costs; drugs and medical supplies accounted for 20 percent; and costs of utilities ranged between 13 and 14 percent for both years.

**Figure 13. Key drivers of unit costs for GFATM MAT sites (2009/2010)**



Source: Costing study data.

### **Costs reduce as more patients are treated**

Economies of scale are revealed when we compare MAT sites with the most and least numbers of patients in both types of facilities. Unit cost per patient gradually declines as the number of patients treated at the facility increases. The cost per patient per month for the smallest GFATM site, Shida Kartli Narcological Center, which treated an average of 45 patients per month in 2010, was 291 GEL (\$169), while the cost per patient per month for the largest site, Batumi Narcological Center, which treated an average of 117 per month in 2010, was 161 GEL (\$93). The MOLHSA site with the least patients was Division 3, with an average of 18 patients per month; and this site incurred costs of 702 GEL (\$407) per patient. The

MOLHSA site with the largest number of patients receiving methadone was Division 6, with an average of 142 patients. This site had a significantly lower unit cost of 122 GEL (\$71) per month per patient (see Table 7). Note that the analysis excludes Division 7, which treated the highest number of patients overall but lacked data on the number of patients on methadone versus buprenorphine.

**Table 7. Unit costs for MAT sites serving the smallest and largest volume of patients**

	<b>GFATM Shida Kartli Narcological Center: least number of patients</b>	<b>GFATM Batumi Narcological Center: largest number of patients</b>	<b>MOLHSA Division 3: least number of patients</b>	<b>MOLHSA Division 6: largest number of patients</b>
Average patients per month	45	117	18	142
Unit cost patient/month	291	161	702	122

## 4.2 Assessing Potential for Future Expansion of Services

According to this analysis, the total number of patients in MAT programs country-wide (in both GFATM and MOLHSA sites) was 1,267 in 2009 and 1,538 in 2010. These numbers were calculated by extrapolating collected data from 11 sites for 2009 and 2010 to estimate the number of patients at all 16 MAT sites in the country. Based on estimates of the maximum capacity of the 11 study sites obtained through interviews, the overall total capacity that can be accommodated by the five GFATM and 11 MOLHSA sites in Georgia was calculated to be 1,882 patients.

Georgia's National HIV/AIDS Strategic Plan for 2011–2016 MAT coverage goals are shown in Table 1. In 2011, the strategic plan aims to cover more than 2,500 PWID in MAT programs. This translates as a 66 percent increase over current numbers enrolled in MAT programs in 2010, as estimated by this study. Such an increase would also exceed the estimated total capacity of MAT sites in the country.

To assess the potential to expand services to a greater numbers of PWID, the team modelled two scenarios (more conservative than the strategic plan) that would allow for a slower and perhaps more realistic, increase in MAT coverage:

- A. An increase in the coverage of PWID by 15 percent until maximum available capacity in MAT facilities is reached. Proportionally, the costs of medical supplies, drugs, distribution, vaccinations, and drug screening costs have also been increased by 15 percent to match patient increase, while other direct and indirect costs remain constant.
- B. A graduated expansion in MAT coverage over five years (5, 7, 9, 11, and 13 percent increases), using existing sites until maximum available capacity is reached. 2010 was used as the base year for extrapolation. Again, direct costs of drugs, medical supplies, distribution, vaccinations, and drug screening costs were also increased proportionally, while other direct costs and indirect costs remain constant.

Increasing coverage of PWID (within existing MAT sites) will result in higher drug and medical expenses for each successive year. Tables 8 and 9 show the average number of patients per month at each of the seven MOLHSA and four GFATM study sites during the three-month study period (March–May 2011), as well as the maximum capacity of each site, as stated in key informant interviews. As noted previously, the total number of patients per month and overall total capacity that can be accommodated by the five

GFATM and 11 MOLHSA sites in Georgia was extrapolated from the sample of seven MOLHSA and four GFATM study sites to complete the scenario analyses.

Table 9 shows that the GFATM sites are currently at or near capacity, with the exception of the Regional Narcological Center of Shida Kartli. Although this site has a maximum capacity of 100 patients, there has historically been low demand for the program, and recruitment of patients has been difficult. It is unlikely that this facility would have more than 50 patients at one time. Effectively, since the GFATM sites are already at capacity, any increase in the number of patients at GFATM sites would need to be accompanied by the expansion in number or capacity of sites. Accordingly, we modelled each scenario for MOLHSA sites only.

**Table 8. Average number of patients and capacity of MOLHSA MAT sites**

	<b>MOLHSA sites</b>	<b>Average number of patients in 3-month study period</b>	<b>Maximum capacity</b>
1	Division N6 (Kutaisi, Centre on Addiction)	120.7	150
2	Division N11 (Zugdidi, Centre on Addiction)	26.7	60
3	Division N3 (Telavi, Centre on Addiction)	17.0	60
4	Division N1 (Tbilisi, Centre “Uranti”)	117.0	120
5	Division N7 (Tbilisi, Institute on Addiction)	160.0	200
6	Division N12 (Tbilisi, Airport Settlement, Polyclinics)	47.3	170
7	Division N2 (Tbilisi, Institute on Addiction)	82.7	120
8	Total for 7 MOLHSA Sites	571.4	880
9	Total for 11 MOLHSA Sites (extrapolated)	897.9	1,382

Source: Study data; key informant interviews.

**Table 9. Average number of patients and capacity of GFATM MAT sites**

	<b>GFATM sites</b>	<b>Average number of patients in 3-month study period</b>	<b>Maximum capacity</b>
1	Georgian Research Institute on Addiction (GRIA)	101.7	100
2	Medical Center “Uranti”	96.7	100
3	Regional Narcological Center of Batumi	106.0	100
4	Regional Narcological Center of Shida Kartli	44.7	100
5	Total for 4 GFATM Sites	349.1	400
6	Total for 5 GFATM Sites (extrapolated)	436.4	500

Source: Study data; key informant interviews.

### Scenario A: Increasing coverage by 15 percent in successive years

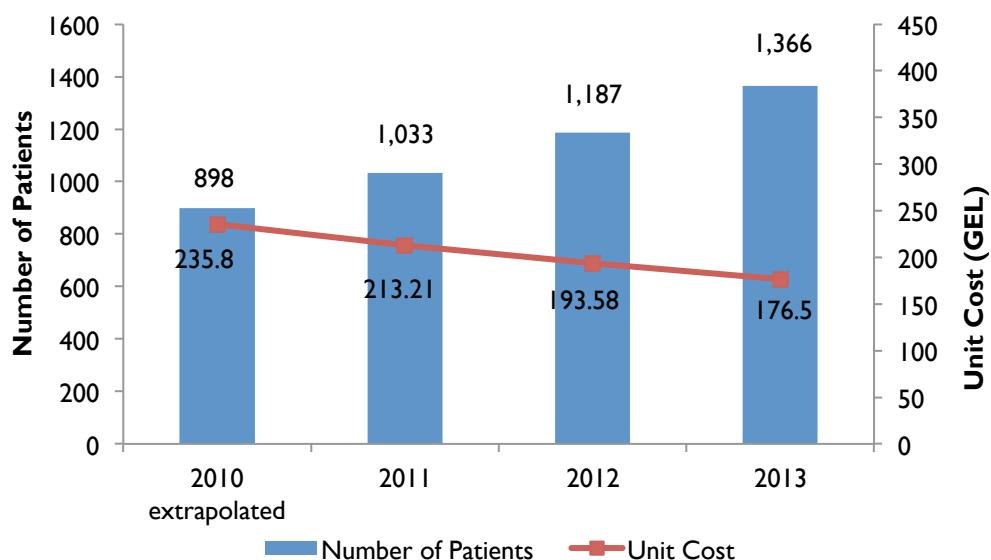
As shown earlier in Table 8, extrapolation of study data estimates that MOLHSA sites can accommodate a maximum of 1,382 patients within their existing facilities. Patients can be added in divisions 2, 3, 6, 7, 11, with the largest number of vacancies in Division 12 (Tbilisi, Airport Settlement, Polyclinics). Given the available capacity, MOLHSA can increase patient enrollment by 15 percent until 2013, after which additional sites would be needed to accommodate more patients (see Table 10). Under this scenario, we assume, some direct costs—medical supplies, drugs, distribution, vaccinations, drug screening costs—also increase by 15 percent to match patient enrollment. At the same time, we assume that other direct costs of salaries, monitoring, and office supplies and indirect costs (which include rent, utilities, and non-medical equipment) are held constant for the duration.

As seen in Figure 14, unit costs decline with increases in patient enrollment. One caveat to note is that unit costs decline as long as patients can be accommodated in existing sites. The addition of new sites would increase costs incurred (especially start-up costs); although, it would also result in exponentially greater coverage. In the long run, unit costs of service provision inputs (like medical supplies, personnel, etc.) will likely increase due to increases in the cost of commodities and staff salaries, but this analysis assumes that the unit costs of these inputs will remain the same in the short term.

**Table 10. Increasing PWID enrollment by 15 percent in MOLHSA facilities**

MOLHSA	Average number of patients per month
2010—11 MAT sites	898
2011—15% increase	1,033
2012—15% increase	1,187
2013—15% increase	1,366

**Figure 14. Scenario A: Unit costs for MOLHSA facilities (GEL)**



Under Scenario A, a 15 percent increase in coverage over successive years would result in a drop of about 9 percent in unit costs each year at MOLHSA facilities—from 236 GEL (\$137) in 2010 to 177 GEL (\$103) in 2013. The share of direct cost rises from 79 percent in 2010 to 82 percent in 2013. With an overall MOLHSA site capacity of 1,382, this scenario would require an additional MAT clinic after 2013 (see Table 11).

**Table 11. Increase in direct and indirect costs due to increased enrollment**

MOLHSA	Direct costs (%)	Indirect costs (%)
2010—11 MAT facilities	79.10	20.90
2011—15% increase	79.90	20.10
2012—15% increase	80.75	19.25
2013—15% increase	81.64	18.36

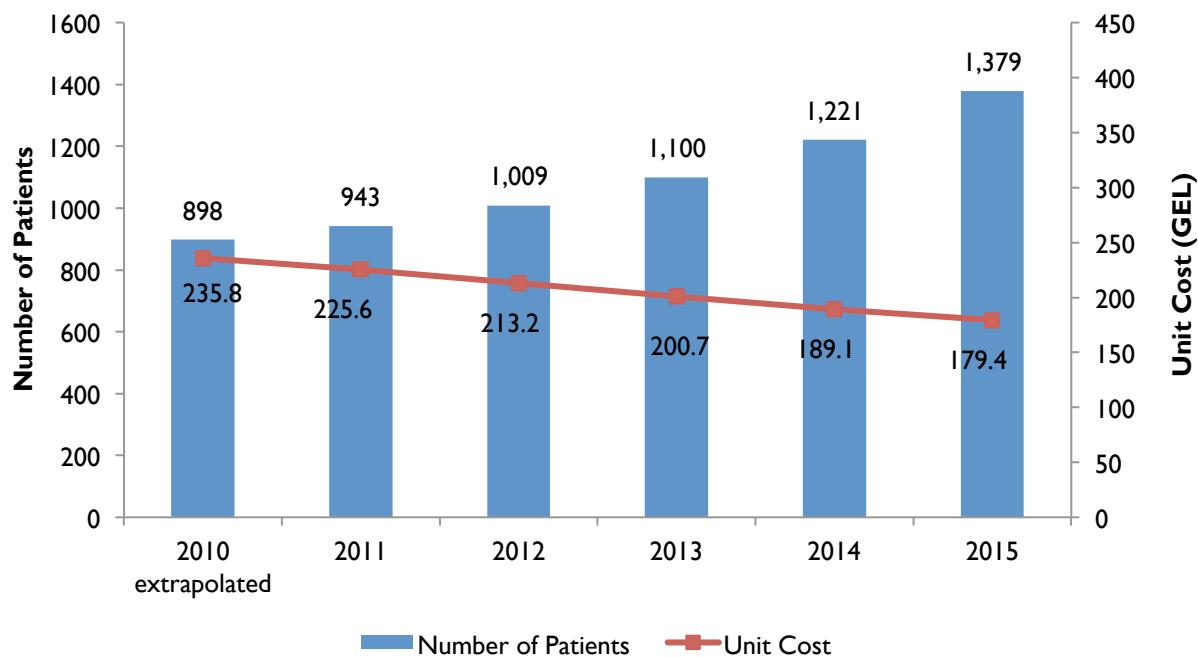
### **Scenario B: Graduated expansion of MOLHSA facilities**

Under Scenario B, a graduated expansion in the coverage of PWID by 5 percent, 7 percent, 9 percent, 11 percent, and 13 percent at existing MOLHSA MAT facilities (see Table 12) in successive years would result in a decrease in the monthly unit cost of around 2–5 percent in subsequent years from 236 GEL (\$137) to 179 GEL (\$104). Under this scenario, once again we assume that some direct costs—medical supplies, drugs, distribution, vaccinations, drug screening costs—also increase by 5, 7, 9, 11, and 13 percent to match patient enrollment. Additionally, other direct costs (salaries, monitoring, and office supplies) and indirect costs (rental costs, utilities, and non-medical equipment) are held constant for the duration. Using these assumptions, the share of direct costs would rise from 79.1 percent in 2010 to 81.9 percent in 2015 (see Figure 15 and Table 13). Assuming a capacity of 1,379 patients at MOLHSA sites, this scenario would not require an additional MAT clinic until 2016 and would allow the opportunity to increase coverage of PWID in the preceding years.

**Table 12. Increasing PWID enrollment per the MOLHSA strategic plan at MOLHSA sites**

MOLHSA	Average number of patients per month at all sites
2010—11 MAT sites	898
2011—5% increase	943
2012—7% increase	1,009
2013—9% increase	1,100
2014—11% increase	1,221
2015—13% increase	1,379

**Figure 15. Scenario B: Unit costs for MOLHSA facilities (GEL)**



**Table 13. Increase in direct and indirect costs due to increased enrollment**

MOLHSA	Direct costs (%)	Indirect costs (%)
2010—11 MAT facilities	79.10	20.90
2011—5% increase	79.47	20.53
2012—7% increase	79.88	20.13
2013—9% increase	80.43	19.57
2014—11% increase	81.11	18.89
2015—13% increase	81.94	18.06

## 5. CHALLENGES AND NEXT STEPS

A few challenges became apparent while assessing the unit costs for MAT. First, there are issues associated with the wide interpretation of “successful treatment outcomes” in Georgia. Clear indicators for successful outcomes of MAT treatment (e.g., treatment timeframe, drug dosage, milestones in psychological treatment) are essential for future analyses to assess the cost-effectiveness of MAT intervention. Current guidelines define “improvement of somatic and psychical condition of opioid dependent persons, their social adaptation and reintegration” as a successful outcome. The lack of specificity in current guidelines leaves them open to many interpretations. A measurable indicator of treatment length based on addiction history would improve the tracking of treatment outcomes.

Currently, patients are lost to follow-up in the transfer between HIV treatment clinics and MAT facilities. Integration or co-location of PWID/HIV services would allow for better patient follow-up, while better data on recidivism and relapse rates would also allow for greater predictability in treatment outcomes and better assessment of cost-effectiveness.

Centrally mandated staffing requirements also pose a challenge for individual MAT sites. Current requirements for staffing and personnel at MAT facilities are centrally mandated. Greater autonomy for individual MAT sites would allow them to determine their personnel needs based on differences in patient characteristics, geographic area, and population size. In particular, greater flexibility would enable individual sites to adjust the number of personnel to match number of patients treated.

Finally, while further analysis to assess this is necessary, combining the management of the two service providers could result in some savings. Currently, MOLHSA and GFATM providers incur separate management costs for the MAT programs. In addition, combining the patient registries could enable (1) better patient tracking (movement of patients between providers) and thus reduced loss to follow-up and (2) the creation of one database for treatment indicators and outcome measurements.

# APPENDIX I. AMORTIZATION ASSUMPTIONS FOR CAPITAL GOODS

#	Item	Amortization Period (Years)	Justification	Source
1	Air conditioner	20	Comparable country—Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
2	Alcohol tester	4	Comparable item—Temperature monitors Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
3	Alco tester—with head	4	Comparable item—Temperature monitors Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
4	Bag	5	Comparable item—Fax Comparable country—Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
5	Benzo—generator	5	Comparable item—Standby Generator Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
6	Bookcase	10	Comparable item—Cupboard Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
7	Bookshelf	10	Comparable item—Cupboard Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
8	Bottle for dosimeter 1000 ml	4	Comparable item—Temperature monitors Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
9	BP monitor with stethoscope	4	Comparable item—Temperature monitors Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
10	Cabell	4	Comparable item—Voltage stabilizers	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
11	Calculator	5	Comparable item—Fax Comparable country—Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
12	Car	7.3		WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t1/en/index.html">http://www.who.int/choice/costs/prices_t1/en/index.html</a>

#	Item	Amortization Period (Years)	Justification	Source
13	Cassette player	10	Comparable item—Video Comparable country —Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t1/en/index.html">http://www.who.int/choice/costs/prices_t1/en/index.html</a>
14	Clock	5	Comparable item—Fax Comparable country—Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
15	Closet	10	Comparable item—Cupboard Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
16	Clothes hanger	10	Comparable item—Cupboard Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
17	Color photo camera	10	Comparable item—Video Comparable country —Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t1/en/index.html">http://www.who.int/choice/costs/prices_t1/en/index.html</a>
18	Computer	5	Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
19	Computer table	10	Comparable item—Desks Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
20	Connector	4	Comparable item—Voltage stabilizers	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
21	Copier	5	Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
22	Digital photo camera	10	Comparable item—Video Comparable country —Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t1/en/index.html">http://www.who.int/choice/costs/prices_t1/en/index.html</a>
23	Dosimeter for dispensing liquid methadone	4	Comparable item—Temperature monitors Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
24	DVD player	10	Comparable country—Poland Comparable item—Television	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
25	Extension cable/multi-plug	4	Comparable item—Voltage stabilizers	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
26	Fax machine	5	Comparable country—Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>

#	Item	Amortization Period (Years)	Justification	Source
27	Filing cabinet	10	Comparable item—Desks Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
28	Gas generator	5	Comparable item—Standby Generator Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
29	Hand dryers	20	Comparable country—Poland Comparable item—air conditioner	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
30	Hitting machine	20	Comparable country—Poland Comparable item—air conditioner	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
31	Journal table	10	Comparable item—Desks Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
32	Laboratory chair	5	Comparable item—chairs Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
33	Laboratory table	10	Comparable item—Desks Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
34	Laboratory cupboard	10	Comparable item—Cupboard Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
35	Laboratory drying cupboard	10	Comparable item—Cupboard Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
36	Laptop	5	Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
37	Mechanical pipettes	4	Comparable item—Temperature monitors Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
38	Medical couch	5	Comparable item—chairs Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
39	Nightstand	10	Comparable item—Desks Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
40	Office armchair	5	Comparable item—chairs Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>

#	Item	Amortization Period (Years)	Justification	Source
41	Office bookcase	10	Comparable item—Cupboard Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
42	Office chair	5	Comparable item—chairs Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
43	Office table	10	Comparable item—Desks Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
44	Panel box	4	Comparable item—Voltage stabilizers	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
45	Power supply	4	Comparable item—Voltage stabilizers	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
46	Printer	5	Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
47	Printer all-in-one	5	Comparable item—Printer	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
48	Refrigerator	7	Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
49	Safe/strongbox	10	Comparable item—Cupboard Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
50	Scales	4	Comparable item—Temperature monitors Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
51	Security and alarm system	4	Comparable item—Voltage stabilizers	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
52	Shredder	5	Comparable country—Russia Comparable item—copier	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
53	Sofa	5	Comparable item—chairs Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
54	Sofa and 2 armchairs	5	Comparable item—chairs Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>

#	Item	Amortization Period (Years)	Justification	Source
55	Soft chair	5	Comparable item—chairs Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
56	Table	10	Comparable item—Desks Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
57	Telephone	5	Comparable country—Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
58	Telephone mini-station	5	Comparable item—Telephone	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
59	Triplet furniture	5	Comparable item—chairs Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
60	Television	10	Comparable country—Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
61	UPS	4	Comparable item—Voltage stabilizers	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
62	Vacuum cleaner	2	Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
63	Video recorder	10	Comparable country—Poland Comparable item—Television	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
64	Wall board/magnetic	10	Comparable item—Desks Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
65	Wall clock	5	Comparable item—Fax Comparable country—Poland	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
66	Wardrobe	10	Comparable item—Cupboard Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html">http://www.who.int/choice/costs/prices_t4/en/index.html</a>
67	Water dispenser	4	Comparable item—Temperature monitors Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>
68	Water distillation machine	4	Comparable item—Temperature monitors Comparable country—Russia	WHO CHOICE database <a href="http://www.who.int/choice/costs/prices_t4/en/index.html#">http://www.who.int/choice/costs/prices_t4/en/index.html#</a>

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**Health Policy Initiative, Costing Task Order  
Futures Group  
One Thomas Circle, NW, Suite 200  
Washington, DC 20005 USA  
Tel: (202) 775-9680  
Fax: (202) 775-9694  
Email: [policyinfo@futuresgroup.com](mailto:policyinfo@futuresgroup.com)  
<http://ghiqc.usaid.gov>  
<http://www.healthpolicyinitiative.com>**