MILES TO GO

THE RESPONSE TO HIV IN EASTERN EUROPE AND CENTRAL ASIA

Contents

Eastern Europe and central Asia

AT A GLANCE

1 The HIV epidemic in eastern Europe and central Asia continues to grow, with many countries not on track to reach key global targets by the end of 2020.

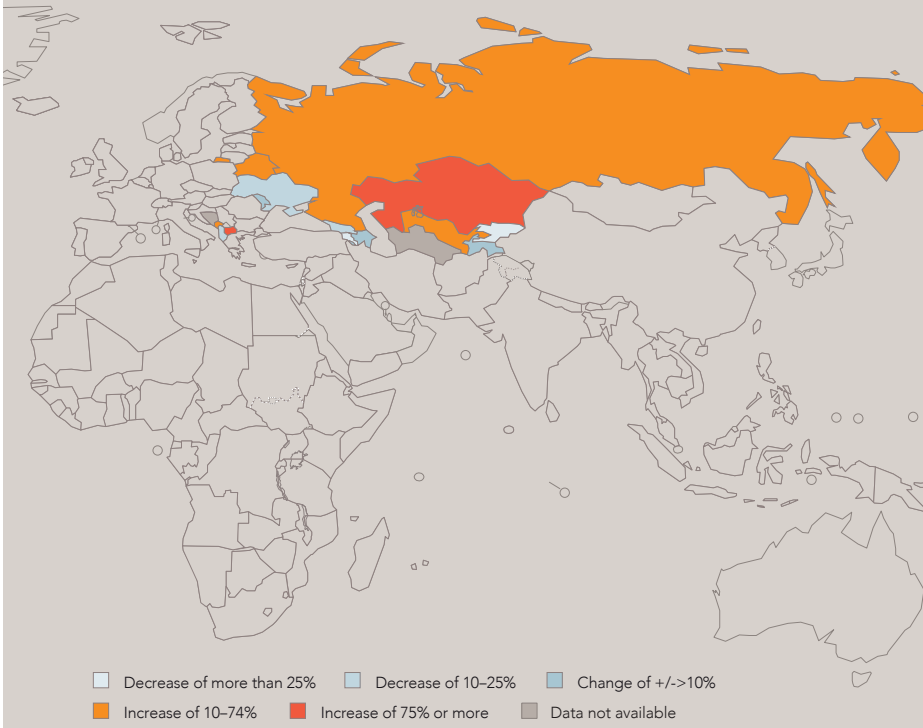
2 HIV transmission among people who inject drugs and their sexual partners account for the majority of HIV infections in the region.

3 Growing HIV epidemics among transgender people and gay men and other men who have sex with men are understudied and unrecognized by several national HIV responses.

4 Political, legal and technical barriers in many national HIV programmes are delaying the use of new, innovative approaches and tools, such as self-testing and pre-exposure prophylaxis (PrEP).

5 The unique potential of civil society organizations must be enhanced to reach the marginalized populations heavily affected by the epidemic.

Percentage change in new HIV infections among adults (aged 15 years and older) between 2010 and 2017, eastern Europe and central Asia



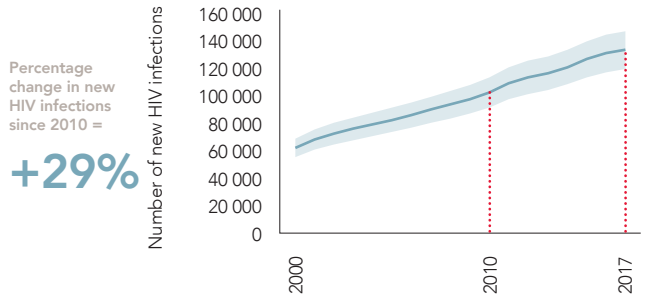
Source: 2018 UNAIDS estimates.

The HIV epidemic in eastern Europe and central Asia has grown by 30% since 2010, reflecting insufficient political commitment and domestic investment in national AIDS responses across much of the region. Regional trends depend a great deal on progress in the Russian Federation, which is home to 70% of people living with HIV in the region. Outside of the Russian Federation, the rate of new HIV infections is stable.

Insufficient access to sterile injecting equipment and the unavailability of opioid substitution therapy are stymying efforts in the Russian Federation to prevent HIV infections among people who inject drugs. Armed conflict has disrupted the provision of testing, prevention and treatment services in the nongovernment controlled areas in eastern Ukraine *(1)*.

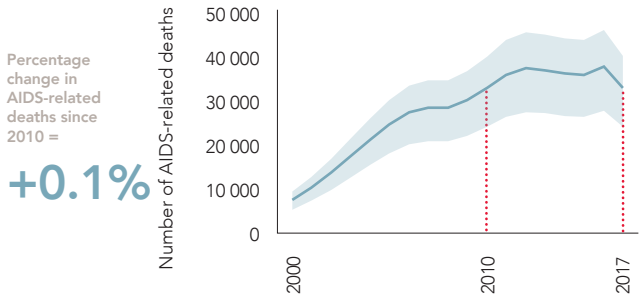
EPIDEMIC TRANSITION MEASURES

Number of new HIV infections, eastern Europe and central Asia, 2000–2017



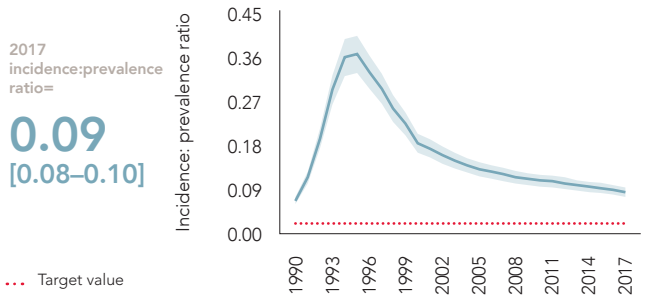
Source: UNAIDS 2018 estimates.

Number of AIDS-related deaths, eastern Europe and central Asia, 2000–2017



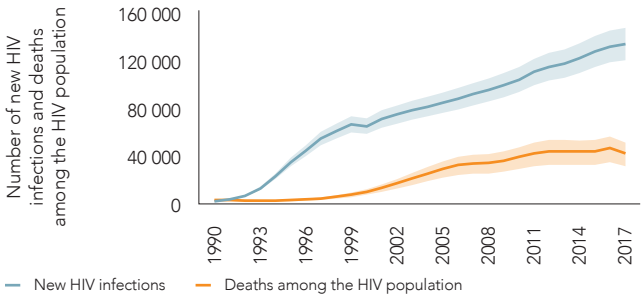
Source: UNAIDS 2018 estimates.

Incidence:prevalence ratio, eastern Europe and central Asia, 1990–2017



Source: UNAIDS 2018 estimates.

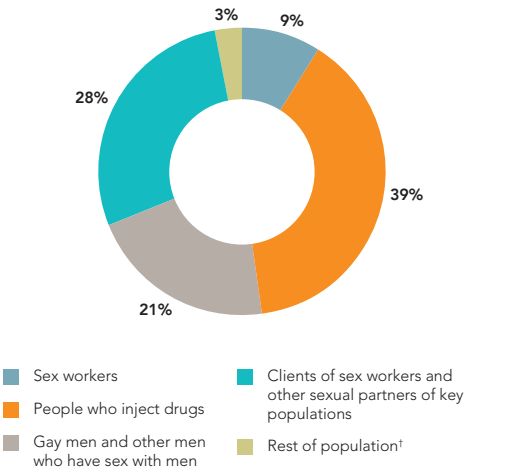
Number of new HIV infections and deaths among the HIV population, eastern Europe and central Asia, 1990–2017



Source: UNAIDS 2018 estimates.

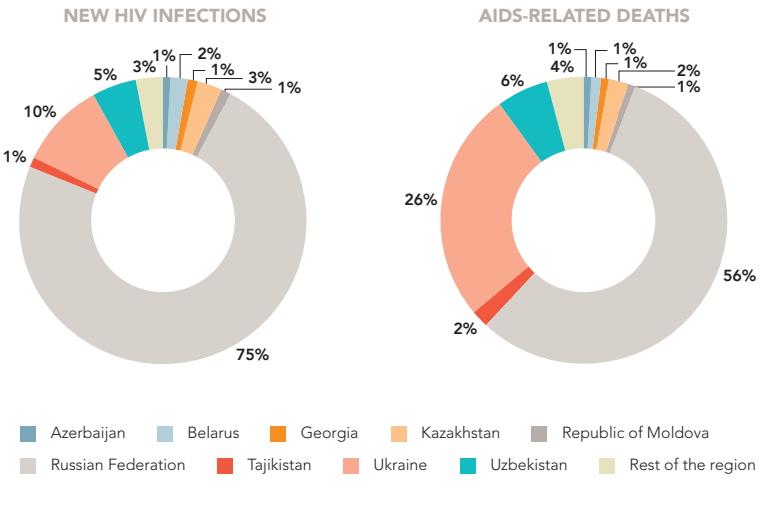
A 30% increase in new HIV infections since 2010 has the region falling behind in its efforts to reach the target of reducing new HIV infections by 75%. The HIV incidence:prevalence ratio of 0.09 [0.08–0.10] is three times higher than the 0.03 epidemic transition benchmark. National HIV surveillance data in several countries also indicate that HIV infections are growing among the general population, particularly urban residents and labour migrants *(2–5)*.

Distribution of new HIV infections, by population, eastern Europe and central Asia, 2017



† Individuals in this category did not report any HIV-related risk behaviour.
Source: UNAIDS special analysis, 2018.

Distribution of new HIV infections and AIDS-related deaths by country, eastern Europe and central Asia, 2017



Source: UNAIDS 2018 estimates.

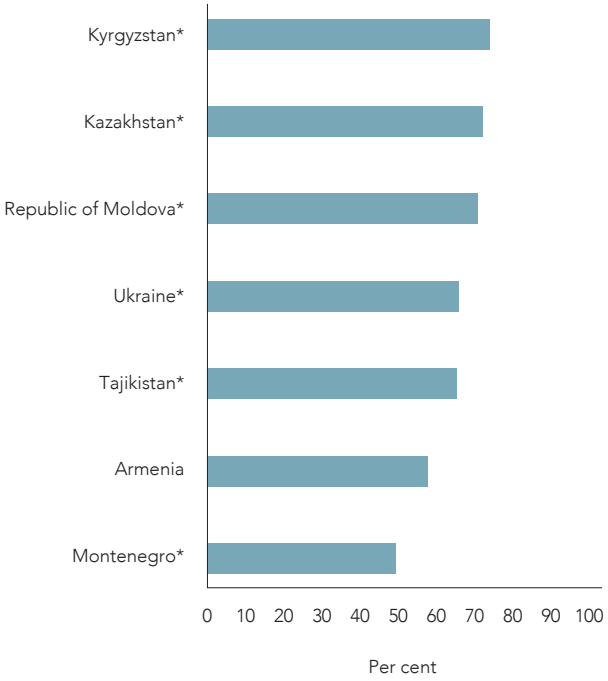
LAWS AND POLICIES SCORECARD

Country	Criminalization of transgender people	Criminalization of sex work	Criminalization of same-sex sexual acts	Drug use or possession for personal use an offence	Parental consent for adolescents to access HIV testing	Spousal consent for married women to access SRH services	Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Laws or policies restricting the entry, stay and residence of people living with HIV	Mandatory HIV testing for marriage, work or residence permits or for certain groups
Albania									
Armenia									
Azerbaijan									
Belarus		a							
Bosnia and Herzegovina		a							
Georgia									
Kazakhstan									
Kyrgyzstan									
Montenegro									
Republic of Moldova									
Russian Federation		e		f			g		
Tajikistan		d	b						
The former Yugoslav Republic of Macedonia		a	b						
Turkmenistan			b				c		
Ukraine									
Uzbekistan							c		

Note: Data on laws restricting the entry, stay and residence of people living with HIV are currently undergoing a global review that will involve country validation. An update is expected by the end of 2018.

Sources: National Commitment and Policy Instrument, 2017 and 2018; supplemented by additional sources where noted. (see references at end of chapter)

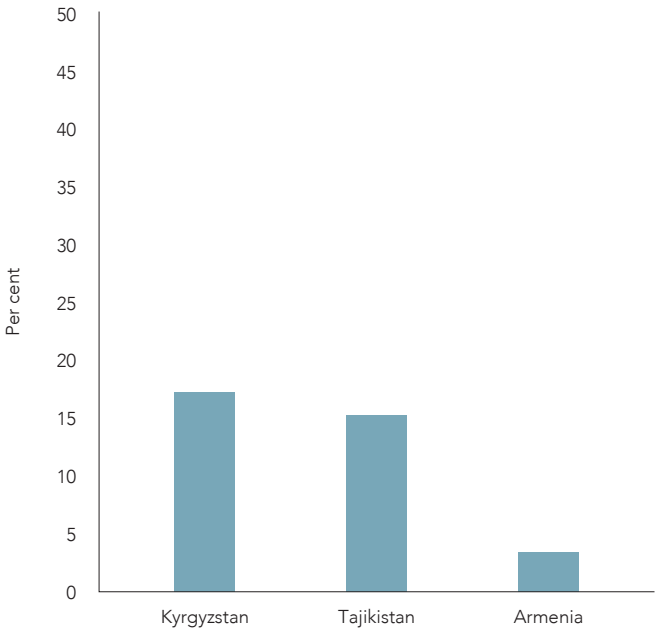
Percentage of men and women aged 15–49 years who would not buy vegetables from a shopkeeper living with HIV, eastern Europe and central Asia, most recent data, 2012–2016



*Female respondents only.

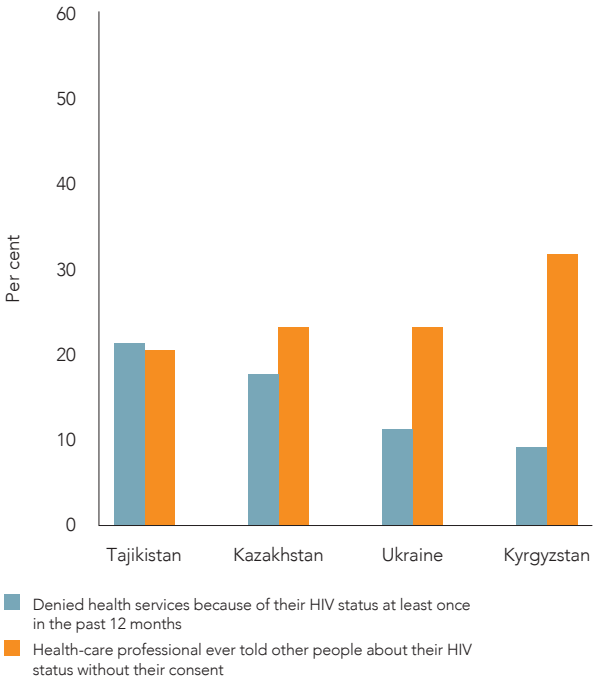
Source: Population-based surveys, 2012–2016.

Percentage of ever-married or partnered women aged 15–49 years who experienced physical and/or sexual violence by an intimate partner in the past 12 months, countries with avilable data, eastern Europe and central Asia, 2012–2016



Source: Population-based surveys, 2012–2017.

Percentage of people living with HIV who experienced discrimination in health-care settings, countries with available data, eastern Europe and central Asia, 2013–2015



Source: People Living with HIV Stigma Index survey, 2013–2015.

A broadly threatening environment for key populations discourages HIV testing and treatment enrolment. Results from the Stigma Index show that at least 20% of people living with HIV in Kyrgyzstan and 18% in Kazakhstan reported being denied health services; disclosure of HIV status by health-care workers without consent is alarmingly common in all countries with available data *(6)*. In wider society, discriminatory attitudes and misconceptions about HIV were common, with at least half of adults in eight countries saying they would not buy vegetables from a shopkeeper who is living with HIV *(7)*. Some progress has been observed: in Ukraine, for instance, stigma and discrimination towards people living with HIV in medical facilities has dropped from 22% (2010) to 8% (2016) *(8)*.

Community-based organizations have major roles to play in efforts to reduce stigma and discrimination towards key populations, especially people who inject drugs, sex workers, gay men and other men who have sex with men, migrants and prisoners.

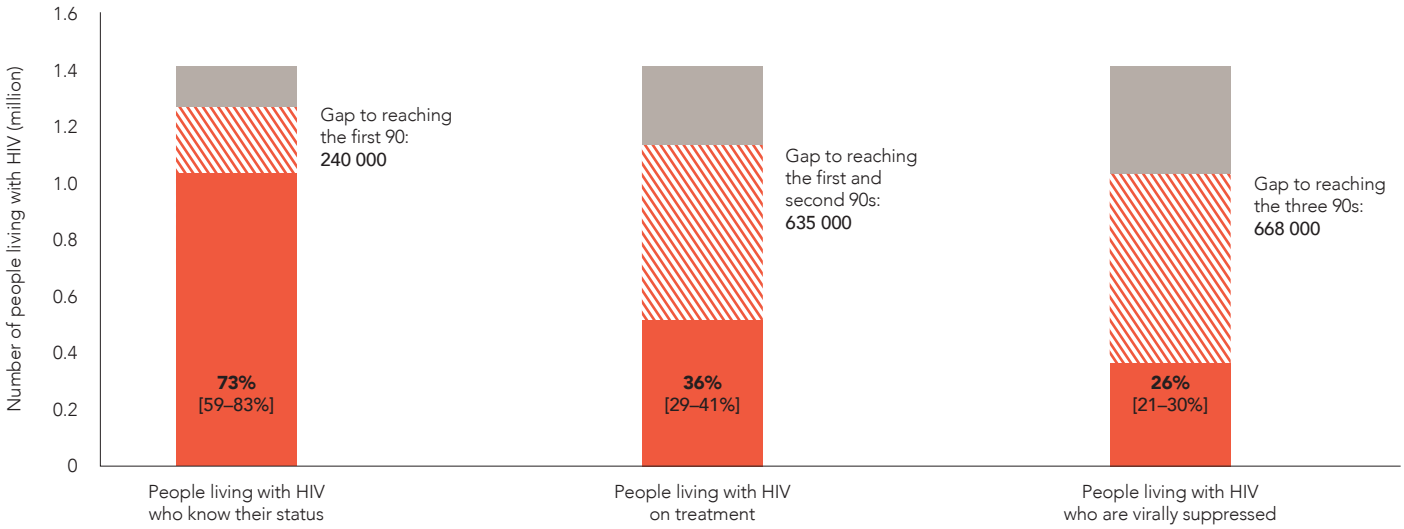
COMBINATION HIV PREVENTION

High coverage and quality of harm reduction services remain essential in a region where nearly one third of new HIV infections are among people who inject drugs. Needle–syringe programmes are in place across the region, but they are often at limited scale. At the end of 2017, harm reduction programmes were still operating in 17 cities in the Russian Federation, but with limited options to sustain them in the future. The city of Saint Petersburg has achieved a consistent decrease in new HIV infections—a result of combination prevention programmes, including harm reduction, that were implemented by city authorities in collaboration with civil society organizations *(9, 10)*.

Several countries—including Belarus, Kazakhstan, the Republic of Moldova and Ukraine—have maintained and scaled up harm reduction programmes with government resources, leading to reductions in new HIV infections among people who inject drugs. The coverage of opioid substitution therapy, which has proven to be efficacious and cost-effective, remains suboptimal throughout the region. There are fewer than 10 operational sites in many countries, and opioid substitution therapy is not available in the Russian Federation, Turkmenistan and Uzbekistan *(11)*.

Political, legal and technical hurdles currently block the use of PrEP in many countries of the region. In 2018, PrEP was available in Georgia, the Republic of Moldova and Ukraine, with the Republic of Moldova providing it through the public health system.

HIV testing and treatment cascade, eastern Europe and central Asia, 2017



Source: UNAIDS special analysis, 2018; see annex on methods for more details.

Among the 1.4 million [1.3–1.6 million] people living with HIV in eastern Europe and central Asia at the end of 2017, 73% [59–83%] were aware of their HIV status, an increase from 69% [56–79%] in 2016. The gap to achieving the first 90 of the 90–90–90 targets in 2017 was 240 000 people living with HIV.

While the overall number of annual HIV tests in the region continues to increase, the proportion of tests among key populations—including people who use drugs, gay men and other men who have sex with men, and patients with sexually transmitted infections—is shrinking, declining from 4.5% of all HIV tests conducted annually in 2010 to 3.2% in 2016 *(12)*. Late HIV diagnosis also remains a major challenge in the region: in the Russian Federation, almost 69% of patients who started treatment in 2016 had CD4 cell counts below 350 cells per mm3 *(13)*.

A majority of countries in the region have officially adopted a test-and-treat policy, but due to resource constraints and barriers to treatment among key populations, the pace of treatment scale-up is slow and coverage remains among the lowest in the world *(14)*. About 520 000 [458 000–541 000 million] people were accessing antiretroviral therapy in 2017, or 36% [29–41%] of all people living with HIV in the region. The gap to achieving the first and second 90s of the 90–90–90 targets in 2017 was testing and treating 635 000 people living with HIV.

The estimated percentage of people living with HIV who achieved viral suppression marginally increased from 25% [20–28%] in 2016 to 26% [21–30%] in 2017. The gap to achieving all three 90s in 2017 was the viral suppression of 668 000 people living with HIV.

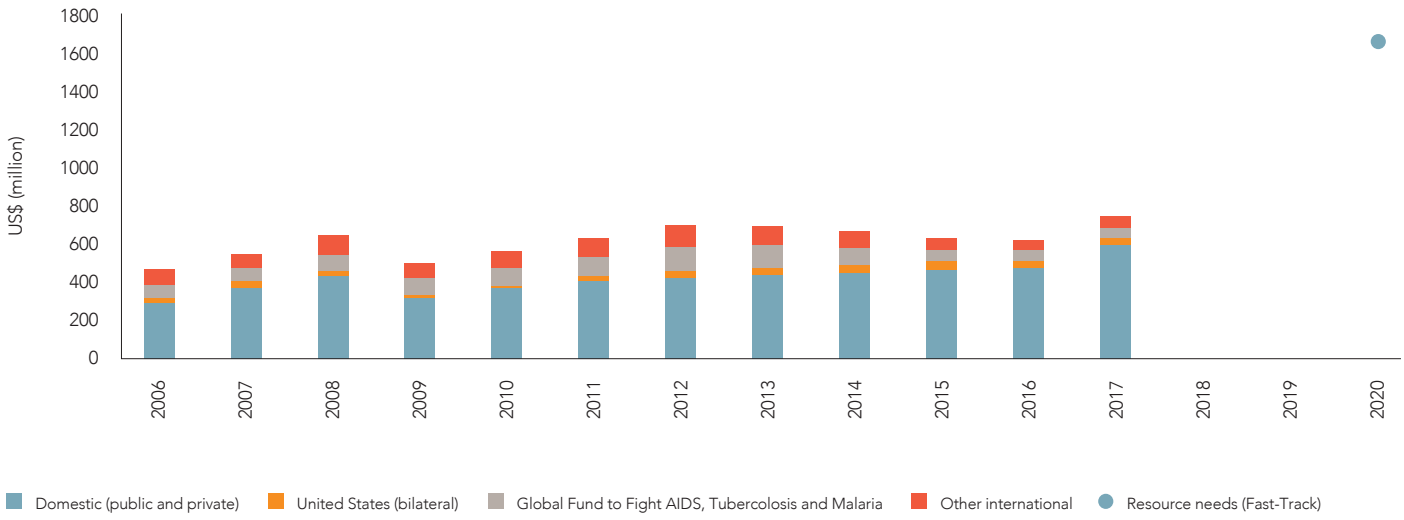
Limited use of fixed-dose combinations of antiretroviral medicines is one among several factors in the poor adherence and high percentage of patients lost to follow-up in the region. The relatively high prices of antiretroviral medicines in the middle-income countries in the region are an additional barrier to treatment scale-up. Several countries—Belarus, Kazakhstan, the Republic of Moldova, the Russian Federation and Ukraine—have successfully reduced the cost of first-line treatment regimens in recent years. In Ukraine, the cost of some first-line regimens has been reduced to as little as US$ 78 per person per year *(15)*. In Kazakhstan, the government, organizations of people living with HIV and technical partners worked together to establish the United Nations Children's Fund (UNICEF) as a procurement agency for antiretroviral medicines, which led to steep price reductions and significant expansion of access to treatment *(16, 17)*.

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

The region's progress towards the elimination of mother-to-child transmission of HIV continues. In 2016, Armenia and Belarus were validated by the World Health Organization (WHO) as having eliminated mother-to-child transmission of HIV, and several other countries in eastern Europe and central Asia are on track to apply for validation in 2018 *(18)*. Mother-to-child transmission accounted for just 1% of new cases of HIV infection reported in 2017.

INVESTMENT

HIV resource availability by source, 2006–2017, and projected resource needs by 2020, eastern Europe and central Asia



*Estimates for low- and middle-income countries per 2015 World Bank income level classification. All figures are expressed in constant 2016 US dollars.

Source: UNAIDS 2018 resource availability and needs estimates.

Total resource availability for HIV responses in eastern Europe and central Asia declined between 2012 and 2016, followed by a sharp increase in domestic investment in 2017 to reach US$ 739 million. Despite this increase, the total resources were only 46% of the US$ 1.6 billion per year required to reach the region's 2020 Fast-Track Targets. Increased domestic spending—reaching 81% of all resources in 2017—has helped to offset declines in international support. However, as the funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria in the region continues to decline, it has been difficult to ensure domestic spending from national budgets is used to reach key populations.

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Additional sources for the laws and policies scorecard

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ALBANIA

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	<100 [<100– <100]	<200 [<200– <200]	<100 [<100– <200]
New HIV infections (0–14)	... [...–...]	... [...–...]	... [...–...]
New HIV infections (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (men, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
HIV incidence per 1000 population	0.03 [0.03–0.03]	0.04 [0.04–0.04]	0.03 [0.03–0.04]
AIDS-related deaths			
AIDS-related deaths (all ages)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (0–14)	... [...–...]	... [...–...]	... [...–...]
AIDS-related deaths (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (men, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
People living with HIV			
People living with HIV (all ages)	<500 [<500– <500]	800 [770–840]	1400 [1300–1400]
People living with HIV (0–14)	... [...–...]	... [...–...]	... [...–...]
People living with HIV (women, 15+)	<200 [<200– <200]	<500 [<500– <500]	<500 [<500– <500]
People living with HIV (men, 15+)	<500 [<500– <500]	560 [530–590]	930 [880–970]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Selling and buying sexual services is criminalized
Criminalization of same-sex sexual acts	Laws penalizing same-sex sexual acts have been decriminalized or never existed
Drug use or possession for personal use is an offence	...
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	...
Spousal consent for married women to access sexual and reproductive health services	...
Mandatory HIV testing for marriage, work or residence permits or for certain groups	Yes

STIGMA AND DISCRIMINATION

Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months	
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent	

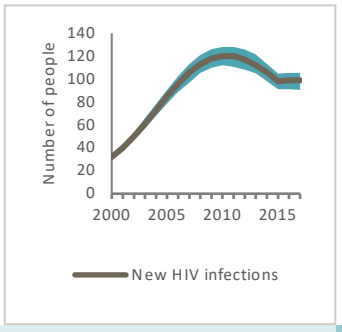
VIOLENCE

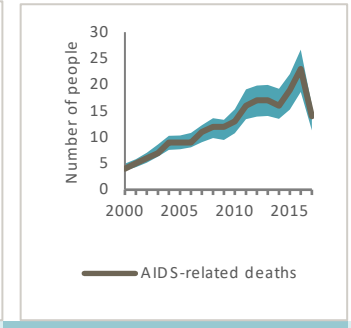
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months	

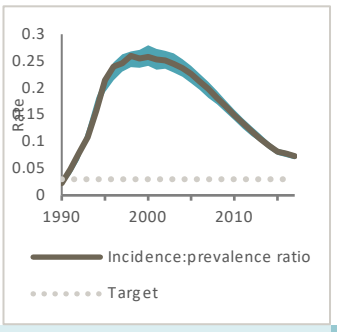
EXPENDITURES

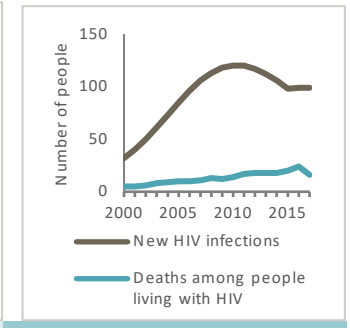
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2005	...	US$ 1 110 357	...	...	...	US$ 2 376 957

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	= -18%	Change in AIDS-related deaths since 2010	= 8%	Incidence: prevalence ratio = 0.07

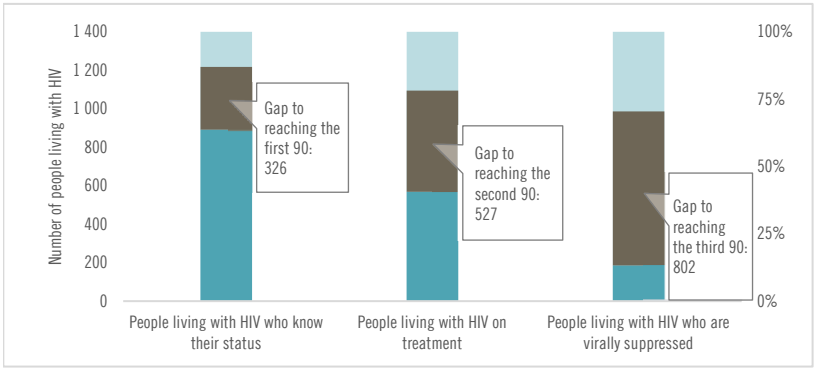
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	...	...	...	...	3 083
HIV prevalence	...	...	...	...	...
Know their HIV status	...	...	...	...	
Antiretroviral therapy coverage	...	...	...	...	...
Condom use	...	66.7%	46.3%	...	
Coverage of HIV prevention programmes	...	...	...	...	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	6 [4–9]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	4.7%
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment	...
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment	...

HIV TESTING AND TREATMENT CASCADE



All ages	66% [63–69%]	42% [40–44%]	14% [13–14%]
Children (0–14)	...% [...–...%]	...% [...–...%]	...% [...–...%]
Women (15+)	62% [58–65%]	37% [35–39%]	...% [...–...%]
Men (15+)	65% [62–68%]	43% [41–45%]	...% [...–...%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years	
— Women	...
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection (2016)	74.5%
— Needles and syringes distributed per person who injects (2016)	6.55
— Coverage of opioid substitution therapy (2017)	12%
— Naloxone available (2016)	...
— Safe injection rooms available (2016)	...

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	...% [...–...%]	...% [...–...%]
Early infant diagnosis	...% [...–...%]	...% [...–...%]

ARMENIA

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	<500 [<500–710]	<500 [<200– <500]	<200 [<200– <500]
New HIV infections (0–14)	... [...–...]	... [...–...]	... [...–...]
New HIV infections (women, 15+)	<200 [<100– <200]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (men, 15+)	<500 [<500– <500]	<200 [<200– <500]	<200 [<100– <200]
HIV incidence per 1000 population	0.15 [0.1–0.23]	0.08 [0.07–0.11]	0.06 [0.04–0.08]
AIDS-related deaths			
AIDS-related deaths (all ages)	<200 [<100– <200]	<500 [<200– <500]	<200 [<100– <200]
AIDS-related deaths (0–14)	... [...–...]	... [...–...]	... [...–...]
AIDS-related deaths (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (men, 15+)	<100 [<100– <200]	<200 [<100– <200]	<200 [<100– <200]
People living with HIV			
People living with HIV (all ages)	3400 [2300–4400]	3600 [2700–4500]	3400 [2800–4300]
People living with HIV (0–14)	... [...–...]	... [...–...]	... [...–...]
People living with HIV (women, 15+)	1000 [680–1300]	1100 [840–1400]	1100 [870–1300]
People living with HIV (men, 15+)	2400 [1600–3100]	2500 [1900–3200]	2300 [1900–2900]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Other punitive regulation of sex work
Criminalization of same-sex sexual acts	Laws penalizing same-sex sexual acts have been decriminalized or never existed
Drug use or possession for personal use is an offence	...
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 14 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	Yes

STIGMA AND DISCRIMINATION

	2005	2016
Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	88.7	57.5
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months		
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent		

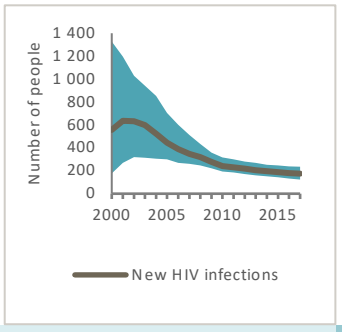
VIOLENCE

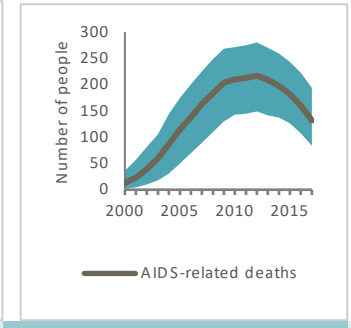
	2016
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months	3.5

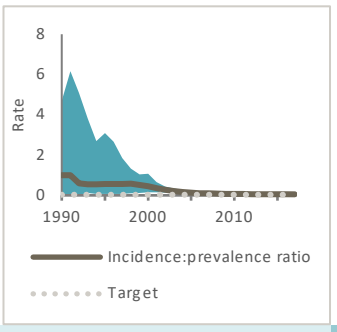
EXPENDITURES

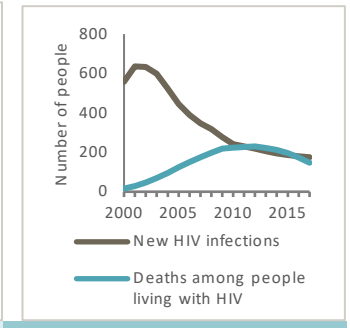
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2017	US$ 291 989	US$ 2 180 390	...	US$ 2 070 964	...	US$ 5 613 096

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	=	-27%		
Change in AIDS-related deaths since 2010	=	-37%		
Incidence: prevalence ratio	=	0.05		

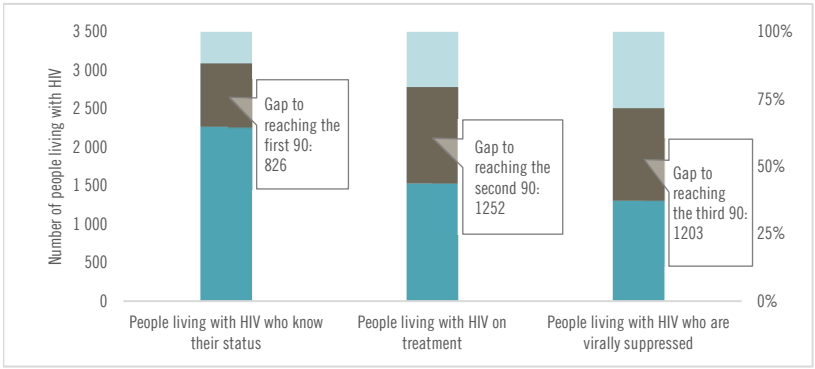
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	5 600	12 500	9 400	...	...
HIV prevalence	0.1%	0.8%	0.5%	...	0.3%
Know their HIV status	...	36%	...	...	
Antiretroviral therapy coverage	...	...	...	...	...
Condom use	99%	80.4%	54.9%	...	
Coverage of HIV prevention programmes	71.3%	...	51.8%	71.3%	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	74 [48–110]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	17%
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment (2017)	100%
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment (2017)	5.7%

HIV TESTING AND TREATMENT CASCADE



All ages	66% [55–82%]	45% [37–55%]	38% [31–47%]
Children (0–14)	...% [...–...%]	...% [...–...%]	...% [...–...%]
Women (15+)	71% [58–86%]	53% [43–64%]	48% [39–58%]
Men (15+)	63% [51–79%]	40% [33–50%]	33% [27–41%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years (2016)	
— Women	20.2%
— Men	12.5%
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods (2017)	40.6%
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection (2014)	96.9%
— Needles and syringes distributed per person who injects (2017)	76.11
— Coverage of opioid substitution therapy (2017)	5.3%
— Naloxone available (2016)	No
— Safe injection rooms available (2016)	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	...% [...–...%]	...% [...–...%]
Early infant diagnosis	...% [...–...%]	...% [...–...%]

AZERBAIJAN

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	630 [<500–950]	720 [520–1000]	760 [<500–1100]
New HIV infections (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (women, 15+)	<200 [<200– <500]	<500 [<200– <500]	<500 [<200– <500]
New HIV infections (men, 15+)	<500 [<500–660]	<500 [<500–690]	540 [<500–780]
HIV incidence per 1000 population	0.07 [0.05–0.11]	0.08 [0.06–0.11]	0.08 [0.05–0.11]
AIDS-related deaths			
AIDS-related deaths (all ages)	<200 [<100– <500]	<500 [<200– <500]	<500 [<200– <500]
AIDS-related deaths (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (women, 15+)	<100 [<100– <100]	<100 [<100– <200]	<100 [<100– <200]
AIDS-related deaths (men, 15+)	<100 [<100– <200]	<200 [<100– <200]	<200 [<200– <500]
People living with HIV			
People living with HIV (all ages)	3600 [2500–4900]	5700 [4300–7500]	8000 [6100–10 000]
People living with HIV (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <200]
People living with HIV (women, 15+)	1200 [780–1600]	1800 [1400–2500]	2600 [1900–3300]
People living with HIV (men, 15+)	2400 [1700–3300]	3800 [2900–5000]	5300 [4000–7000]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Sex work is not subject to punitive regulations or is not criminalized
Criminalization of same-sex sexual acts	No specific legislation
Drug use or possession for personal use is an offence	Possession of drugs for personal use is specified as a non-criminal offence
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	Yes
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 18 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	Yes

STIGMA AND DISCRIMINATION

Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months	
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent	

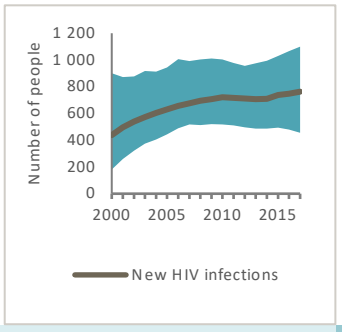
VIOLENCE

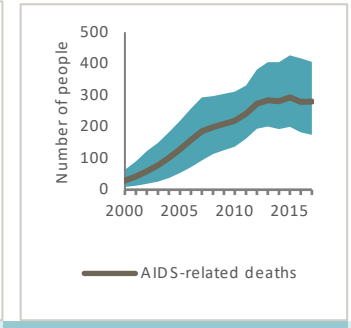
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months	

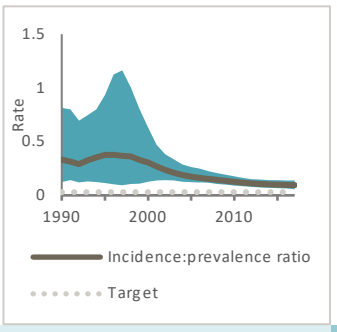
EXPENDITURES

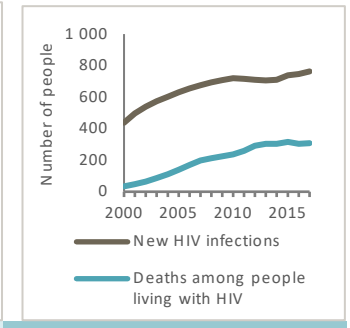
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2014	...	US$ 14 215 892	...	US$ 6 177 985	US$ 233 483	US$ 20 627 360

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	= 6%	**Change in AIDS-related deaths since 2010**	= 28%	**Incidence: prevalence ratio** = 0.10

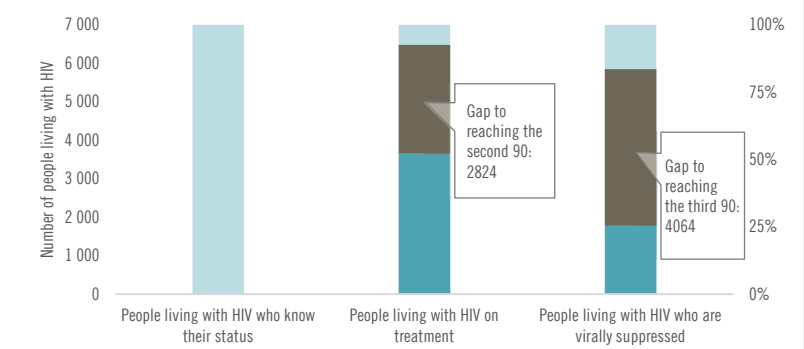
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	...	...	...	...	...
HIV prevalence	2.3%	2.2%	8.5%	...	2.8%
Know their HIV status	37.2%	69.7%	12.2%	...	
Antiretroviral therapy coverage	...	...	...	...	60.2%
Condom use	...	63.9%	15.1%	...	
Coverage of HIV prevention programmes	...	...	...	...	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	130 [83–180]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	7.9%
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment	...
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment	...

HIV TESTING AND TREATMENT CASCADE



All ages	...% [...–...%]	46% [35–60%]	22% [17–29%]
Children (0–14)	...% [...–...%]	95% [70– >95%]	95% [70– >95%]
Women (15+)	...% [...–...%]	44% [33–57%]	27% [20–35%]
Men (15+)	...% [...–...%]	46% [34–60%]	19% [14–24%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	25% [19–34%]	87% [60– >95%]
Early infant diagnosis	24% [17–31%]	74% [56– >95%]

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years	
— Women	...
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection	...
— Needles and syringes distributed per person who injects (2017)	87.97
— Coverage of opioid substitution therapy (2017)	1.1%
— Naloxone available (2016)	No
— Safe injection rooms available (2016)	Yes

BELARUS

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	900 [660–1300]	1800 [1400–2500]	2400 [1500–3900]
New HIV infections (0–14)	... [...–...]	... [...–...]	... [...–...]
New HIV infections (women, 15+)	<500 [<500–520]	710 [540–1000]	910 [550–1500]
New HIV infections (men, 15+)	540 [<500–780]	1100 [800–1500]	1500 [910–2300]
HIV incidence per 1000 population	0.09 [0.07–0.14]	0.2 [0.15–0.27]	0.27 [0.17–0.44]
AIDS-related deaths			
AIDS-related deaths (all ages)	<100 [<100– <200]	<200 [<100– <200]	<500 [<200–520]
AIDS-related deaths (0–14)	... [...–...]	... [...–...]	... [...–...]
AIDS-related deaths (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <200]
AIDS-related deaths (men, 15+)	<100 [<100– <100]	<100 [<100– <100]	<200 [<100– <500]
People living with HIV			
People living with HIV (all ages)	3500 [2900–4600]	9700 [7700–12 000]	24 000 [18 000–33 000]
People living with HIV (0–14)	... [...–...]	... [...–...]	... [...–...]
People living with HIV (women, 15+)	1300 [1100–1800]	3800 [3000–4800]	9900 [7300–13 000]
People living with HIV (men, 15+)	2100 [1800–2800]	5800 [4600–7300]	14 000 [11 000–20 000]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Sex work is not subject to punitive regulations or is not criminalized
Criminalization of same-sex sexual acts	Laws penalizing same-sex sexual acts have been decriminalized or never existed
Drug use or possession for personal use is an offence	Possession of drugs for personal use is specified as a criminal offence
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 14 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	No

STIGMA AND DISCRIMINATION

	2005	2012
Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	77.1*	22.2
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months		
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent		

VIOLENCE

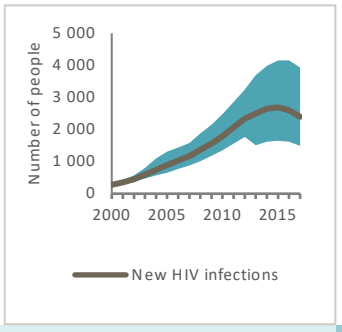
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months

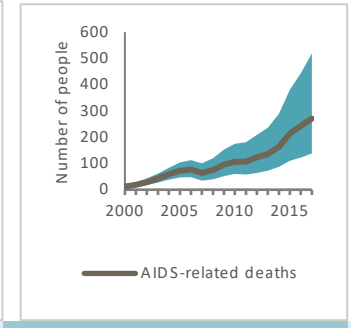
*Female respondents only

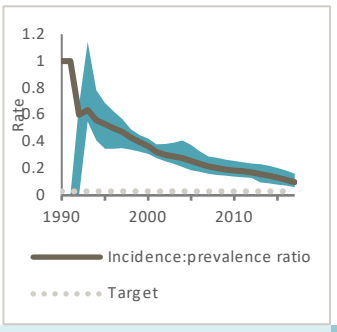
EXPENDITURES

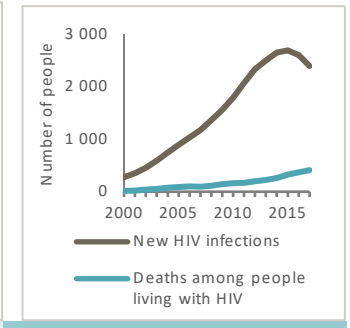
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2017	...	US$ 16 302 125	...	US$ 4 656 596	US$ 41 526	US$ 21 000 247

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	=	34%		
Change in AIDS-related deaths since 2010	=	156%		
Incidence: prevalence ratio	=	0.10		

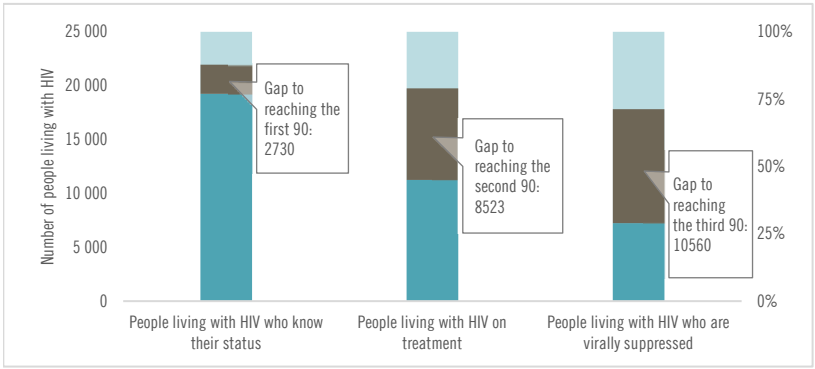
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	22 000	59 500	66 500	...	...
HIV prevalence	7%	9.8%	30.8%	...	...
Know their HIV status	71.8%	68.6%	59.7%	...	
Antiretroviral therapy coverage	...	...	...	...	100%
Condom use	85%	73.8%	51.5%	...	
Coverage of HIV prevention programmes	84%	69.4%	67.1%	84%	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	400 [260–570]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	1.7%
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment (2017)	70.1%
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment (2017)	55.6%

HIV TESTING AND TREATMENT CASCADE



All ages	79% [58– >95%]	46% [34–63%]	30% [22–41%]
Children (0–14)	...% [...–...%]	...% [...–...%]	...% [...–...%]
Women (15+)	82% [61– >95%]	52% [38–70%]	34% [25–46%]
Men (15+)	75% [56– >95%]	41% [30–56%]	26% [19–35%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years	
— Women	...
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection (2017)	87.9%
— Needles and syringes distributed per person who injects (2017)	70.18
— Coverage of opioid substitution therapy (2017)	4.2%
— Naloxone available (2016)	No
— Safe injection rooms available (2016)	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	>95% [>95– >95%]	92% [63– >95%]
Early infant diagnosis	>95% [>95– >95%]	87% [61– >95%]

GEORGIA

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	610 [<500–820]	970 [750–1300]	870 [550–1700]
New HIV infections (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (women, 15+)	<200 [<100– <200]	<200 [<200– <200]	<200 [<200– <500]
New HIV infections (men, 15+)	<500 [<500–650]	820 [640–1100]	700 [<500–1300]
HIV incidence per 1000 population	0.14 [0.11–0.18]	0.23 [0.18–0.3]	0.22 [0.14–0.43]
AIDS-related deaths			
AIDS-related deaths (all ages)	<100 [<100– <200]	<200 [<100– <200]	<500 [<200– <500]
AIDS-related deaths (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (men, 15+)	<100 [<100– <100]	<200 [<100– <200]	<500 [<200– <500]
People living with HIV			
People living with HIV (all ages)	3000 [2300–3900]	6100 [5000–7600]	11 000 [8200–14 000]
People living with HIV (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
People living with HIV (women, 15+)	760 [590–990]	1200 [990–1500]	2100 [1600–2700]
People living with HIV (men, 15+)	2200 [1700–2900]	4800 [3900–6000]	8400 [6500–11 000]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	...
Criminalization of sex work	Other punitive regulation of sex work
Criminalization of same-sex sexual acts	No specific legislation
Drug use or possession for personal use is an offence	Drug use or consumption is a specific offence in law
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 16 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	Yes

STIGMA AND DISCRIMINATION

Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months	
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent	

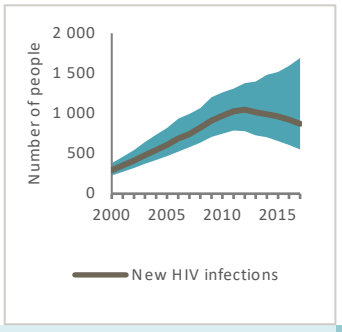
VIOLENCE

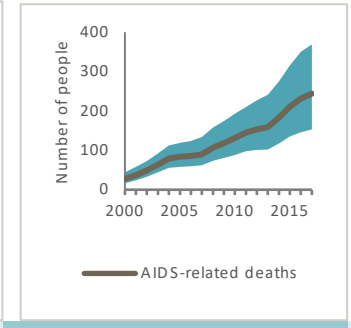
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months	

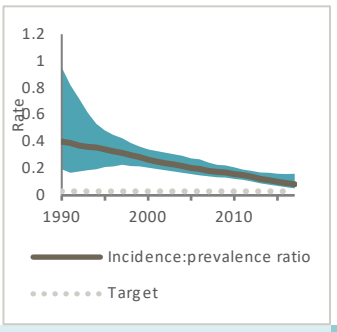
EXPENDITURES

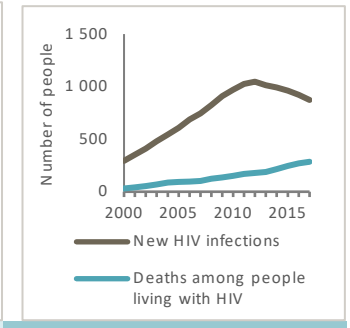
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2017	US$ 376 292	US$ 13 444 827	...	US$ 6 040 729	...	US$ 19 929 496

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	=	-10%		
Change in AIDS-related deaths since 2010	=	86%		
Incidence: prevalence ratio	=	0.08		

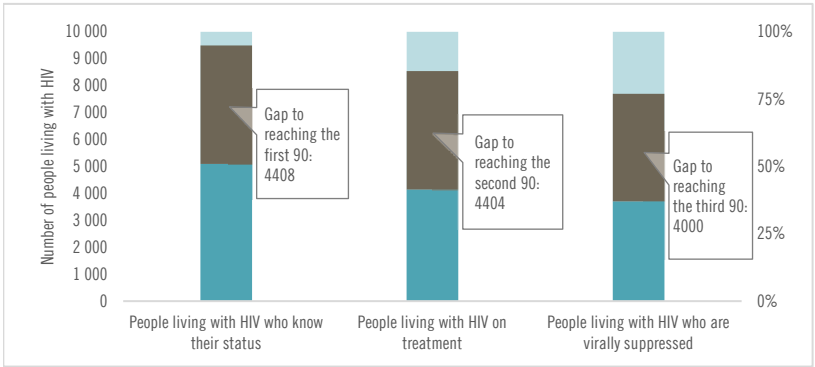
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	6 525	17 200	52 500	...	...
HIV prevalence	0.9%	20.7%	2.3%	...	0.2%
Know their HIV status	...	...	...	...	
Antiretroviral therapy coverage	...	...	...	...	...
Condom use	93.4%	69.6%	36.5%	...	
Coverage of HIV prevention programmes	...	...	...	...	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	77 [64–91]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	7%
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment (2017)	93.2%
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment (2017)	96.2%

HIV TESTING AND TREATMENT CASCADE



All ages	48% [38–65%]	39% [31–53%]	35% [27–47%]
Children (0–14)	86% [67– >95%]	84% [66– >95%]	77% [60– >95%]
Women (15+)	67% [54–88%]	62% [50–82%]	57% [45–74%]
Men (15+)	43% [34–59%]	33% [26–45%]	30% [23–40%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years	
— Women	...
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	15
Harm reduction	
— Use of sterile injecting equipment at last injection (2017)	90.4%
— Needles and syringes distributed per person who injects (2017)	72.56
— Coverage of opioid substitution therapy (2017)	32%
— Naloxone available (2016)	Yes
— Safe injection rooms available (2016)	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	>95% [83– >95%]	85% [70– >95%]
Early infant diagnosis	82% [66– >95%]	84% [66– >95%]

KAZAKHSTAN

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	1100 [860–1200]	1800 [1400–1900]	3700 [2000–4500]
New HIV infections (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (women, 15+)	<500 [<200– <500]	<500 [<500–520]	1100 [630–1400]
New HIV infections (men, 15+)	890 [670–950]	1300 [960–1400]	2500 [1400–3000]
HIV incidence per 1000 population	0.07 [0.05–0.08]	0.11 [0.08–0.11]	0.19 [0.11–0.24]
AIDS-related deaths			
AIDS-related deaths (all ages)	<500 [<200– <500]	<500 [<500– <500]	670 [<500–740]
AIDS-related deaths (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (men, 15+)	<500 [<200– <500]	<500 [<500– <500]	570 [<500–630]
People living with HIV			
People living with HIV (all ages)	7500 [5400–7400]	12 000 [9400–13 000]	27 000 [18 000–28 000]
People living with HIV (0–14)	<100 [<100– <100]	<200 [<100– <200]	<500 [<500– <500]
People living with HIV (women, 15+)	1300 [950–1300]	2900 [2200–3000]	8000 [5600–8500]
People living with HIV (men, 15+)	6200 [4400–6000]	9300 [7100–9500]	18 000 [13 000–19 000]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Sex work is not subject to punitive regulations or is not criminalized
Criminalization of same-sex sexual acts	Laws penalizing same-sex sexual acts have been decriminalized or never existed
Drug use or possession for personal use is an offence	Possession of drugs for personal use is specified as a criminal offence
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 18 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	Yes

STIGMA AND DISCRIMINATION

	2006	2015
Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	82.7*	71.9*

	2015
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months	17.6
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent	22.9

VIOLENCE

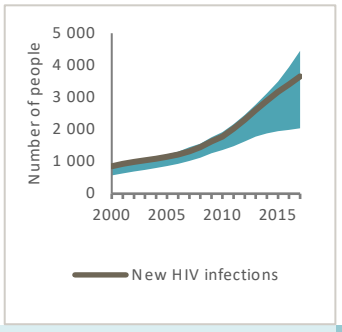
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months

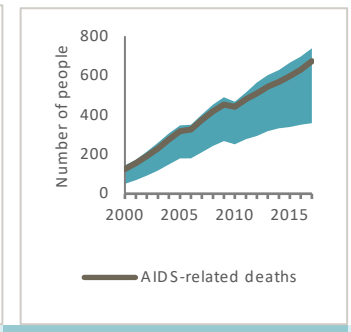
*Female respondents only

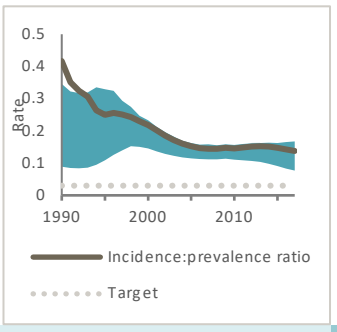
EXPENDITURES

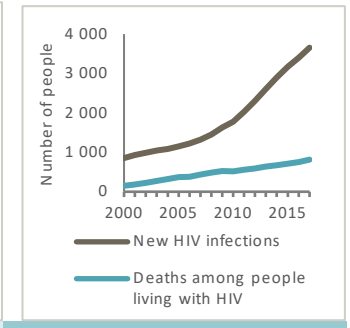
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2017	...	US$ 30 975 563	US$ 1 667 487	US$ 2 099 526	...	US$ 34 816 918

EPIDEMIC TRANSITION METRICS







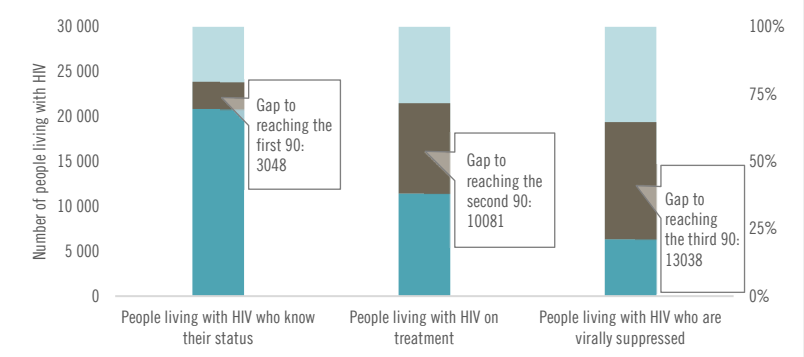


Change in new HIV infections since 2010	= 106%	**Change in AIDS-related deaths since 2010**	= 53%	**Incidence: prevalence ratio** = 0.14

KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	18 800	62 000	120 500	...	36 332
HIV prevalence	1.9%	3.2%	8.5%	...	2.7%
Know their HIV status	93.7%	63.4%	62.2%	...	
Antiretroviral therapy coverage	...	...	...	...	...
Condom use	92.3%	70.7%	47.9%	...	
Coverage of HIV prevention programmes	88%	...	...	88%	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV TESTING AND TREATMENT CASCADE



	People living with HIV who know their status	People living with HIV on treatment	People living with HIV who are virally suppressed
All ages	79% [55–83%]	43% [30–46%]	24% [17–25%]
Children (0–14)	>95% [81– >95%]	92% [61– >95%]	79% [53–85%]
Women (15+)	...% [...–...%]	62% [43–65%]	36% [25–38%]
Men (15+)	68% [47–72%]	34% [23–36%]	17% [12–18%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	>95% [>95– >95%]	82% [59–88%]
Early infant diagnosis	>95% [>95– >95%]	82% [77– >95%]

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	580 [370–820]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	7.3%
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment (2017)	39.1%
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment (2017)	5%

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years (2015)	
— Women	26.7%
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection (2016)	52.8%
— Needles and syringes distributed per person who injects (2017)	128.78
— Coverage of opioid substitution therapy (2017)	0.6%
— Naloxone available (2016)	No
— Safe injection rooms available (2016)	No

KYRGYZSTAN

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	<500 [<500–660]	830 [590–1100]	600 [<500–960]
New HIV infections (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (women, 15+)	<200 [<100– <200]	<500 [<200– <500]	<200 [<200– <500]
New HIV infections (men, 15+)	<500 [<500– <500]	580 [<500–780]	<500 [<500–660]
HIV incidence per 1000 population	0.09 [0.06–0.13]	0.15 [0.11–0.2]	0.1 [0.06–0.16]
AIDS-related deaths			
AIDS-related deaths (all ages)	<100 [<100– <100]	<200 [<100– <500]	<500 [<200– <500]
AIDS-related deaths (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (men, 15+)	<100 [<100– <100]	<100 [<100– <200]	<200 [<100– <500]
People living with HIV			
People living with HIV (all ages)	2100 [1600–2800]	4700 [3400–6400]	7600 [5500–10 000]
People living with HIV (0–14)	<100 [<100– <100]	<100 [<100– <100]	<200 [<100– <200]
People living with HIV (women, 15+)	600 [<500–810]	1400 [1000–1900]	2500 [1800–3200]
People living with HIV (men, 15+)	1500 [1100–2000]	3200 [2300–4400]	5000 [3600–6600]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Sex work is not subject to punitive regulations or is not criminalized
Criminalization of same-sex sexual acts	No specific legislation
Drug use or possession for personal use is an offence	Possession of drugs for personal use is specified as a criminal offence
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 18 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	Yes

STIGMA AND DISCRIMINATION

	2006	2014
Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	83.4*	73.7*

	2015
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months	9.1
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent	31.3

VIOLENCE

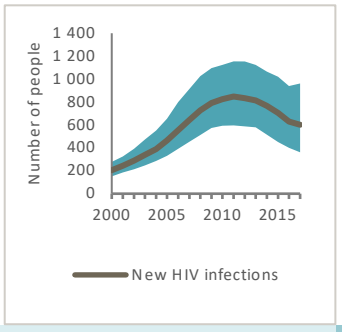
	2012
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months	17.1

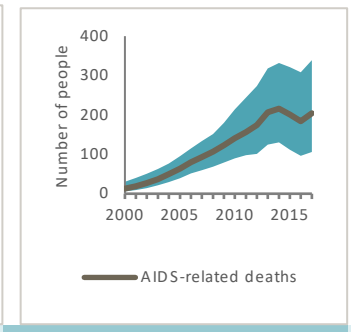
*Female respondents only

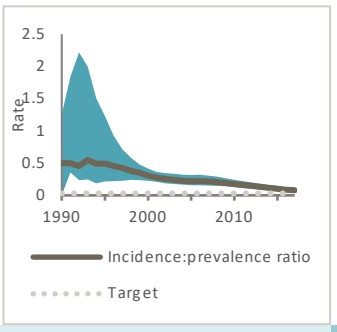
EXPENDITURES

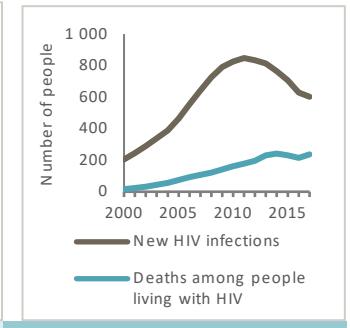
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2017	...	US$ 2 238 849	US$ 1 583 482	US$ 12 045 130	...	US$ 17 307 702

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	=	-27%	**Change in AIDS-related deaths since 2010**	= 45%
Incidence: prevalence ratio	=	0.08		

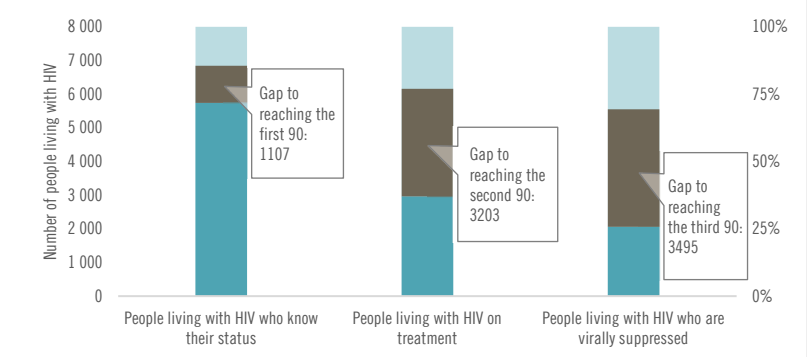
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	...	...	25 000	...	8 162
HIV prevalence	2%	...	14.3%	...	11.3%
Know their HIV status	57.5%	...	...	...	
Antiretroviral therapy coverage	...	...	...	...	...
Condom use	...	81.1%	58.8%	...	
Coverage of HIV prevention programmes	...	37.8%	40.4%	...	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	280 [250–320]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	7.7%
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment (2017)	78.4%
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment (2017)	4.2%

HIV TESTING AND TREATMENT CASCADE



All ages	75% [54– >95%]	39% [28–51%]	27% [19–35%]
Children (0–14)	>95% [>95– >95%]	>95% [78– >95%]	>95% [>95– >95%]
Women (15+)	83% [61– >95%]	53% [38–68%]	36% [27–47%]
Men (15+)	63% [45–83%]	30% [21–39%]	18% [13–23%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years (2014)	
— Women	19.8%
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods (2012)	62.1%
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection (2017)	80.9%
— Needles and syringes distributed per person who injects (2017)	223.63
— Coverage of opioid substitution therapy (2017)	4.9%
— Naloxone available (2016)	Yes
— Safe injection rooms available (2016)	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	56% [40–79%]	75% [58–93%]
Early infant diagnosis	...% [...–...%]	70% [56–91%]

MONTENEGRO

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (0–14)	... [...–...]	... [...–...]	... [...–...]
New HIV infections (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (men, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
HIV incidence per 1000 population	0.02 [0.01–0.02]	0.02 [0.02–0.03]	0.04 [0.03–0.05]
AIDS-related deaths			
AIDS-related deaths (all ages)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (0–14)	... [...–...]	... [...–...]	... [...–...]
AIDS-related deaths (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (men, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
People living with HIV			
People living with HIV (all ages)	<100 [<100– <100]	<200 [<200– <200]	<500 [<500– <500]
People living with HIV (0–14)	... [...–...]	... [...–...]	... [...–...]
People living with HIV (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
People living with HIV (men, 15+)	<100 [<100– <100]	<100 [<100– <100]	<200 [<200– <500]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Selling sexual services is criminalized
Criminalization of same-sex sexual acts	Laws penalizing same-sex sexual acts have been decriminalized or never existed
Drug use or possession for personal use is an offence	Possession of drugs for personal use is specified as a non-criminal offence
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 18 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	Yes

STIGMA AND DISCRIMINATION

	2006	2013
Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	59.6*	52
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months		
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent		

VIOLENCE

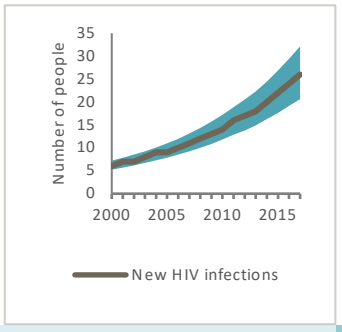
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months

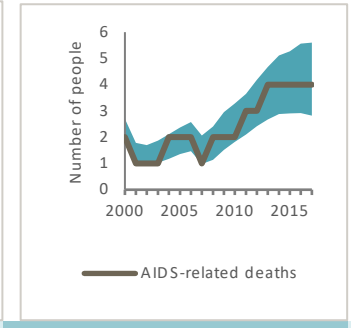
*Female respondents only

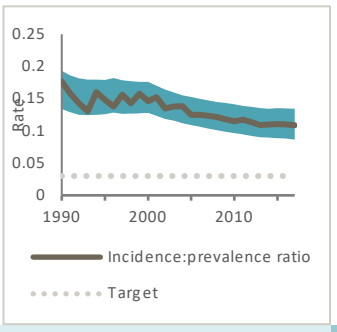
EXPENDITURES

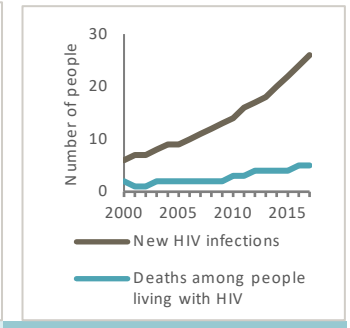
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2009	...	...	...	US$ 830 121	US$ 43 667	US$ 830 121

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	=	86%		
Change in AIDS-related deaths since 2010	=	100%		
Incidence: prevalence ratio	=	0.11		

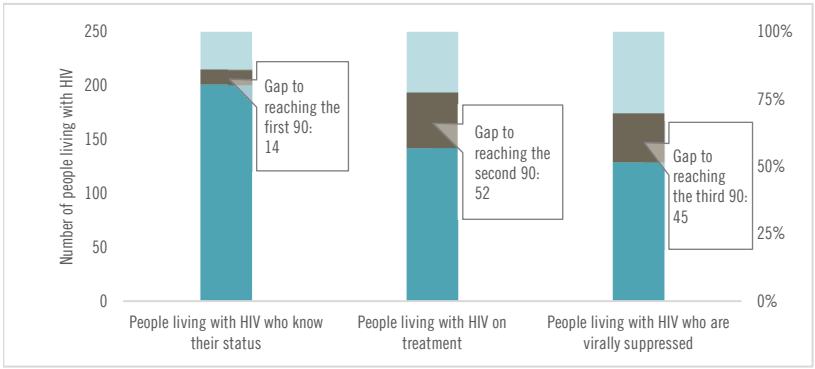
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	...	...	1 300	...	...
HIV prevalence	0.5%	12.5%	0.5%	...	...
Know their HIV status	...	...	...	...	
Antiretroviral therapy coverage	...	...	...	...	...
Condom use	82.8%	64%	63.5%	...	
Coverage of HIV prevention programmes	...	...	...	...	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	0 [0–0]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	4%
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment (2017)	100%
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment	...

HIV TESTING AND TREATMENT CASCADE



All ages	84% [71– >95%]	59% [50–68%]	54% [45–62%]
Children (0–14)	...% [...–...%]	...% [...–...%]	...% [...–...%]
Women (15+)	34% [29–41%]	28% [24–33%]	20% [17–23%]
Men (15+)	...% [...–...%]	71% [58–85%]	66% [54–80%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years	
— Women	...
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection (2014)	92%
— Needles and syringes distributed per person who injects (2017)	144.29
— Coverage of opioid substitution therapy	...
— Naloxone available (2016)	Yes
— Safe injection rooms available (2016)	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	...% [...–...%]	...% [...–...%]
Early infant diagnosis	...% [...–...%]	...% [...–...%]

REPUBLIC OF MOLDOVA

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	1200 [680–2000]	1400 [760–2200]	1300 [740–2100]
New HIV infections (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (women, 15+)	<500 [<500–600]	<500 [<500–680]	<500 [<500–660]
New HIV infections (men, 15+)	840 [<500–1300]	920 [510–1500]	900 [<500–1400]
HIV incidence per 1000 population	0.27 [0.15–0.43]	0.31 [0.17–0.5]	0.32 [0.18–0.51]
AIDS-related deaths			
AIDS-related deaths (all ages)	<500 [<200– <500]	<500 [<200–560]	<500 [<500–790]
AIDS-related deaths (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (women, 15+)	<100 [<100– <200]	<200 [<100– <200]	<100 [<100– <200]
AIDS-related deaths (men, 15+)	<200 [<100– <500]	<500 [<200– <500]	<500 [<500–610]
People living with HIV			
People living with HIV (all ages)	5900 [4100–8200]	11 000 [7500–15 000]	15 000 [10 000–21 000]
People living with HIV (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <200]
People living with HIV (women, 15+)	1900 [1300–2600]	3500 [2500–4800]	5300 [3700–7300]
People living with HIV (men, 15+)	4000 [2800–5600]	7300 [5000–10 000]	9700 [6700–14 000]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Sex work is not subject to punitive regulations or is not criminalized
Criminalization of same-sex sexual acts	No specific legislation
Drug use or possession for personal use is an offence	Possession of drugs for personal use is specified as a non-criminal offence
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 18 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	No

STIGMA AND DISCRIMINATION

	2000	2012
Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	87.3*	70.8
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months		
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent		

VIOLENCE

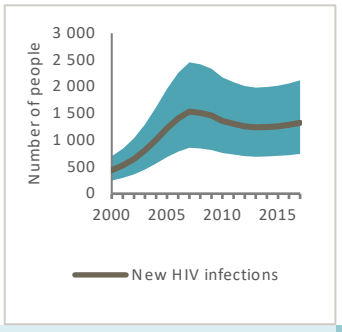
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months

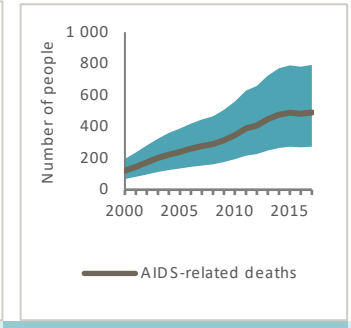
*Female respondents only

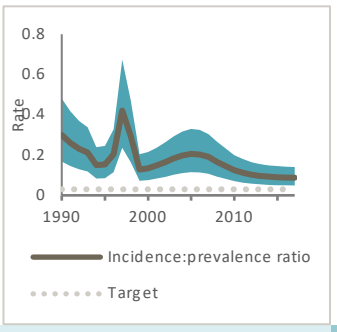
EXPENDITURES

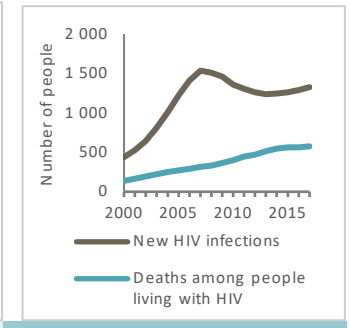
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2017	...	US$ 3 296 185	...	US$ 4 940 286	...	US$ 8 479 680

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	= -2%	Change in AIDS-related deaths since 2010	= 42%	Incidence: prevalence ratio = 0.09

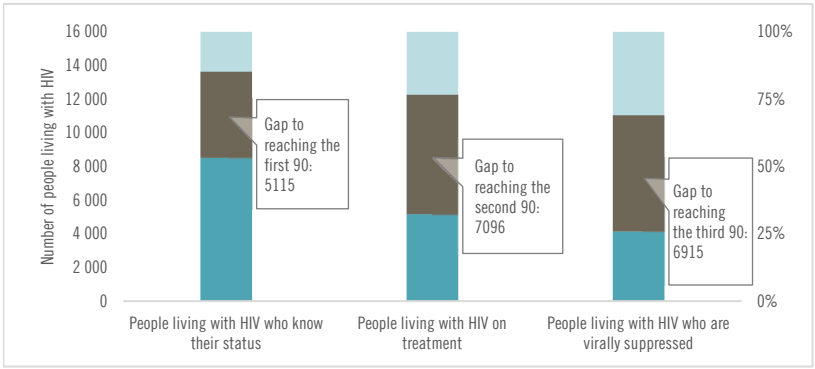
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	21 300	17 100	36 900	...	...
HIV prevalence	3.9%	...	13.9%	...	3.8%
Know their HIV status	31.7%	44.3%	48.8%	...	
Antiretroviral therapy coverage	55.1%	...	85.2%	...	52.6%
Condom use	88.2%	61.2%	18.1%	...	
Coverage of HIV prevention programmes	60.7%	63.2%	39%	60.7%	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	370 [310–430]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	13.5%
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment	...
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment	...

HIV TESTING AND TREATMENT CASCADE



	People living with HIV who know their status	People living with HIV on treatment	People living with HIV who are virally suppressed
All ages	56% [39–78%]	34% [24–47%]	27% [19–38%]
Children (0–14)	>95% [>95– >95%]	>95% [>95– >95%]	>95% [72– >95%]
Women (15+)	73% [52– >95%]	47% [33–65%]	39% [27–53%]
Men (15+)	46% [32–64%]	26% [18–36%]	20% [14–28%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years	
— Women	...
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection (2017)	99.1%
— Needles and syringes distributed per person who injects (2017)	78.65
— Coverage of opioid substitution therapy (2017)	3.2%
— Naloxone available (2016)	Yes
— Safe injection rooms available (2016)	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	>95% [89– >95%]	>95% [>95– >95%]
Early infant diagnosis	>95% [>95– >95%]	>95% [>95– >95%]

RUSSIAN FEDERATION

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	52 000 [44 000–63 000]	74 000 [63 000–91 000]	100 000 [85 000–120 000]
New HIV infections (0–14)	... [...–...]	... [...–...]	... [...–...]
New HIV infections (women, 15+)	18 000 [14 000–23 000]	26 000 [20 000–32 000]	35 000 [28 000–44 000]
New HIV infections (men, 15+)	34 000 [27 000–41 000]	48 000 [39 000–59 000]	65 000 [52 000–80 000]
HIV incidence per 1000 population	0.36 [0.3–0.43]	0.52 [0.44–0.63]	0.7 [0.59–0.86]
AIDS-related deaths			
AIDS-related deaths (all ages)	... [...–...]	... [...–...]	... [...–...]
AIDS-related deaths (0–14)	... [...–...]	... [...–...]	... [...–...]
AIDS-related deaths (women, 15+)	... [...–...]	... [...–...]	... [...–...]
AIDS-related deaths (men, 15+)	... [...–...]	... [...–...]	... [...–...]
People living with HIV			
People living with HIV (all ages)	280 000 [220 000–340 000]	540 000 [420 000–660 000]	1 000 000 [780 000–1 200 000]
People living with HIV (0–14)	... [...–...]	... [...–...]	... [...–...]
People living with HIV (women, 15+)	100 000 [78 000–120 000]	190 000 [150 000–240 000]	370 000 [290 000–450 000]
People living with HIV (men, 15+)	180 000 [140 000–220 000]	340 000 [270 000–420 000]	630 000 [490 000–780 000]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Partial criminalization of sex work
Criminalization of same-sex sexual acts	No specific legislation
Drug use or possession for personal use is an offence	Possession of drugs for personal use is specified as a non-criminal offence
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	Yes
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 14 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	No

STIGMA AND DISCRIMINATION

Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV

Percentage of people living with HIV denied health services because of their HIV status in the last 12 months

Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent

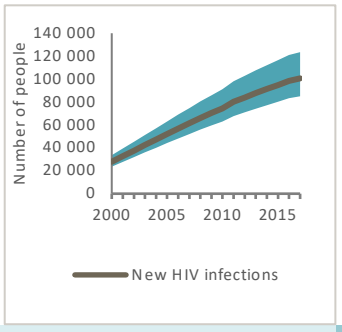
VIOLENCE

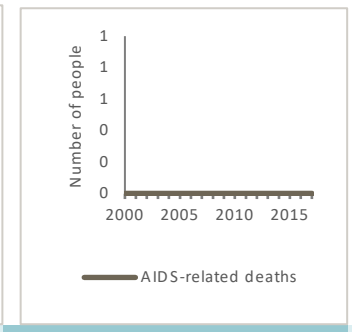
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months

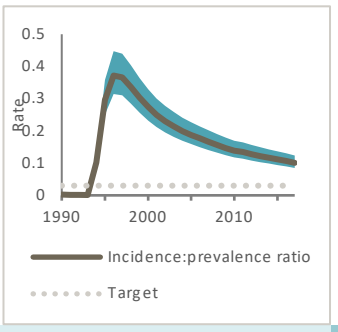
EXPENDITURES

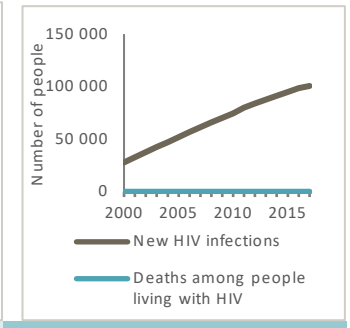
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2017	US$ 7 966 202	US$ 694 996 044	...	...	...	US$ 703 043 888

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	= 35%	**Change in AIDS-related deaths since 2010**	=	**Incidence: prevalence ratio** = 0.10

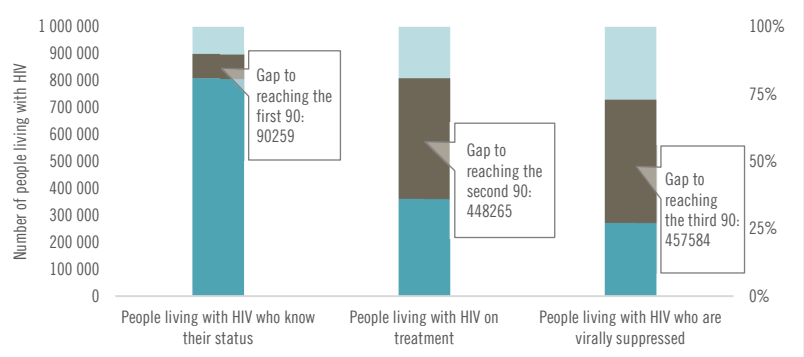
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	...	...	...	...	...
HIV prevalence	...	...	25.6%	...	...
Know their HIV status	...	...	...	...	
Antiretroviral therapy coverage	...	...	...	...	...
Condom use	...	...	...	...	
Coverage of HIV prevention programmes	...	...	...	...	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	18 000 [12 000 –26 000]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	...
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment	...
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment	...

HIV TESTING AND TREATMENT CASCADE



All ages	81% [63– >95%]	36% [28–44%]	27% [21–33%]
Children (0–14)	...% [...–...%]	...% [...–...%]	...% [...–...%]
Women (15+)	...% [...–...%]	37% [29–46%]	...% [...–...%]
Men (15+)	...% [...–...%]	33% [26–42%]	...% [...–...%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	...

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years	
— Women	...
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection	...
— Needles and syringes distributed per person who injects	...
— Coverage of opioid substitution therapy	...
— Naloxone available (2016)	...
— Safe injection rooms available (2016)	...

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	...% [...–...%]	...% [...–...%]
Early infant diagnosis	...% [...–...%]	84% [65– >95%]

TAJIKISTAN

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	1300 [1000–1600]	1400 [1000–1800]	1300 [780–2400]
New HIV infections (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (women, 15+)	<500 [<500– <500]	<500 [<500– <500]	<500 [<200–540]
New HIV infections (men, 15+)	970 [760–1200]	990 [750–1300]	990 [580–1800]
HIV incidence per 1000 population	0.19 [0.15–0.23]	0.17 [0.13–0.23]	0.15 [0.09–0.26]
AIDS-related deaths			
AIDS-related deaths (all ages)	<200 [<100– <500]	<500 [<500–590]	580 [<500–800]
AIDS-related deaths (0–14)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (women, 15+)	<100 [<100– <100]	<100 [<100– <200]	<100 [<100– <200]
AIDS-related deaths (men, 15+)	<200 [<100– <200]	<500 [<500– <500]	<500 [<500–670]
People living with HIV			
People living with HIV (all ages)	5700 [4400–7000]	11 000 [8600–13 000]	15 000 [11 000–21 000]
People living with HIV (0–14)	<100 [<100– <200]	<200 [<200– <500]	<500 [<500– <500]
People living with HIV (women, 15+)	1300 [1000–1600]	2500 [2000–3100]	3800 [2900–5100]
People living with HIV (men, 15+)	4300 [3300–5300]	7900 [6300–9500]	11 000 [7800–15 000]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	No, but prosecutions exist based on general criminal laws
Criminalization of sex work	Selling sexual services is criminalized
Criminalization of same-sex sexual acts	Laws penalizing same-sex sexual acts have been decriminalized or never existed
Drug use or possession for personal use is an offence	Possession of drugs for personal use is specified as a non-criminal offence
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 18 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	Yes

STIGMA AND DISCRIMINATION

Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	**2012** 65*
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months	**2015** 21.1
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent	**2015** 20.1

VIOLENCE

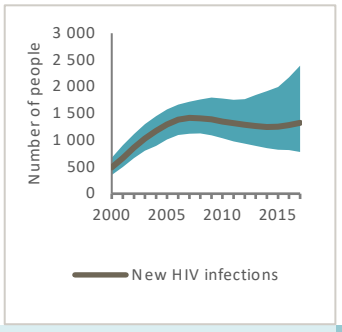
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months	**2012** 15.2

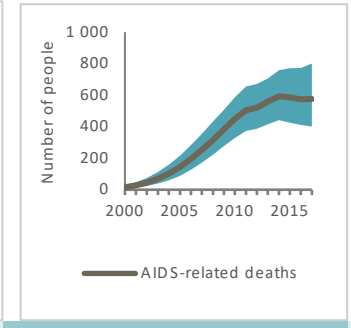
*Female respondents only

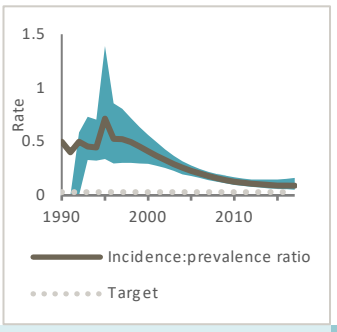
EXPENDITURES

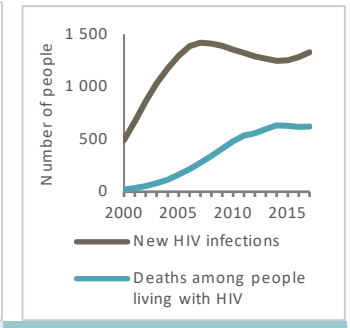
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2017	...	US$ 944 288	US$ 1 810 563	US$ 8 792 075	...	US$ 11 756 424

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	=	-2%		
Change in AIDS-related deaths since 2010	=	28%		
Incidence: prevalence ratio	=	0.09		

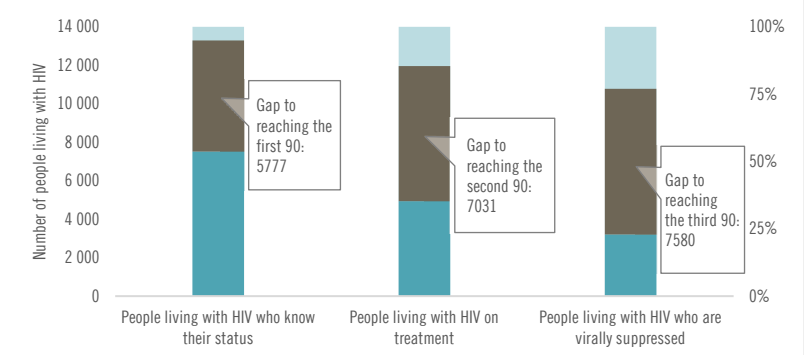
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	14 100	13 400	23 100	...	9 750
HIV prevalence	3.5%	2.3%	13.5%	...	...
Know their HIV status	...	...	...	...	
Antiretroviral therapy coverage	65.4%	78.1%	43.2%	...	87.8%
Condom use	71.4%	78.5%	49.9%	...	
Coverage of HIV prevention programmes	...	...	...	...	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	250 [160–350]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	4.5%
Women who tested positive for HIV among those screened for cervical cancer (programme data) (2017)	40.9%
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment	...
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment	...

HIV TESTING AND TREATMENT CASCADE



All ages	51% [38–71%]	33% [25–47%]	22% [16–30%]
Children (0–14)	>95% [>95– >95%]	>95% [>95– >95%]	>95% [>95– >95%]
Women (15+)	67% [51–91%]	51% [39–70%]	35% [27–47%]
Men (15+)	40% [29–57%]	22% [16–31%]	14% [10–20%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years (2017)	
— Women	13.8%
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods (2012)	51%
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection (2014)	88.9%
— Needles and syringes distributed per person who injects (2017)	273.45
— Coverage of opioid substitution therapy (2017)	2.8%
— Naloxone available (2016)	Yes
— Safe injection rooms available (2016)	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	13% [10–17%]	62% [50–78%]
Early infant diagnosis	4% [3–5%]	43% [34–54%]

THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (0–14)	... [...–...]	... [...–...]	... [...–...]
New HIV infections (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
New HIV infections (men, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
HIV incidence per 1000 population	<0.01 [<0.01– <0.01]	0.01 [0.01–0.01]	0.02 [0.02–0.03]
AIDS-related deaths			
AIDS-related deaths (all ages)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (0–14)	... [...–...]	... [...–...]	... [...–...]
AIDS-related deaths (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
AIDS-related deaths (men, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
People living with HIV			
People living with HIV (all ages)	<200 [<100– <200]	<200 [<200– <500]	<500 [<500– <500]
People living with HIV (0–14)	... [...–...]	... [...–...]	... [...–...]
People living with HIV (women, 15+)	<100 [<100– <100]	<100 [<100– <100]	<100 [<100– <100]
People living with HIV (men, 15+)	<100 [<100– <100]	<200 [<200– <200]	<500 [<500– <500]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	...
Criminalization of sex work	Partial criminalization of sex work
Criminalization of same-sex sexual acts	Laws penalizing same-sex sexual acts have been decriminalized or never existed
Drug use or possession for personal use is an offence	...
Criminalization of transgender people	...
Laws or policies restricting the entry, stay and residence of people living with HIV	...
Parental consent for adolescents to access HIV testing	...
Spousal consent for married women to access sexual and reproductive health services	...
Mandatory HIV testing for marriage, work or residence permits or for certain groups	...

STIGMA AND DISCRIMINATION

Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months	
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent	

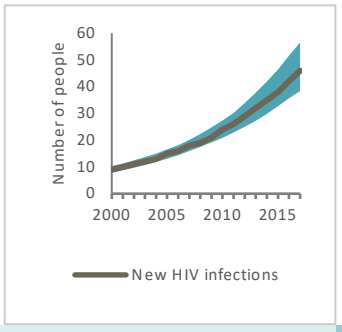
VIOLENCE

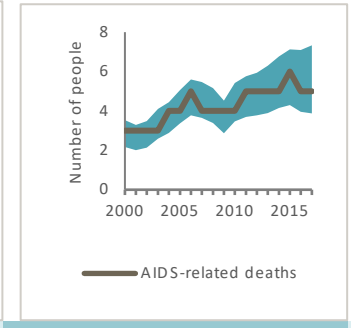
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months	

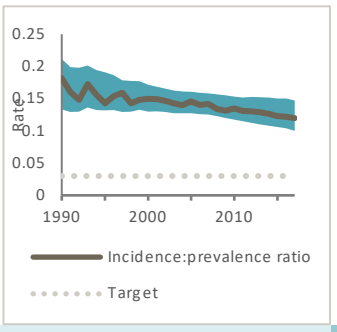
EXPENDITURES

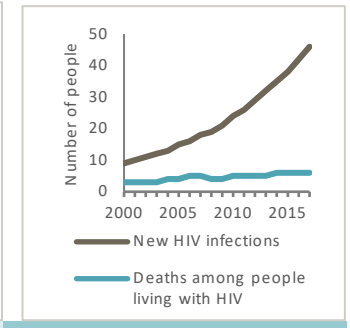
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2010	US$ 41 378	US$ 2 366 290	...	US$ 1 723 215	US$ 171 120	US$ 4 764 351

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	= 92%	Change in AIDS-related deaths since 2010	= 25%	Incidence: prevalence ratio = 0.12

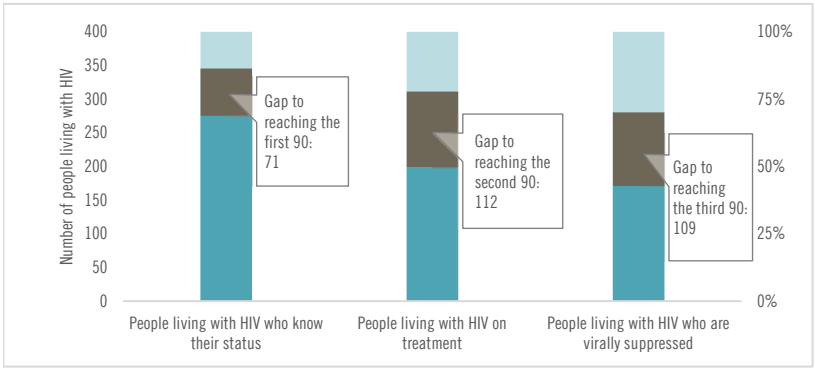
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	...	24 342	...	...	2 200
HIV prevalence	0%	5.35%	0%	...	...
Know their HIV status	...	31.3%	37.4%	...	
Antiretroviral therapy coverage	...	...	...	...	...
Condom use	93.3%	51.3%	39.8%	...	
Coverage of HIV prevention programmes	...	...	67.7%	...	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	0 [0–0]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	...
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment (2017)	100%
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment	...

HIV TESTING AND TREATMENT CASCADE



All ages	72% [63–84%]	52% [46–61%]	45% [39–52%]
Children (0–14)	...% [...–...%]	...% [...–...%]	...% [...–...%]
Women (15+)	41% [36–47%]	29% [26–34%]	28% [25–32%]
Men (15+)	79% [70–92%]	57% [50–67%]	49% [43–57%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	...

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years	
— Women	...
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection (2017)	94.6%
— Needles and syringes distributed per person who injects (2017)	62.37
— Coverage of opioid substitution therapy (2017)	17%
— Naloxone available (2016)	...
— Safe injection rooms available (2016)	...

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	...% [...–...%]	...% [...–...%]
Early infant diagnosis	...% [...–...%]	...% [...–...%]

UKRAINE

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	21 000 [18 000–25 000]	15 000 [13 000–18 000]	13 000 [10 000–15 000]
New HIV infections (0–14)	710 [600–830]	<500 [<500–540]	<500 [<500–610]
New HIV infections (women, 15+)	8600 [7300–10 000]	6400 [5300–7600]	5100 [4100–6100]
New HIV infections (men, 15+)	12 000 [10 000–14 000]	8400 [6800–9900]	7200 [5700–8800]
HIV incidence per 1000 population	0.46 [0.38–0.54]	0.33 [0.27–0.39]	0.29 [0.23–0.34]
AIDS-related deaths			
AIDS-related deaths (all ages)	13 000 [11 000–16 000]	15 000 [13 000–18 000]	9000 [6500–11 000]
AIDS-related deaths (0–14)	<500 [<500– <500]	<200 [<200– <200]	<500 [<200– <500]
AIDS-related deaths (women, 15+)	4200 [3300–5300]	5400 [4500–6500]	3600 [2600–4500]
AIDS-related deaths (men, 15+)	8700 [7200–10 000]	9500 [8300–11 000]	5200 [3800–6400]
People living with HIV			
People living with HIV (all ages)	260 000 [250 000–270 000]	250 000 [240 000–260 000]	240 000 [230 000–260 000]
People living with HIV (0–14)	2700 [2500–3000]	4000 [3600–4400]	5000 [4500–5900]
People living with HIV (women, 15+)	95 000 [90 000–100 000]	100 000 [98 000–110 000]	110 000 [100 000–120 000]
People living with HIV (men, 15+)	160 000 [150 000–170 000]	140 000 [130 000–150 000]	130 000 [120 000–140 000]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Other punitive regulation of sex work
Criminalization of same-sex sexual acts	Laws penalizing same-sex sexual acts have been decriminalized or never existed
Drug use or possession for personal use is an offence	...
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 14 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	No

STIGMA AND DISCRIMINATION

	2005	2012
Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV	76.4*	65.1

	2013
Percentage of people living with HIV denied health services because of their HIV status in the last 12 months	11
Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent	23

VIOLENCE

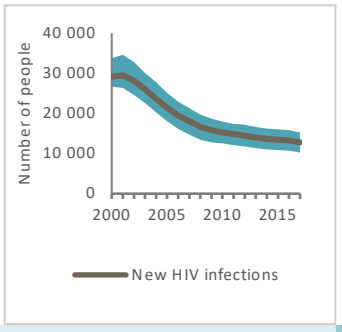
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months

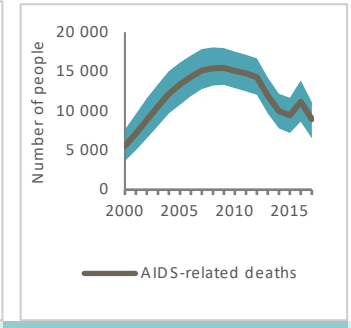
*Female respondents only

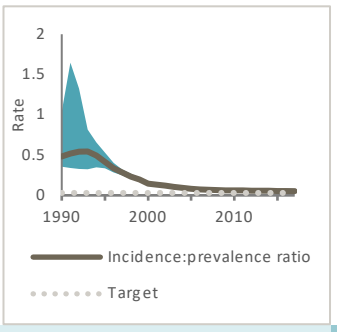
EXPENDITURES

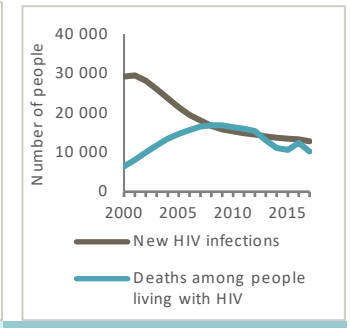
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2016	...	...	US$ 21 940 630	...	...	US$ 111 840 232

EPIDEMIC TRANSITION METRICS









Change in new HIV infections since 2010	= -16%	Change in AIDS-related deaths since 2010	= -41%	Incidence: prevalence ratio = 0.05

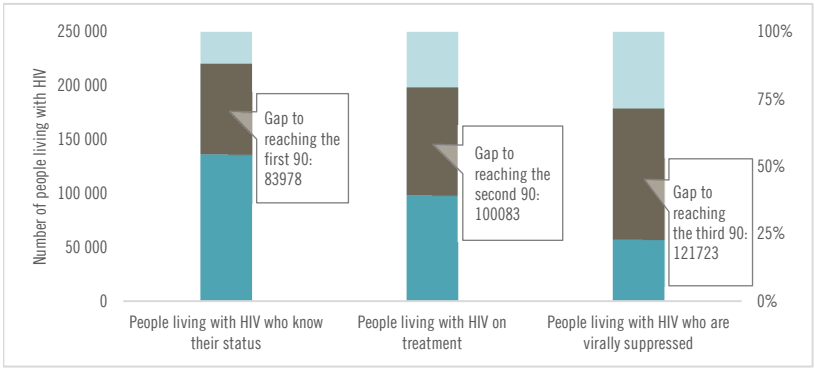
KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	80 100	181 500	346 900	...	...
HIV prevalence	5.2%	7.5%	22.6%	...	3.3%
Know their HIV status	58.2%	39.2%	43.1%	...	
Antiretroviral therapy coverage	29%	46.3%	37.9%	...	62%
Condom use	93.9%	77.7%	43.9%	...	
Coverage of HIV prevention programmes	...	...	...	...	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	8100 [5200 –12 000]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	...
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment (2017)	71.5%
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment (2017)	8.9%

HIV TESTING AND TREATMENT CASCADE



All ages	56% [53–59%]	40% [38–43%]	23% [22–25%]
Children (0–14)	50% [45–59%]	54% [47–62%]	...% [...–...%]
Women (15+)	57% [54–60%]	42% [40–44%]	...% [...–...%]
Men (15+)	55% [51–58%]	38% [36–41%]	...% [...–...%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years (2014)	
— Women	21%
— Men	25%
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner) (2017)	
— Women	...
— Men	82.9%
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	4
Harm reduction	
— Use of sterile injecting equipment at last injection (2017)	96.6%
— Needles and syringes distributed per person who injects (2017)	83.81
— Coverage of opioid substitution therapy (2017)	3.5%
— Naloxone available (2016)	No
— Safe injection rooms available (2016)	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	>95% [>95– >95%]	81% [70–92%]
Early infant diagnosis	>95% [86– >95%]	48% [42–55%]

UZBEKISTAN

COUNTRY DATA

EPIDEMIC ESTIMATES

	2005	2010	2017
New HIV infections			
New HIV infections (all ages)	3200 [2600–4100]	3600 [2900–4600]	6400 [5100–8200]
New HIV infections (0–14)	... [...–...]	... [...–...]	... [...–...]
New HIV infections (women, 15+)	930 [750–1200]	1100 [860–1400]	1900 [1500–2400]
New HIV infections (men, 15+)	2100 [1700–2700]	2500 [1900–3200]	4400 [3500–5700]
HIV incidence per 1000 population	0.13 [0.1–0.16]	0.13 [0.11–0.17]	0.21 [0.17–0.27]
AIDS-related deaths			
AIDS-related deaths (all ages)	1500 [930–2100]	1800 [1400–2400]	1900 [1400–2600]
AIDS-related deaths (0–14)	... [...–...]	... [...–...]	... [...–...]
AIDS-related deaths (women, 15+)	<500 [<500–600]	570 [<500–730]	<500 [<500–530]
AIDS-related deaths (men, 15+)	960 [610–1400]	1200 [940–1600]	1500 [1200–2100]
People living with HIV			
People living with HIV (all ages)	28 000 [22 000–37 000]	33 000 [27 000–41 000]	52 000 [42 000–62 000]
People living with HIV (0–14)	... [...–...]	... [...–...]	... [...–...]
People living with HIV (women, 15+)	8600 [6800–12 000]	10 000 [8300–13 000]	17 000 [14 000–20 000]
People living with HIV (men, 15+)	19 000 [15 000–25 000]	22 000 [18 000–28 000]	34 000 [28 000–42 000]

LAWS AND POLICIES

Laws criminalizing the transmission of, non-disclosure of or exposure to HIV transmission	Yes
Criminalization of sex work	Other punitive regulation of sex work
Criminalization of same-sex sexual acts	Yes, imprisonment (up to 14 years)
Drug use or possession for personal use is an offence	Possession of drugs for personal use is specified as a criminal offence
Criminalization of transgender people	Neither criminalized nor prosecuted
Laws or policies restricting the entry, stay and residence of people living with HIV	No
Parental consent for adolescents to access HIV testing	Yes, for adolescents younger than 18 years
Spousal consent for married women to access sexual and reproductive health services	No
Mandatory HIV testing for marriage, work or residence permits or for certain groups	Yes

STIGMA AND DISCRIMINATION

Percentage of women and men aged 15–49 years who report discriminatory attitudes towards people living with HIV

Percentage of people living with HIV denied health services because of their HIV status in the last 12 months

Percentage of people living with HIV who reported a health-care professional told others about their HIV status without their consent

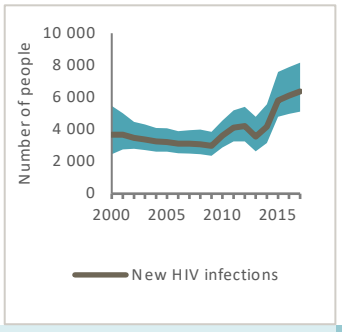
VIOLENCE

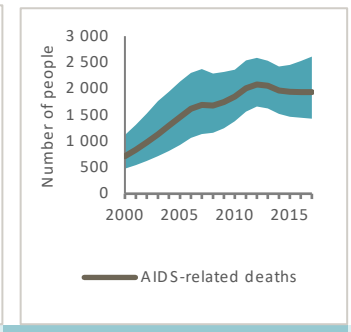
Proportion of ever-married or partnered women aged 15–49 years who experienced physical or sexual violence from a male intimate partner in the past 12 months

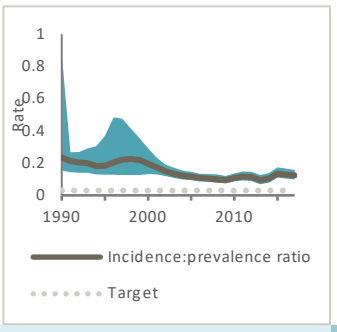
EXPENDITURES

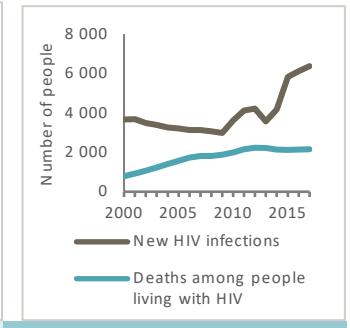
	Financing sources					
	Domestic private	Domestic public	International: PEPFAR	International: Global Fund	International: all others	Total
Last available report: 2014	...	US$ 11 631 595	...	US$ 7 130 099	US$ 351 422	US$ 19 113 116

EPIDEMIC TRANSITION METRICS







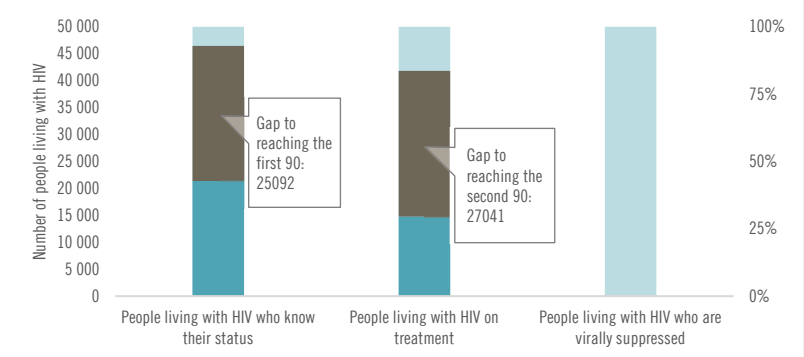


Change in new HIV infections since 2010	= 77%	**Change in AIDS-related deaths since 2010**	= 5%	**Incidence: prevalence ratio** = 0.12

KEY POPULATIONS

	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners
Estimated size of population	...	...	...	...	...
HIV prevalence	2.9%	3.3%	5.6%	...	...
Know their HIV status	...	...	...	...	
Antiretroviral therapy coverage	...	...	...	...	...
Condom use	51.7%	94.6%	45.1%	...	
Coverage of HIV prevention programmes	...	...	...	...	
Avoidance of health care because of stigma and discrimination	...	...	...	...	

HIV TESTING AND TREATMENT CASCADE



All ages	41% [34–50%]	29% [23–35%]	...% [...–...%]
Children (0–14)	...% [...–...%]	...% [...–...%]	...% [...–...%]
Women (15+)	...% [...–...%]	48% [40–57%]	...% [...–...%]
Men (15+)	...% [...–...%]	19% [16–23%]	...% [...–...%]

Is antiretroviral therapy provided in community settings (such as outside health facilities) for people who are stable on antiretroviral therapy?	No

ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION

	2010	2017
Percentage of pregnant women living with HIV accessing antiretroviral medicines	88% [62– >95%]	62% [50–76%]
Early infant diagnosis	12% [9–16%]	56% [45–70%]

HIV COMORBIDITIES

Estimated number of incident tuberculosis cases among people living with HIV (2016)	1200 [800–1700]
Proportion of people living with HIV newly enrolled in HIV care with active tuberculosis (2016)	14.6%
Cervical cancer screening of women living with HIV	...
Proportion of people coinfected with HIV and hepatitis B virus receiving combined treatment	...
Proportion of people coinfected with HIV and hepatitis C virus starting hepatitis C treatment	...

HIV PREVENTION

Knowledge of HIV prevention among young people aged 15–24 years	
— Women	...
— Men	...
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
— Women	...
— Men	...
Women aged 15–49 years who have their demand for family planning satisfied by modern methods	...
Men aged 15–49 years who are circumcised	Not applicable
Male circumcisions performed according to national standards	Not applicable
People who received PrEP at least once during the reporting period (2017)	...
Harm reduction	
— Use of sterile injecting equipment at last injection (2015)	85.1%
— Needles and syringes distributed per person who injects (2017)	119.23
— Coverage of opioid substitution therapy	...
— Naloxone available (2016)	...
— Safe injection rooms available (2016)	No

METHODS

Methods for deriving UNAIDS estimates

INTRODUCTION

UNAIDS annually provides revised global, regional and country-specific modelled estimates using the best available epidemiological and programmatic data to track the HIV epidemic. Modelled estimates are required because it is impossible to count the exact number of people living with HIV, people who are newly infected with HIV or people who have died from AIDS-related illness in any country: doing so would require regularly testing every person for HIV and investigating all deaths, which is logistically impossible and ethically problematic. Modelled estimates—and the lower and upper bounds around these estimates—provide a scientifically appropriate way of describing HIV epidemic levels and trends.

PARTNERSHIPS IN DEVELOPING METHODS FOR UNAIDS ESTIMATES

Country teams use UNAIDS-supported software to develop estimates annually. The country teams are primarily comprised of demographers, epidemiologists, monitoring and evaluation specialists, and technical partners.

The software used to produce the estimates is Spectrum, which is developed by Avenir Health, and the Estimates and Projections Package, which is developed by the East–West Center.[1] The UNAIDS Reference Group on Estimates, Modelling and Projections provides technical guidance on the development of the HIV component of the software.[2]

A BRIEF DESCRIPTION OF METHODS USED BY UNAIDS TO CREATE ESTIMATES

For countries where HIV transmission is high enough to sustain an epidemic in the general population, available epidemiological data typically consist of HIV prevalence results from pregnant women attending antenatal clinics and from nationally representative population-based surveys. Many countries have historically conducted HIV sentinel surveillance among women attending antenatal clinics, which requires collecting data from a selection of clinics for several months every few years. More recently, many countries have stopped conducting sentinel surveillance and are now using the data from the routine HIV tests conducted when pregnant women at antenatal clinics are tested as part of programmes for the prevention of mother-to-child transmission. These data avoid the need to conduct a separate surveillance effort, and they provide a complete set of data from all clinics instead of samples from specific sites.

The prevalence trends among pregnant women at antenatal clinics, whether determined from surveillance or routine data, can be used to inform estimates of national prevalence trends, whereas data from population-based surveys—which are conducted less frequently but have broader geographical coverage and also include men—are more useful for informing estimates of national HIV prevalence levels. Data from these surveys also contribute to estimating age- and sex-specific HIV prevalence levels and trends. For a few countries in sub-Saharan Africa that have not conducted population-based surveys, HIV prevalence levels are adjusted based on comparisons of antenatal clinic surveillance and population-based survey data from other countries in the region. HIV prevalence trends and numbers of people on antiretroviral therapy are then used to derive an estimate of HIV incidence trends.

Historically, countries with high HIV transmission have produced separate HIV prevalence and incidence trends for rural and urban areas when there are well-established geographical differences in prevalence. To better describe and account for further geographical heterogeneity, an increasing number of countries have produced subnational estimates (e.g. at the level of the province or state) that, in some cases, also account for rural and urban differences. These subnational or rural–urban estimates and trends are then aggregated to obtain national estimates.

In the remaining countries, where HIV transmission largely occurs among key populations at higher risk of HIV and the epidemic can be described as low-level, the estimates are derived from either surveillance among key populations and the general low-risk population, or from HIV case reporting data, depending on which data are most reliable in a particular country. In countries with high-quality HIV surveillance data among the key populations, the data from repeated HIV prevalence studies focused on key populations are used to derive

[1] More information on Avenir Health can be found at www.avenirhealth.org. The East–West Center website can be found at www.eastwestcenter.org.

[2] For more on the UNAIDS Reference Group on Estimates, Modelling and Projections, please visit www.epidem.org.

national estimates and trends. Estimates of the size of key populations are increasingly derived empirically in each country; when studies are not available, they are derived based on regional values and consensus among experts. Other data sources—including HIV case reporting data, population-based surveys and surveillance among pregnant women—are used to estimate the HIV prevalence in the general low-risk population. The HIV prevalence curves and numbers of people on antiretroviral therapy are then used to derive national HIV incidence trends.

For most countries in western and central Europe and North America—and many countries in Latin America, the Caribbean and the Middle East and North Africa that have insufficient HIV surveillance or survey data, but which have robust disease reporting systems—HIV case reporting and AIDS-related mortality data from vital registration systems are used directly to inform trends and levels in national HIV prevalence and incidence. These methods also allow countries to take into account evidence of underreporting or reporting delays in HIV case report data, as well as the misclassification of deaths from AIDS-related illness.

In all countries where UNAIDS supports the development of estimates, assumptions about the effectiveness of HIV programme scale-up and patterns of HIV transmission and disease progression are used to obtain age- and sex-specific estimates of (a) people living with HIV, (b) people newly infected with HIV, (c) people dying from AIDS-related illness and (d) other important indicators (including treatment programme coverage statistics). These assumptions are based on systematic literature reviews and analyses of research study data by scientific experts. Demographic population data, including fertility estimates, are derived from the United Nations Population Division's World Population Prospects 2017 data.

Selected inputs into the model—including the number of people on antiretroviral therapy and the number of women accessing services for the prevention of mother-to-child transmission of HIV by type of regimen—are reviewed and validated in partnership with the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund), and selected technical partners.

Final country-submitted files containing the modelled outputs are reviewed at UNAIDS to ensure that the results are comparable across regions and countries and over time.

UNCERTAINTY BOUNDS AROUND UNAIDS ESTIMATES

The estimation software calculates uncertainty bounds around each estimate. These bounds define the range within which the true value lies (if it can be measured). Narrow bounds indicate that an estimate is precise, while wide bounds indicate greater uncertainty regarding the estimate.

In countries using HIV surveillance data, the quantity and source of the data available partly determine the precision of the estimates: countries with more HIV surveillance data have smaller ranges than countries with less surveillance data or smaller sample sizes. Countries in which a national population-based survey has been conducted generally have smaller ranges around estimates than countries where such surveys have not been conducted, while countries producing subnational estimates at the provincial level have wider ranges. In countries using HIV case reporting and AIDS-related mortality data, the number of years of data and the magnitude of the cases reported or the deaths from AIDS-related illness observed will contribute to the precision of the estimate.

The assumptions required to arrive at the estimate also contribute to the width of the ranges around the estimates: in brief, the more assumptions that are made, the wider the uncertainty range, since each assumption introduces additional uncertainties. For example, the ranges around the estimates of adult HIV prevalence are smaller than those around the estimates of HIV incidence among children, which require additional data on prevalence among pregnant women and the probability of mother-to-child HIV transmission, each of which have their own additional uncertainty.

UNAIDS is confident that the actual numbers of people living with HIV, people who are newly infected with HIV or people who have died from AIDS-related illness lie within the reported ranges. Over time, more and better data from countries will steadily reduce uncertainty.

IMPROVEMENTS TO THE 2018 UNAIDS ESTIMATES MODEL

Country teams create new Spectrum files every year. The files may differ from one year to the next for two reasons. First, new surveillance and programme data are entered into the model; this can change HIV prevalence and incidence trends over time, including for past years.

Second, improvements are incorporated into the model based on the latest available science and statistical methods that lead to the creation of more accurate trends in HIV incidence. Due to these improvements to the model and the addition of new data to create the estimates, the results from previous years cannot be compared with the results from this year. However, a full historical set of estimates are created each year, enabling a description of trends over time.

Between the previous estimates and the 2018 estimates, the following changes were applied to the model under the guidance of the UNAIDS Reference Group on Estimates, Modelling and Projections and based on the latest scientific evidence.

- Demographic data in the models were updated from the World Population Prospects 2015 estimates to the 2017 estimates.
- Assumptions about retention on antiretroviral therapy among pregnant women living with HIV were included.
- Aggregate routine data on prevalence among women attending antenatal clinics are now used to estimate the number of women living with HIV who are giving birth.
- Assumptions about the trends in HIV prevalence among pregnant women versus trends among the general population were updated.
- Annual HIV mortality probabilities among people on treatment in western and central Europe and North America were revised based on a special analysis conducted by the Antiretroviral Therapy Cohort Collaboration.
- An option was added in the model to prioritize allocation of treatment to individuals with the lowest CD4 count who had not yet initiated treatment.
- A new approach to fitting more complex incidence patterns for countries using case reporting and vital registration data is available.
- New methods to estimate the proportion of people dying before diagnosis and time from infection to diagnosis were incorporated into the model for countries using case reporting data to estimate incidence.

More detailed information on revisions to the 2018 model and Spectrum generally can be found at www.epidem.org.

MEASURING ANTIRETROVIRAL THERAPY COVERAGE

Since 2013, UNAIDS has provided the number and estimates of the proportion of all adults and children living with HIV who are on antiretroviral therapy (as opposed to those eligible for therapy according to national or international guidelines). This approach to estimating coverage reflects the WHO recommendations of starting antiretroviral therapy among everyone diagnosed as HIV-positive.

Countries report the number of people on treatment through the Global AIDS Monitoring (GAM) tool and Spectrum. Although those values come through routine data, they are likely to have some level of uncertainty if the country cannot deduplicate individuals who might receive medication from two different clinics or if there are delays in reporting data. Using results from data quality reviews through 2016, an estimated uncertainty—0.88 and 1.04 for the lower and upper bounds, respectively—was added to the number of people on treatment at the regional and global levels.

PUBLICATION OF COUNTRY-SPECIFIC ESTIMATES

UNAIDS aims to publish estimates for all countries with populations of 250 000 or more in 2017. For countries with populations of 250 000 or more that did not submit estimates, UNAIDS developed estimates using the Spectrum software that were based on published or otherwise available information. These estimates contributed to regional and global totals but were not published as country-specific estimates.

In countries with low-level epidemics, the number of pregnant women living with HIV is difficult to estimate. Many women living with HIV in these countries are sex workers or people who use drugs—or they are the sexual partners of gay men and other men who have sex with men or people who use drugs—making them likely to have different fertility levels than the general population. UNAIDS does not present estimates of mother-to-child HIV transmission, including estimates related to children in some countries that have concentrated epidemics, unless adequate data are available to validate these estimates. UNAIDS also does not publish these estimates for countries where the estimated number of pregnant women living with HIV is less than 100.

With regard to reporting incidence trends, if there are not enough historical data to state with confidence

whether a decline in incidence has occurred, UNAIDS does not publish data other than that from the most recent year; this prevents users from making inaccurate inferences about trends. Specifically, incidence trends are not published if there are fewer than four data points for the key population or if there have been no data for the past four years for countries using repeated survey or routine testing data. Trends prior to 2000 are not published for countries using case surveillance models if there is no early case surveillance or mortality data available.

Finally, UNAIDS does not publish country estimates when further data or analyses are needed to produce valid estimates. More information on the UNAIDS estimates and the individual Spectrum files for most countries can be found on the UNAIDS website (www.unaids.org). Resulting estimates can be found in the Aidsinfo section of the UNAIDS website (http://aidsinfo.unaids.org/).

Methods for deriving the 90–90–90 targets

INTRODUCTION

Starting in 2016, UNAIDS has provided estimates of global, regional and country-specific progress against the 90–90–90 targets. Progress towards these targets is directly monitored using three basic indicators:

- Indicator 1 (the first 90): the percentage of all people living with HIV who know their HIV status.
- Indicator 2 (the second 90): the percentage of people who know their HIV-positive status and are accessing treatment.
- Indicator 3 (the third 90): the percentage of people on treatment who have suppressed viral loads.

Metrics related to Indicators 2 and 3 can also be expressed as a percentage of all people living with HIV. When numbers or coverage of the treatment target are expressed relative to the total number of people living with HIV, this is called the "HIV testing and treatment cascade." Using this approach, the second and third targets of the 90–90–90 targets translate into 81% coverage of antiretroviral therapy and 73% of people achieving viral suppression by 2020.

UNAIDS published its first set of global and regional testing and treatment cascades in 2015. Estimates of antiretroviral therapy coverage among people living with HIV are available going back to when treatment was first introduced. Results presented in this report supersede the previously published 2015 and 2016 values.

Since 2015, UNAIDS has also tracked progress towards the 90–90–90 targets by monitoring viral load testing access among people on treatment. If most people in the country are receiving a viral load test annually, as recommended by WHO, we can have confidence in the accuracy of the estimate of viral suppression among all people living with HIV.

METHODS FOR MEASURING THE 90–90–90 TARGETS

To describe country-level progress against the 90–90–90 targets, UNAIDS analysed data on the number of people who knew their HIV status, the number of people on treatment and the number of people who were virally suppressed among those tested, as reported through the GAM tool and Spectrum.

A description of the GAM system and the treatment target-related indicators that countries report against are provided in the UNAIDS GAM 2018 guidelines *(1)*. All programme data submitted to UNAIDS—including the number of people reported to know their status, the number of people accessing treatment and the number of people on treatment who are virally suppressed—were validated by UNAIDS and its partners prior to publication.

Country-submitted data that did not meet the required validation checks for quality either at the indicator level or across the treatment cascade were not published. Not all countries were able to report against all three prongs of the 90–90–90 targets.

The final set of country measures of progress against the 90–90–90 targets for 2015 through 2017 are available at http://aidsinfo.unaids.org. Complete treatment cascades were available for 53 countries in 2017. Upper and lower ranges of uncertainty for country-level estimates were calculated from the range of estimated numbers of people living with HIV. This range may not fully capture uncertainty in the reported programme data.

To estimate regional and global progress against the 90–90–90 targets, UNAIDS supplemented the country-supplied data submitted through GAM with data obtained from a review of other published and unpublished data sources, including grey literature and Demographic and Health Survey results. There were insufficient reported data from countries in western and central Europe and North America in 2017 to present results for the region, although the country values that were available in the region were used to construct the global totals. Upper and lower ranges of uncertainty for global and regional estimates were calculated from the range of numbers of people living with HIV and the lower and upper ranges of the numbers of people on treatment in the region. This range may not fully capture uncertainty in the reported or missing programme data for the first and third indicators.

DATA SOURCES AND INDICATOR-SPECIFIC METHODS FOR DERIVING GLOBAL AND REGIONAL METHODS

Estimates of people living with HIV

Unless otherwise stated, all progress measures in this report are based on UNAIDS global, regional and country-specific modelled estimates of the numbers of people living with HIV from Spectrum. Estimates of people living with HIV were available for 169 countries. More details about how UNAIDS derives estimates and uncertainty bounds around the number of people living with HIV and those accessing antiretroviral therapy can be found under "Measuring antiretroviral therapy coverage" (above, in Part 1 of this annex).

Knowledge of HIV status among people living with HIV

Global and regional measures of the number of people living with HIV who know their status were derived using the most recent HIV surveillance, programme data, nationally representative population-based survey data and modelled estimates for 102 countries in 2017. Where data were available separately for children (aged 0–14 years) and adults (aged 15 years and older), age-specific measures were first calculated and then aggregated to produce a national measure.

For 80 countries in 2017, the number of people living with HIV who knew their HIV status is based on HIV surveillance systems, programme registers or modelled estimates derived from case surveillance and programme data. If the measure from these sources was lower than the number of people accessing antiretroviral therapy, the reported value was excluded from the analysis and replaced by a regionally-derived estimate. For countries using HIV surveillance or programme data, a country's measure was included only if the HIV surveillance system had been functioning since before 2008. Countries with more recent systems may not have captured all people living with HIV who were diagnosed prior to 2008.

Although HIV surveillance systems, including those based on programme registers, can be a reasonably robust source of data to estimate the number of people living with HIV who know their status, biases in the reported numbers may still exist. For example, a country's measure of the knowledge of status may be underestimated if not all people diagnosed are reported to the surveillance system in a timely manner; the measure also may be overestimated if people are reported to the system or included on a register more than once and these duplicates are not detected. Similarly, if people die or emigrate but are not removed from the system, the number of people living with HIV who are reported to know their HIV status also will be overstated.

The estimated numbers of people living with HIV who knew their status for 14 countries in sub-Saharan Africa in 2017 were derived from nationally representative population-based surveys conducted since 2011 and from treatment data reported through GAM. Four countries with surveys through 2017 directly asked respondents who tested HIV-positive whether they knew their HIV status as part of the survey, and this proportion was applied to the total number of people estimated to be living with HIV in the country. In the remaining 10 countries with a survey that did not directly ask participants about knowledge of their HIV status, a stepwise approach was used to estimate knowledge of status.

- In the first step, the total percentage of people who could know their status in the year of the most recent survey is estimated. For adults, this percentage is estimated by calculating the percentage of those who tested HIV-positive in the survey who had reported ever having been tested for HIV and had received the last test result. For children, who are not included in the survey, a proxy measure of treatment coverage in the survey year is used to estimate knowledge of status among children. This is a conservative measure, as some children may not have initiated treatment. To estimate knowledge of status for all people in the

year of the survey, the child and adult estimates are combined, weighted by the numbers of children and adults living with HIV.

- In the second step, the percentage of people who could know their status in the current or previous reporting year is derived by projecting the results from the first step forward. To do this, an assumption is made that the rate of testing scale-up in the era of test-and-treat was the same as the rate of scale-up of people starting treatment, calculated by the percentage point difference in total treatment coverage (for both adults and children) between the survey year and the treatment coverage value for either the current or previous year. For surveys conducted in 2017, the 2015 and 2016 values are estimated for previous years using a similar process as the one described above.
- In the third step, the estimate of people living with HIV who know their status for the year is derived by using the midpoint between the percentage of people living with HIV who could know their status (i.e. the second step) and the percentage of people living with HIV on treatment.

The measurement of knowledge of HIV status based on survey data when participants are not directly asked if they know their HIV status has several limitations. Typically, estimates derived from these surveys will underestimate knowledge of status for three reasons:

1. In settings where stigma and discrimination is or has been high, people may be reluctant to disclose that they have ever tested for HIV and received their results.
2. People who report ever testing may have seroconverted after their last test result and are therefore incorrectly counted as aware of their HIV status.
3. Most surveys that do not directly ask respondents about their HIV status occurred prior to 2017. Although surveys conducted prior to 2011 were excluded, it is possible that the adjustment method based on treatment scale-up does not accurately capture increases in the knowledge of status that occur over time among people living with HIV.

Underestimation of the reported number of people living with HIV who know their status can also occur in countries where survey respondents are directly asked about their HIV status. In these instances, the risk is that survey participants do not disclose their HIV status to interviewers and are incorrectly classified as unaware of it. While it is impossible to measure the exact magnitude of this bias, in previous surveys in Kenya, Malawi and Uganda, anywhere from one tenth to one third of HIV-positive participants misreported their HIV status as negative *(2)*. Underestimation of knowledge of status also can occur at the national level if people living with HIV learn their status either as a result of—or subsequent to—the survey, although this proportion of the total number of people in a country who know their status will be small.

For 34 countries without a current measure of knowledge of status in 2017, UNAIDS used published and unpublished grey literature and historical estimates reported through GAM to inform the regional and global values. A similar method used to project estimated knowledge of status for direct surveys from historical data was applied to estimates from such countries before 2017.

For 40 countries without any estimate of the number of people living with HIV who know their status—countries that are home to just 8% of the total estimated number of people living with HIV worldwide—the regional average of the ratio of the number of people who know their status and the number on treatment was calculated from available data submitted by countries in the region and weighted according to the number of people living with HIV by country. Knowledge of status was capped at 95%. The total number of people estimated to know their HIV status in countries was added across the region and globally to construct the numerator of the first 90 and the denominator of the second 90.

People accessing antiretroviral therapy

Global and regional measures of antiretroviral therapy numbers are calculated from country-reported programme data through GAM and the UNAIDS-supported Spectrum software. For a small number of countries where reported numbers of people on treatment are not available—primarily in western and central Europe and North America—estimates of the number of people on treatment are developed either in consultation with the public health agency responsible for monitoring the national treatment programme or based on published sources.

In partnership with UNICEF, WHO and other partners that support treatment service delivery in countries,

UNAIDS reviews and validates treatment numbers reported through GAM and Spectrum on an annual basis. UNAIDS staff also provide technical assistance and training to country public health and clinical officers to ensure the quality of the treatment data that are reported. Nevertheless, this measure may overestimate the number of people on treatment if people who transfer from one facility to another are reported by both facilities. Similarly, coverage may be overestimated if people who have died, disengaged from care or emigrated are not identified and removed from treatment registries. Treatment numbers also may be underestimated if not all clinics report the numbers on treatment completely or in a timely manner.

In 2016, UNAIDS completed a triangulation of data to verify the UNAIDS global estimate of people accessing antiretroviral therapy at the end of 2015. In 2018, UNAIDS has partnered with WHO, the Global Fund, selected technical partners and ministries of health in 28 countries (most in sub-Saharan Africa) to conduct data quality reviews of reported treatment numbers. For more details about how confident UNAIDS is in reported treatment numbers, please see *How many people living with HIV access treatment?*[3]

People who have achieved viral suppression

Progress towards the viral suppression target among people on treatment and as a proportion of all people living with HIV is derived from data reported to GAM. For the purposes of reporting, the threshold for suppression is a viral load of less than 1000 copies per ml, although some countries may set lower thresholds or require persons to achieve an undetectable viral load. This guidance also specifies that only a person's last test result from the reporting year be submitted, so the reported number suppressed among those tested should represent people and not tests performed.

UNAIDS GAM 2018 guidelines were updated from those of 2017 to include a threshold for reporting viral load suppression outcomes, such that testing coverage should be accessible to all or nearly all (>90%), or that it is nationally representative of people on treatment (typically 50–90% testing coverage). For countries with nationally representative but not universally accessible access to treatment, the estimate of viral suppression among those tested (i.e. the third 90) was multiplied by the number of people on treatment nationally to obtain overall viral suppression levels in the country.

Based on the more stringent coverage threshold, 67 countries reported viral load suppression data from case-based surveillance or laboratory-based reporting systems in 2018 (compared with 88 in 2017). Five countries had estimates based on nationally representative population-based surveys, where viral load testing was done only among those who self-reported that they were on treatment.

Estimates for the remaining countries were constructed using the regional average of the number of people on antiretroviral therapy who are virally suppressed, weighted according to the number of people on treatment in a country. The total number of people suppressed was added across the region and globally to construct the third 90 and the overall estimate of viral suppression among people living with HIV. The same approach also was used to construct historical regional and global estimates.

A number of challenges exist in using country-reported data to monitor the viral load suppression target.

- Routine viral load testing may not be offered at all treatment facilities, and those facilities where it is offered may not be representative of the care available at facilities without viral load testing. By assuming that the percentage of people suppressed among those accessing viral load testing is representative of all people on treatment in countries with incomplete viral load testing uptake, the measure may be either overestimated or underestimated depending on the characteristics of the reporting clinics where testing is available.
- Reported access to viral load testing varies considerably across each region, and it is difficult to know whether the experience in countries that reported data to UNAIDS is similar to that of countries in the same region that did not report data. In western and central Africa, for example, only 7 of 14 countries reported estimates of viral load suppression in 2017, representing just 14% of all people on treatment in the region. In Asia and the Pacific, nationally representative estimates of viral load suppression are not available for China and India in 2017. As a result, estimates for that region are constructed based on the remaining quarter of all people accessing treatment in the region where viral load suppression data are available.

[3] This document is available at http://www.unaids.org/en/resources/documents/2016/how-many-people-living-with-HIV-access-treatment.

- UNAIDS guidance requests routine (annual) viral load testing results only for people who are on treatment and eligible for testing. If people newly initiated on treatment achieve viral suppression but have not yet been offered viral load testing, they will be incorrectly classified as not suppressed and the resulting viral suppression estimate will be understated. UNAIDS also requests that countries only report results from routine viral load testing; if countries report test results that are primarily performed because of suspected treatment failure, the number of people virally suppressed in these countries will be underestimated. UNAIDS validates country submissions for quality, but it is not always possible to identify cases where both routine and other types of testing are occurring.
- UNAIDS guidance recommends reporting viral load test results only for people on antiretroviral treatment; persons who naturally suppress the virus and are not on treatment will not be included in this measure.

As access to viral load testing coverage expands and routine monitoring systems are strengthened to compile and report these data, the ability to quantify and eventually reduce bias in the 90–90–90 targets will improve.

Distribution of new HIV infections by subpopulation

The distribution of new HIV infections by region was estimated based on data for 169 countries using five data sources.

For countries that model their HIV epidemic based on data from subpopulations, including key populations, the numbers of new infections were extracted from Spectrum 2017 files. This source provided data for sex workers from 58 countries, for people who inject drugs from 36 countries, for gay men and other men who have sex with men from 56 countries, and for transgender people from 15 countries (all of which were located in Latin America, the Caribbean and Asia). Additionally, 21 countries (mostly from Asia) had data from clients of sex workers.

The second source was mode of transmission studies conducted in countries between 2006 and 2012. The proportions of new infections estimated for each subpopulation, calculated by modes of transmission analyses, were multiplied by the number of total new gender-specific adult infections (among those aged 15–49 years) to derive an estimated number of new infections by subpopulation. This source provided data for sex workers from 18 countries, for people who inject drugs from 25 countries, and for gay men and other men who have sex with men from 22 countries.

New HIV infections for European countries with neither of the aforementioned data sources were derived from the European Centre for Disease Prevention and Control (ECDC) and World Health Organization Regional Office for Europe *HIV/AIDS surveillance in Europe 2017–2016 data (3)*. The proportions of new diagnoses for each region in Europe (West, central and East) were applied to UNAIDS estimates of new infections in each country for people who inject drugs and gay men and other men who have sex with men. Data for sex workers were not available from the ECDC report. New HIV infections in China, the Russian Federation and the United States were taken from the most recent available national reports of new diagnoses.

New HIV infections among countries without a direct data source were calculated from regional benchmarks. The benchmarks were set by the median proportion of new infections in the specific subpopulation in all available countries in the same region. The majority of these countries were located in sub-Saharan Africa. There were 73 countries that used benchmark values for the sex work estimate, 95 countries for the people who inject drugs estimate, 33 countries for the gay men and other men who have sex with men estimate, and 36 countries for the transgender people estimate.

The calculated proportions of infections for each key population include the sex partners of members of key populations. New infections among sex partners of key populations were estimated using the number of sex partners and transmission probabilities from the literature.

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