HIV/AIDS Treatment and care: 2011-2014
Overview

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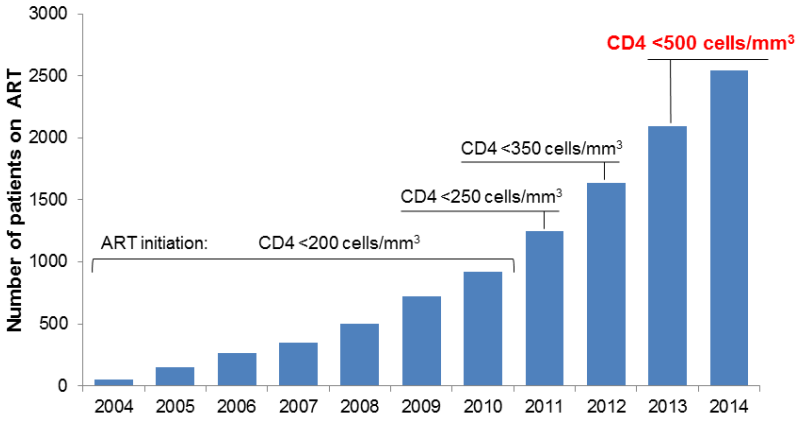
Provision of HIV/AIDS treatment and care services in Georgia has started in 1990s and the National AIDS Treatment program became operational in 1995. Since then implementation of the program has been coordinated by the Infectious Diseases, AIDS and Clinical Immunology Research Center (National AIDS Center), which is country's referral institution for HIV diagnosis, treatment and care. Till 2006 National AIDS Center was the sole provider of HIV medical services and since then regional facilities started to operate in the cities of Kutaisi, Batumi and Zugdidi. Since 2008, Georgia's HIV/AIDS treatment and care program has been expanded to region of Abkhazia with active involvement of Zurab Danelia Union "Tanadgoma". Adequate ART, including clinical, laboratory and human capacity has been developed in the region and treatment center has been established in the capital of Abkhazia – Sokhumi.

Substantial progress in treatment and care component of the national HIV response has been achieved since 2004 as a result of strengthened resource allocation from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). There is effective model of HIV/AIDS treatment and care service delivery that incorporates special algorithm for clinical monitoring, including regular (three times a year) examination of all patients for main clinical and laboratory parameters. Diagnostic capacities are well developed and all methods that are essential for HIV monitoring, such as CD4 count, HIV viral load and HIV drug resistance testing are available. This ensures effective treatment and disease monitoring. Patients are regularly screened and managed for infectious and non-infectious comorbidities, which also includes provision of in-patient care. The service delivery is supported by the state funded and GFATM supported programs, which together ensure universal access to essential HIV-related medical care free of charge, including antiretroviral therapy (ART).

Antiretroviral drugs have been available in Georgia since 1990s, however the access was very limited because of economic reasons. Since 2004, through the Global Fund support Georgia ensured universal access to ART for all patient in need. Provision of treatment and care services in Georgia is based on national guidelines first developed in 2004 and being regularly updated as new evidence emerges. The latest version is based on 2013 WHO guidelines as well as major Western guidelines. Figure 1 shows evolution of recommendations for ART initiation in relation to the number of patients on treatment.

Figure 1. Evolving ART Initiation Recommendations and Number of Patients on ART



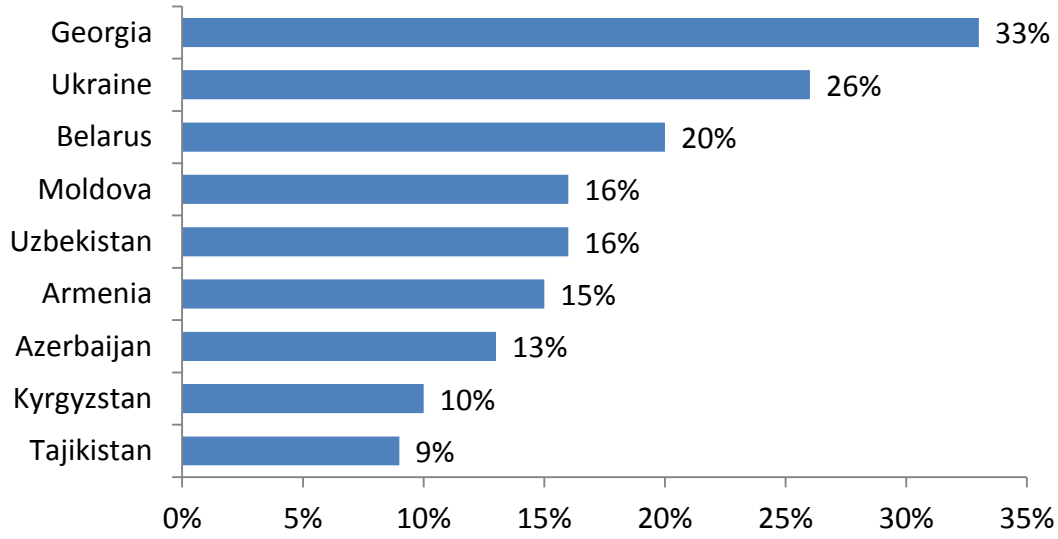
The number of patients on ART has been increasing annually and exceeded targets set in 2011-2016 National HIV/AIDS Strategic Plan of Action (NSPA), largely because of implementing latest 2013 WHO guidelines recommending treatment initiation at CD4 count level of <500 cells/mm^3. The recommendation had been fully rolled-out in the country in November-December 2013 and even in such a short period of time more than 90% coverage was ensured, which highlights that ART is universally available for all patients with known HIV status (Table 1). Latest data indicates that 95% of those diagnosed and known to be in need of treatment were on ART by the end of 2014.

It should be noted that definition of ART coverage and methodology for measuring it has been changing over time. As a latest approach UNAIDS and WHO calculate ART coverage as a proportion of patients receiving ART among the total estimated number of person living with HIV. Based on this methodology coverage increased from 23% in 2011 to 37% in 2014. According to UNAIDS data Georgia has highest ART coverage in the region of Eastern Europe and Central Asia (EECA) (Figure 2).[1] Maintaining universal access to ART for all diagnosed HIV patients as well as increasing coverage on a population level should remain strategic priority towards achieving significant impact on the epidemic.

Table 1. ART Coverage in Georgia, 2011-2014

Year	# of PLHIV on ART		Coverage among diagnosed		Spectrum derived coverage	
	NSPA Target	Actual achievement	# eligible	% from eligible	Total estimated # of PLHIV	% from estimated
2011	1290	1245	1295	96%	5400	23%
2012	1540	1640	1750	94%	5900	28%
2013	1820	2092	2300	91%	6400	33%
2014	2110	2541	2675	95%	6800	37%

Figure 2. Estimated percentage of adults living with HIV receiving ART in EECA in 2013



Universal access to ART has translated into significant reduction in mortality among people living with HIV in Georgia (Figure 3). HIV population analysis showed that mortality among HIV patients in the country has substantially decreased after achieving universal access to ART. The all-cause mortality rate peaked in 2004 with 10.74 deaths per 100 Person-years (PY) (95% CI: 7.92–14.24) and significantly decreased after the widespread availability of ART to 4.02 per 100 PY (95% CI:3.28–4.87) reported in 2012 ($p < 0.0001$). There was more than a 3-fold decrease in AIDS-related mortality from 6.49 deaths per 100 PY (95% CI: 4.34–9.32) in 2004 to 2.05 deaths per 100 PY (95% CI: 1.53–2.68) in 2012 ($p < 0.0001$).[2]

Figure 3. Mortality Rates among HIV Patients in Georgia

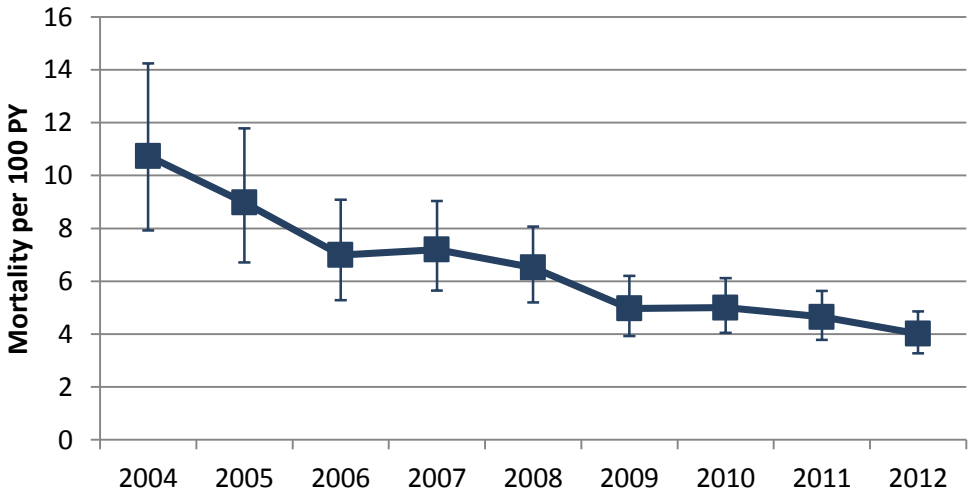


Table 2 describes ART survival rates in relation to targets set for 2013 in the 2011-2016 NSPA for 12, 24 and 36 months periods. 12-month survival significantly increased from 79% in 2011 to 86% in 2012 (p=0.01) and remained stable through 2014, thus achieving NSPA target of 85%. 2013 target for 24-month survival of 80% was achieved in that year with 82% of patients remaining on ART, however the indicator slightly reduced to 79% in 2014. The indicator

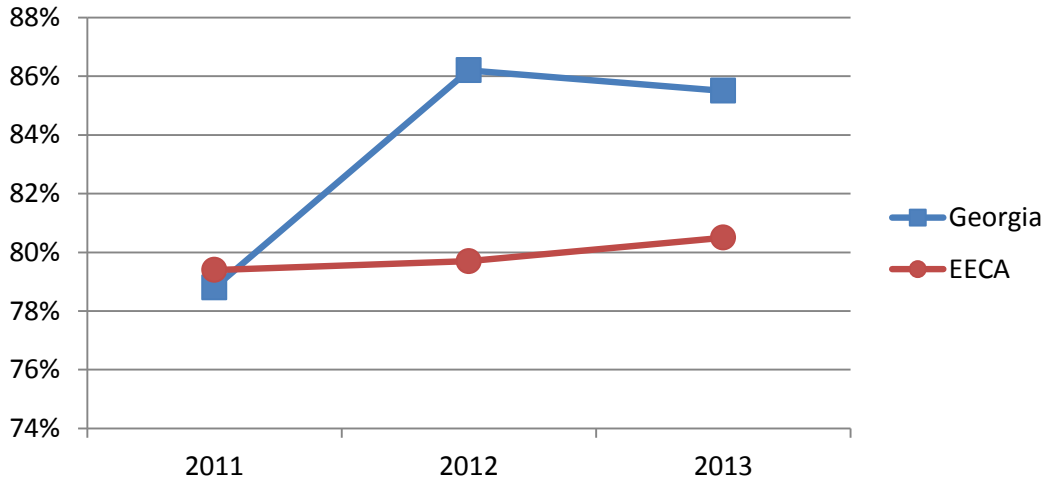
measuring 36-month survival varied substantially over time, with rates reaching 76% in 2012, them dropping to 69% in 2013 and again increasing to 77% in 2014.

Table 2. ART survival/retention rates in 2011-2014

	NSPA Targets for 2013	Actual Achievement			
		2011	2012	2013	2014
12-month survival	85%	78.8%	86.2%	85.5%	87.0%
24-month survival	80%	77.7%	73.7%	82.1%	79.1%
36-month survival	75%	69.2%	76.0%	68.6%	77.2%

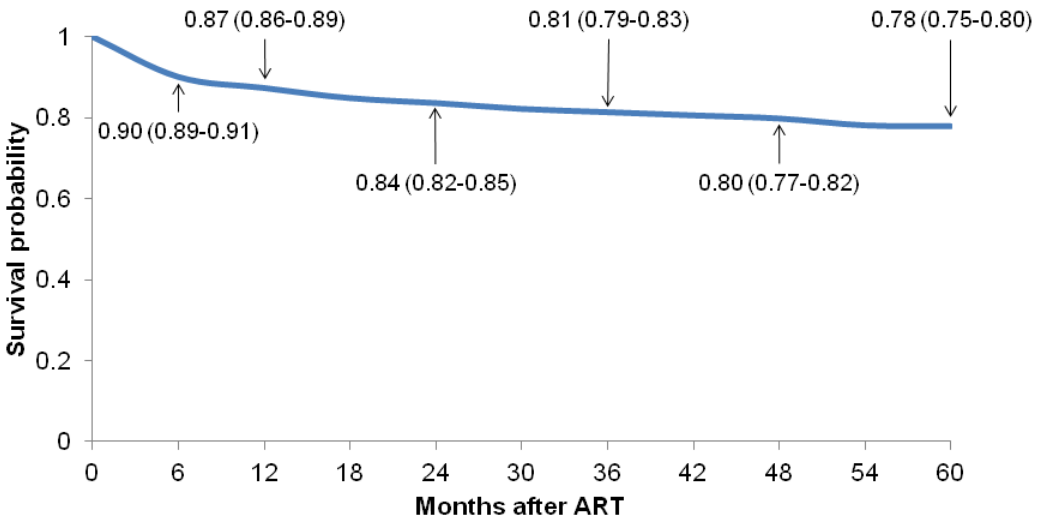
Comparison of data with EECA region shows that Georgia has better 12-month survival/retention compared to regional average (Figure 4). Data on 24-month survival in the region is available for 4 countries only with an average rate of 67% (range: 60%-79%).

Figure 4. Comparison of 12-month ART survival/retention between Georgia and EECA



Analysis of factors associated with mortality showed that late HIV diagnosis, defined as having AIDS at the time diagnosis, is the strongest predictor of mortality resulting in more than 5-fold increased risk of death (HR 5.69, 95% CI: 4.72–6.85, p<0.0001).[2] In the same population analysis the median time to death was 6 (IQR: 1-24) months, with 23% of patients died within 1 month and 51% within 6 months after HIV diagnosis. These numbers highlight detrimental effect of late diagnosis on survival. Survival probability analysis among patients starting ART also shows that major loss of patients occurs within the first 12 months of treatment initiation, with survival probability dropping to 0.90 (95% CI: 0.89=0.91) by 6 months and 0.87 (95% CI: 0.86-0.89), while survival stabilizes after the first year of treatment (Figure 5). Therefore scaling up earlier HIV diagnosis remains the key for improving HIV disease outcomes.

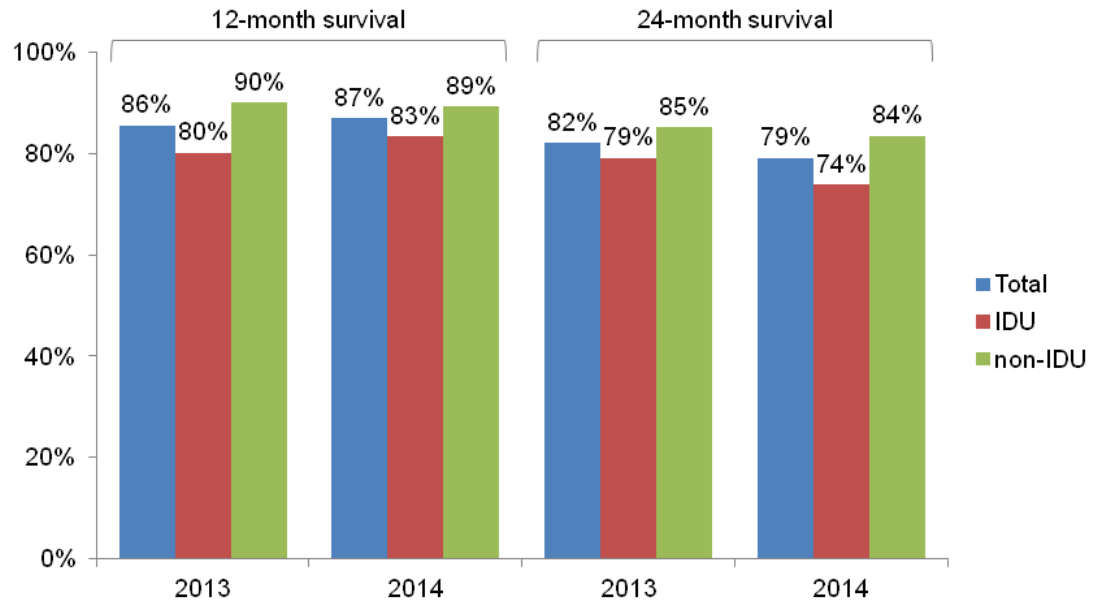
Figure 5. Survival Probability among HIV Patients Starting ART



The analysis also showed association between history of injection drug use and increased risk of death. Although the magnitude of risk was not high – HR 1.47 (95% CI: 1.20-1.80), the association with mortality was statistically significant (p=0.0003).[2] Further analysis identified that IDUs and non-IDUs have equal access to ART and the observed difference was not due to access problems, which is common in many countries including in the EECA.[3] The difference in mortality is rather explained by clinical characteristics of patients, with IDUs being more likely to be diagnosed late, to have co-infections with viral hepatitis and tuberculosis.

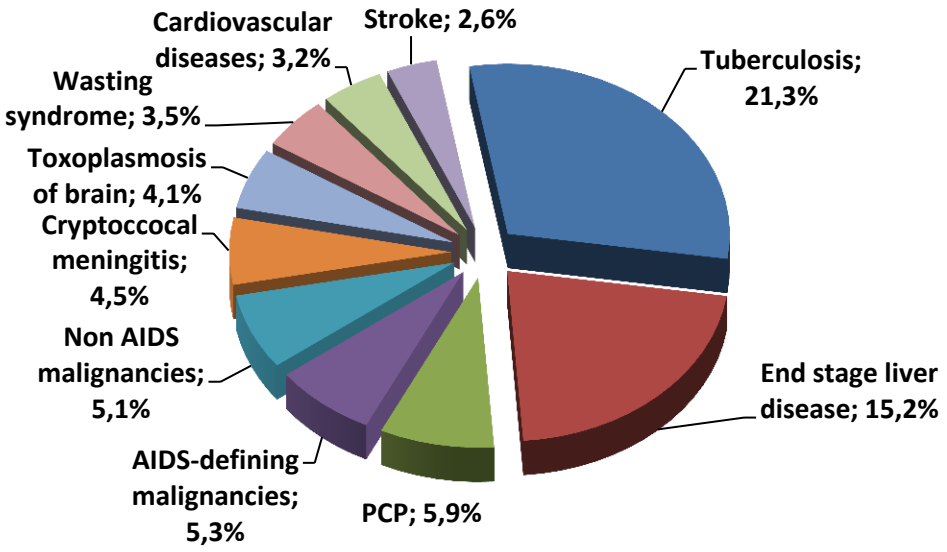
More recent ART program data further confirm that persons with history of IDU are at higher risk of attrition both at 12 and 24 months after starting ART (Figure 6). Also IDUs have been shown to be at higher risk of disengagement for the entire HIV care, which is described in more detail below.

Figure 6. Survival/retention rates by history of injection drug use



Analysis of causes of death showed that 54.7% of total cases of death reported since the start of the epidemic through 2012 was due to AIDS-related diseases. Temporal comparison showed that proportion of deaths due to AIDS reduced after achieving universal access to ART. With regard to individual diseases, tuberculosis and end stage liver disease (primarily due to HCV infection) were the two leading causes of death accounting for 21.3% and 15.2% of total deaths respectively (Figure 7).[2]

Figure 7. Top 10 Causes of Death among HIV Patients in Georgia: 1989-2012

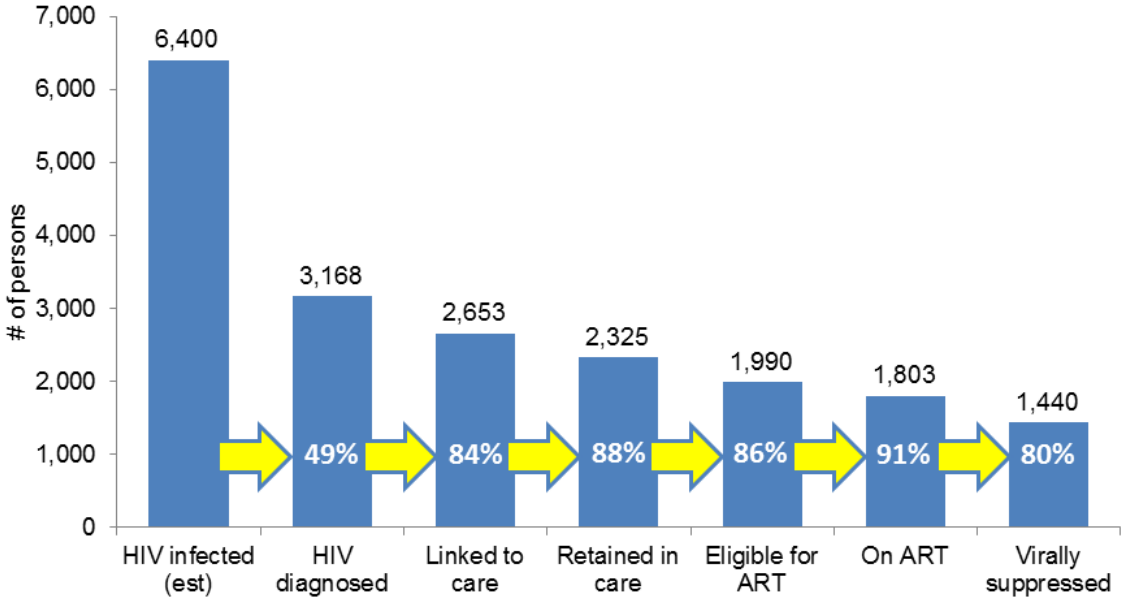


High TB/HIV mortality is particular concern given that all co-infected patients have access to free medical care for both diseases. In 2013 88% of estimated number of TB/HIV co-infected patients received treatment for both diseases and this level of coverage compares favourably to the EECA regional average of 71%. However, high MDR TB rates in Georgia coupled with late diagnosis of both TB and HIV results in increased risk of death from TB.[4] Additional efforts are needed to scale-up timely case finding and to maintain universal access to treatment for both TB and HIV.

Co-infection with hepatitis C virus (HCV) is common among HIV patients in Georgia, with up to half of the registered cases carrying antibodies against HCV.[2, 5] The burden even higher among persons with history of IDU reaching 73% mark. As described above end-stage liver disease, primarily due to HCV infection, is the second leading cause of death. Improving management of HIV/HCV co-infection was one of the key activities under previous NSPA, which set the target to treat 110 HIV/HCV co-infected patients for hepatitis C annually. Free hepatitis C program for HIV patients initiated in December 2011 and since then a total of 422 patients were enrolled. The program will continue in 2015 and efforts need to be made to ensure that HIV/HCV co-infected have access to HCV therapy beyond 2015.

Analysis of engagement in the HIV care continuum in Georgia shows that the major gap occurs in the stage of HIV testing/diagnosis (Figure 8). Based on this analysis around half of estimated 6,400 persons living with HIV are not yet diagnosed. This gap primarily is the result of low HIV testing coverage of key populations at risk.[6] This has serious implications both from individual and public health standpoints. Delays in HIV testing leads to late diagnosis and as described above to increased risk of mortality. On the other hand persons with undiagnosed HIV continue to engage in risk behaviors contributing to ongoing transmission of the virus.

Figure 8. Engagement in the HIV Care Continuum in Georgia



Analysis shows that patient engagement after HIV diagnosis is high. Majority of HIV diagnosed patients were linked and retained in care, more than 90% of those eligible were started on ART and 80% of them achieved viral suppression. Viral suppression rates reach 84% among those remaining on treatment for at least 12 months. The level of engagement after HIV diagnosis are among the best worldwide and certainly bets in EECA region. For example, in Georgia 45% of total diagnosed population is virally suppressed compared to 22% in Estonia,[7] 20% in Luhanks region of Ukraine,[8] and 18% in Russia.[9]

This high patient engagement has been possible through implementing effective service delivery model. This model provides free essential medical services related to HIV disease management, including outpatient services such as 4-monthly comprehensive clinical and laboratory evaluations, as well as HIV in-patient services for all those in need. Additional services are also available to enhance engagement, including patient education, counseling, adherence monitoring and support, as well as active case follow up through phone contact and/or outreach. Patient contact information is regularly updated and is used to contact patients or close contacts when needed in an effort to minimize noncompliance with clinic visits and loss to follow-up.

Special attention is paid to adherence as an important determinant of treatment success. Special approach to promote medication adherence is in place and includes both clinic-based and out of clinic services. Clinic-based services include monthly monitoring and counseling on adherence during monthly medication pick-ups. Out of clinic/home-based adherence support services are delivered by so called mobile units that operate at AIDS treatment facilities countrywide, except of Sokhumi Center. The best evidence of effectiveness of available adherence services is the significant improvement of levels of viral load suppression. Evaluation of trends in the engagement in HIV care continuum from 2008 shows that among those on treatment the proportion of virally suppressed patients increased from 68% in 2008 to 80% in 2013 ($p<0.0001$), significant improvements in viral suppression has been noticed among total diagnosed population with rates increasing from 23% in 2008 to 45% in 2013 ($p<0.0001$).[10]

In addition to success challenges should be also addressed. Despite the overall high engagement, loss of patients occurs at each stage of HIV care continuum. Analysis that explored factors associated with disengagement from care identified that persons with history of IDU are high risk of disengagement at all stages of care. Analysis of 2012 data among total number of diagnosed persons showed that compared to non-IDUs, persons with history of IDU were less likely to initiate care (88% vs. 80%, $p<0.0001$), to remain in care (79% vs. 67%, $p<0.0001$) and to achieve viral suppression (42% vs. 36%, $p<0.003$). Together with survival data, these data indicates on the need of scaling-up efforts to improve outcomes among IDUs through providing comprehensive care including drug abuse related care and other rehabilitation/supportive services.

Achieving high levels of engagement over the entire HIV care continuum provides basis for universal access to ART and is essential for deriving maximum benefits of ART in terms of saving lives and preventing new infections.

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