National Estimates of HIV Infections in Nepal

2012

Government of Nepal
Ministry of Health and Population
National Centre for AIDS and STD Control
Teku, Kathmandu

INTRODUCTION

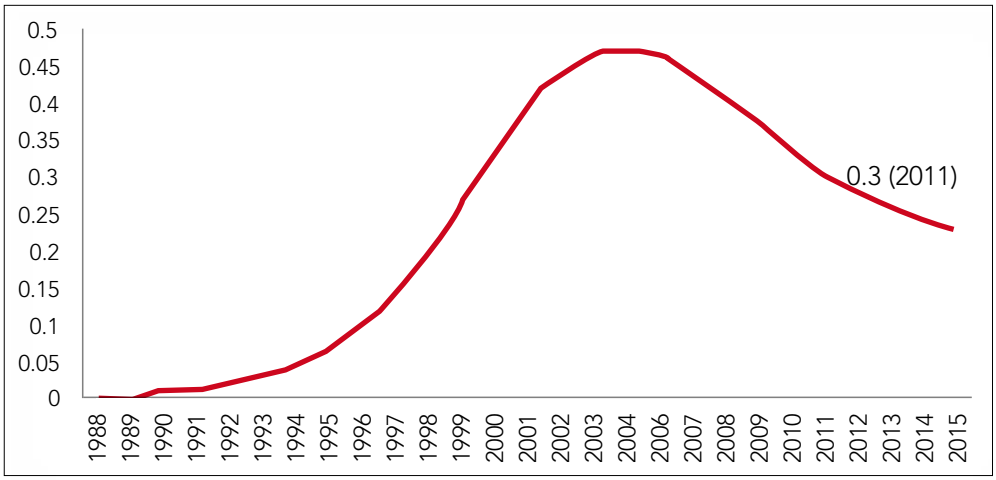
Nepal has been producing country HIV estimates since 2003. These are updated every two years. The current estimates are the fifth, using data until the end of 2011. With the improvement of estimation methods as well as increased availability of good quality data, the estimates are becoming more and more robust. The National Centre for AIDS and STD Control (NCASC) is leading this process with support from its technical partners, notably UNAIDS, WHO and FHI360. These estimates are useful for understanding the HIV epidemic in the country, as well as providing an update on key parameters for estimating HIV service and programme needs, and for setting national targets.

EPIDEMIC SITUATION

HIV related data are collected regularly through programme monitoring and surveys, particularly the Integrated Bio-behavioural Surveys (IBBS) that are carried out routinely. The IBBS provides the most updated information. Recent data from the IBBS (2009-11) in Nepal suggests that HIV is continuing to be confined within key affected population groups.

People who inject drugs (PWIDs), gay men and other men who have sex with men (MSM), sex workers (both male and female), male labour migrants (particularly to India, where they likely visit sex workers) are at the centre of the epidemic, with a higher risk of acquiring HIV. Overall, the epidemic is largely driven by sexual transmission that accounts for more than 85% of the total new HIV infections. According to the new estimates, there are around 50,000 people living with HIV in Nepal with an overall national HIV prevalence of 0.3% (Figure 1) among adults aged 15-49 years.

FIGURE 1: Estimated adult HIV prevalence (15-49 years), 1988-2015



DATA AND METHODS

The latest Spectrum software (version 4.50) with the built-in Estimation and Projection Package (EPP)[1] was used to generate the 2011 HIV estimates of Nepal. Spectrum/EPP is a tool for country-level estimations and short-term projections, based on fitting observed HIV prevalence data from surveillance. Nepal used the Workbook method for its first three rounds of HIV infection estimations, up to 2007 (NCASC 2010). Since 2009, Nepal has been using EPP/Spectrum concentrated template for its estimations. This is considered more robust than Workbook. The EPP/Spectrum model uses more data points, including the use of repeated rounds of surveys, from IBBS, programme data (ART and PMTCT) and improved methods of analysis.

Furthermore, EPP/Spectrum model was recommended by UNAIDS, for countries with concentrated epidemics that have adequate data on their key population groups, as required by the model.

Data on HIV prevalence among key population groups from various surveillance sites over the years (1999-2011) are used in the Spectrum/EPP model. Key population groups that are considered for estimation include PWIDs, Male Sex Workers (MSW) and TGs and their clients (MTCs), other men who have sex with men (MSM), Female Sex Workers (FSWs), Clients of FSWs, Male Labour Migrants. Besides HIV prevalence data, population size of all the above key population groups (HSCB/NCASC 2011) and number of people currently on ART (2004-11) and number of mothers currently receiving PMTCT services (2006-11) are included in the model. PMTCT programme data were used as a proxy for the remaining male and female population. Curve fitting was run independently by fitting the model to all data. Calibration was done for different population subgroups based on the other available data and experience of the HIV programme in the country. The epidemic curve was calibrated downwards as per the assumptions and programme experiences to make the projection more realistic. This curve, along with national population estimates and epidemiological assumptions is the input for calculating key parameters, including HIV incidence, number of people living with HIV (PLHIV), AIDS deaths, ART and PMTCT needs and AIDS orphans among others.

1 *Spectrum is a suite of easy to use policy models which provide policymakers with an analytical tool to support the decision making process. For more information please review UNAIDS/WHO Global Reference Group on HIV and STI Surveillance. Available at: http://www.unaids.org/en/dataanalysis/datatools/spectrumepp2011/*

RESULTS

The total number of people living with HIV for 2011 is estimated at 50,200 with an overall national HIV prevalence of 0.3 per cent. This is a decline from 2010 national prevalence of 0.38 per cent. Out of the total estimated infections, 3,805 are children in the 0-14 year's age group (7.6%). The remaining 46,484 are adults 15 years and above (92.4%) (Figure 2). It must be noted that 3,246 infections are amongst people over the age of 50 years (6.5%). By sex, more than two-thirds of the infections have occurred among males (66.5%). 33.5% of infections are in women, out of which around 84% are in the reproductive age group of 15-49. It is also noteworthy that there has been a decline of HIV prevalence among youth, aged 15 to 24 (Figure 3).

FIGURE 2: Estimated HIV infections by age groups, 2011

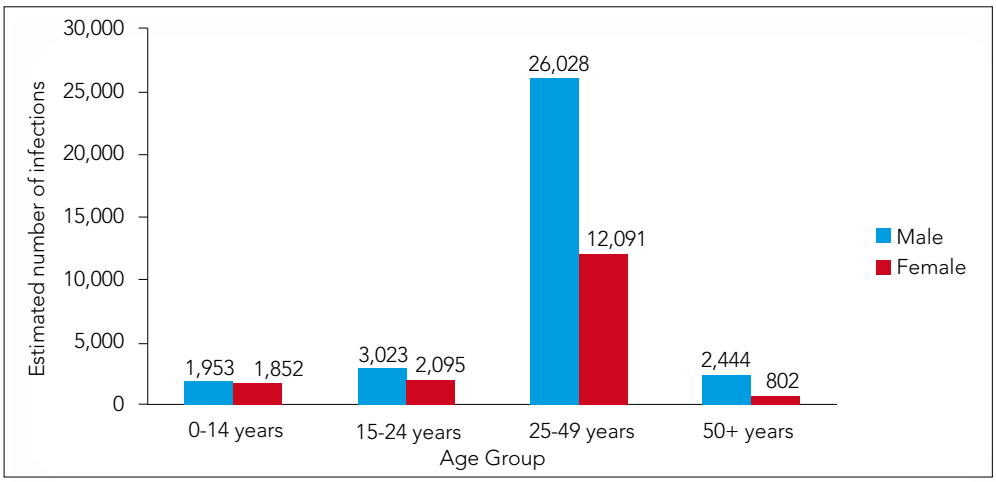
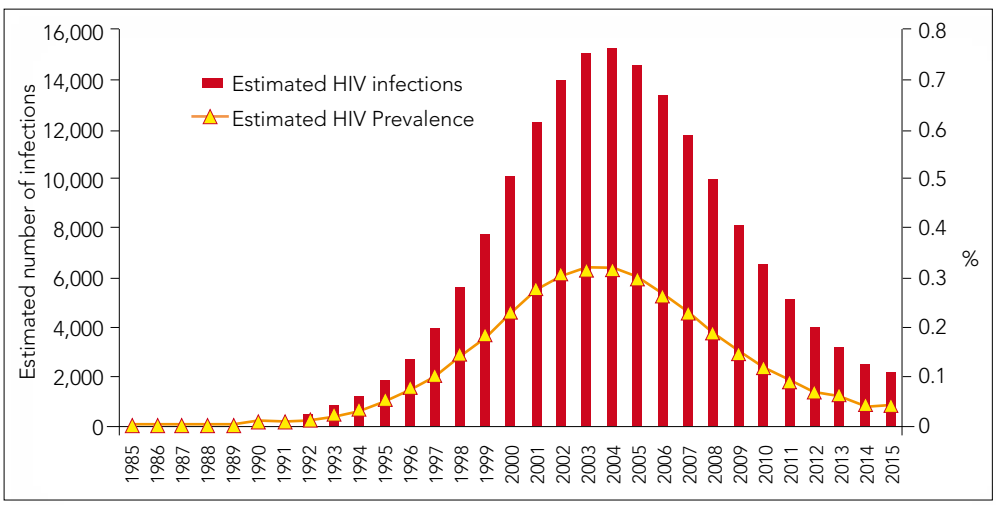


FIGURE 3: Estimated HIV Prevalence among young (15-24) population groups, 1985-2015



The estimates show that females account for approximately 27.3% of the total infections, followed by male labour migrants, remaining males, other MSMs, MTCs, clients of FSWs, PWIDs and FSWs with 27.0%, 14.0%, 7.2%, 4.4%, 2.2% and 1.5% respectively (Figure 4 and 5).

If this trend continues the number of people living with HIV in Nepal is projected to fall from the current (2011 estimate) of 50,200 to 42,750 in 2015 (Figure 5).

The model suggests that the new infections will decrease by more than half from 1,437 in 2011 to 534 in 2015 (Figure 6). This suggests

FIGURE 4: Estimated HIV infections among key population groups, 2011

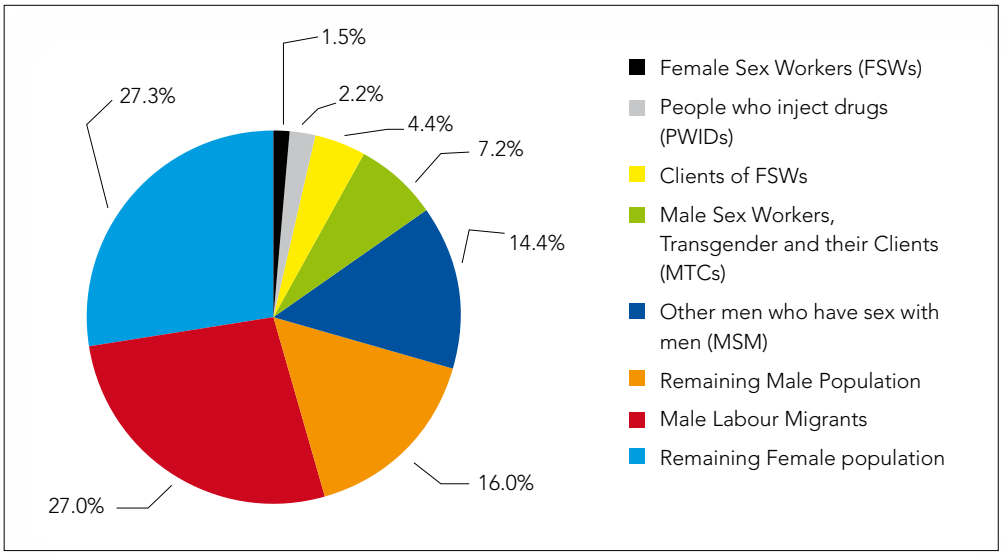
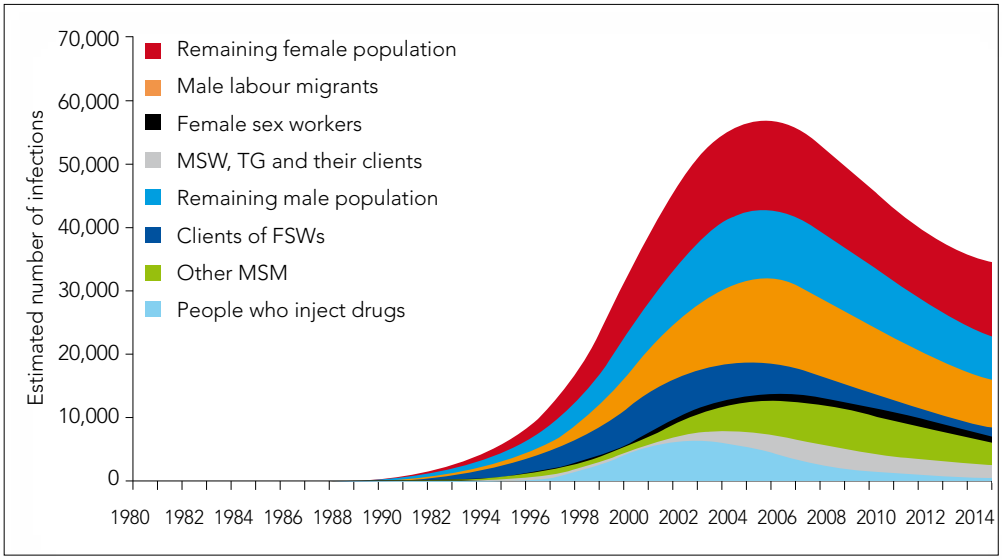


FIGURE 5: Distribution of estimated HIV infections among key population groups aged 15–49 years: 1980-2015



that Nepal will achieve the HLM target of 50% reduction in new HIV infection earlier (NCASC 2012).

The estimated number of annual AIDS deaths of all ages is projected to decrease from the current 2011 estimate of 4,722 to 1,576 in 2015. This decline is most likely due to the increase of the number of people on antiretroviral treatment (Figure 7).

The treatment needs were estimated (using CD4 count <350) at 27, 288 (adults: 25,169, children: 2,119) in 2011. These numbers are projected to rise to 28,791 (adults: 26,896, children: 1,896) in 2015 (Table 7).

Additionally, it was found that 933 pregnant women are in need of PMTCT services. This number is likely to decline by one third by 2015, to 599, if the current epidemic scenario continues (Table 7).

FIGURE 6: Estimated new HIV infection trends, 2000-2015

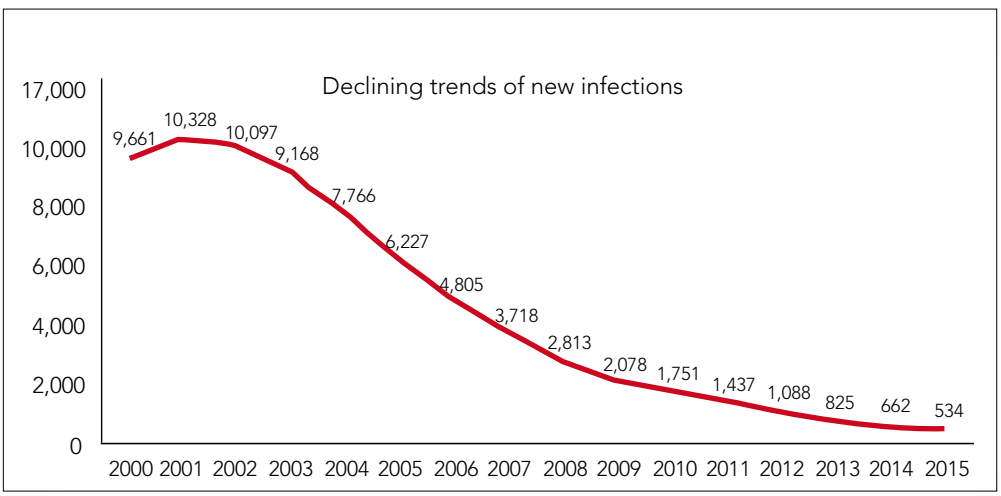
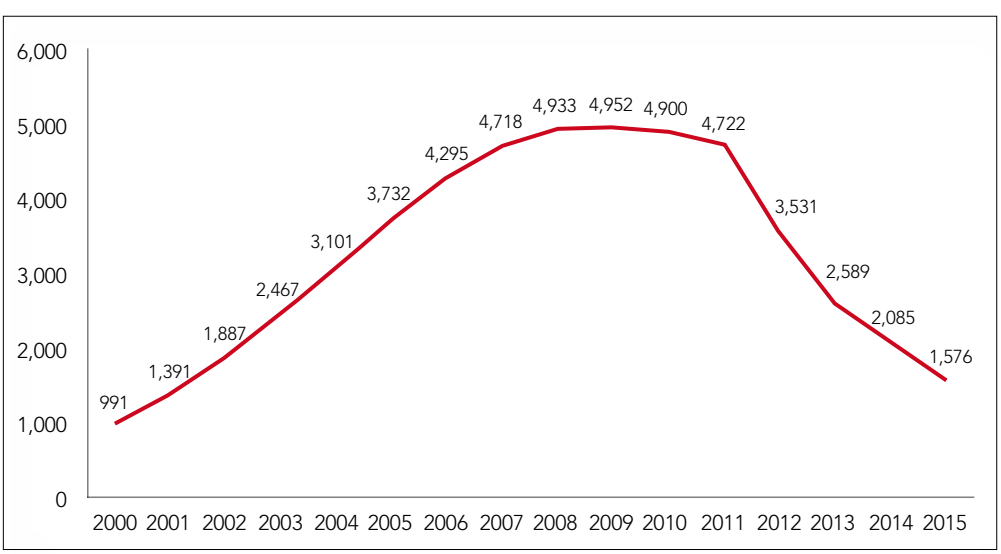


FIGURE 7: Estimated annual AIDS deaths, 2000-2015



METHODOLOGICAL LIMITATIONS

A large part of the epidemiological assumptions are based on global proxies due to lack of Nepal-specific data, which may not best fit in our national scenario. Findings are not comparable with previous estimations due to updates on the estimation tool -EPP/ SPECTRUM on every round of projections. Furthermore, mobility due to conflict after the census in 2001 might have impact the current projections, especially among migrants, because the 2001 population census data was used to project the population data. Another limitation is that most of the HIV prevalence data came from areas where prevention programmes exist. These figures are, therefore, not representative of the wider population of the country. Lack of sufficient data disaggregated at the sub-national level to fit the curves from EPP is also a limitation. Since HIV population-wide prevalence data are not available, PMTCT programme data have been used as proxies for males and females who are not part of key affected populations.

DISCUSSION

Regular production and updates of HIV estimates are central to Nepal's efforts to provide much needed strategic information to guide the HIV national response. Specific information on the projection of HIV over the years is not only essential but key for designing high quality HIV interventions including projection of future investments. However, the quality and accuracy of the estimates depends largely on the quality and accuracy of the data used in the projection model. Over the years, Nepal has generated a fair amount of new data, focusing on the drivers of the epidemic - particularly the key affected populations that must be central for current and future investments, to achieve the most significant successes towards "Getting to Zero" in Nepal.

Although the overall HIV prevalence is showing a declining trend, based on a proven reduction in the number of new HIV infections, attention will be given to the rising trend of HIV, particularly among street-based female sex workers, in addition to gay men and other men who have sex with men, for whom the HIV prevalence has not changed much.

It should be also noted that most of the data are used in the projection model are from capital city, Kathmandu. Strategic data collection, generation and analysis will increasingly be undertaken from the other regions of Nepal. This will require geographical expansion of future IBBS. In addition to migrants, more proxy data to explain the contribution of clients of sex workers to the HIV epidemic in Nepal is required, in order to improve the estimates.

Estimations, using the EPP/Spectrum Model generate strategic information in measuring the country's progress on ART coverage for adults and children and mothers needing PMTCT services. The new estimations suggest that there is a considerable gap in the coverage of ART and PMTCT, which requires rapid scaling up. Although the number of people who are in need of ART has gone up, due to the recent adjustment of WHO CD4[2] criteria, treatment coverage is far below the global and regional averages.

CONCLUSION

Nepal will continue its efforts, not only to regularly produce national HIV estimates; the country is also committed to improve the quality and accuracy of these estimations. Data collection will be expanded to cover wider geographical areas besides the capital city, and collaboration with civil society will be intensified to get the right information on the HIV epidemic, and to get this information right. Only with good quality and trusted strategic information can well-planned actions and investments be undertaken to get to "Zero New Infections, Zero Discrimination and Zero AIDS-Related Deaths": Major contributions to reaching and sustaining the Millennium Development Goals, as a shared responsibility.

REFERENCES

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4. NCASC, 2012. Nepal Country Progress Report 2012.

2 Antiretroviral therapy for HIV infection in Adults And Adolescents: Recommendations for a public health approach: 2010, WHO

ANNEX TABLES

TABLE 1: HIV Infections by age and sex, 2011

Age Group	Male	Female	Total
0-4	742	705	1,446
5-9	833	790	1,622
10-14	378	358	736
15-19	456	335	791
20-24	2,567	1,760	4,328
25-29	5,874	3,684	9,559
30-34	6,563	3,390	9,953
35-39	5,953	2,435	8,388
40-44	4,584	1,567	6,151
45-49	3,055	1,015	4,070
50-54	1,535	524	2,058
55-59	631	214	844
60-64	214	57	271
65-69	54	7	61
70-74	6	0	6
75-79	2	0	2
80+	2	0	2
Total	**33,447**	**16,841**	**50,288**

TABLE 2: Estimated HIV incidence among young population (15-24yrs), 2000-2015

Year	Male	Female	Total
2000	0.28	0.18	0.08
2001	0.33	0.22	0.08
2002	0.37	0.24	0.08
2003	0.39	0.26	0.07
2004	0.38	0.26	0.06
2005	0.36	0.25	0.04
2006	0.32	0.22	0.03
2007	0.27	0.19	0.02
2008	0.22	0.16	0.02
2009	0.18	0.13	0.01
2010	0.14	0.10	0.01
2011	**0.11**	**0.08**	**0.01**
2012	0.08	0.06	0.01
2013	0.06	0.05	0.00
2014	0.05	0.04	0.00
2015	0.04	0.03	0.00

TABLE 3: HIV population among adults and children, 2000-2015

Year	Total HIV Population			HIV population: Adults (15+)			HIV population: Children (0-14)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2000	24,181	10,225	34,406	23,721	9,790	33,512	460	435	895
2001	30,146	12,956	43,102	29,529	12,372	41,901	617	584	1,201
2002	35,530	15,506	51,036	34,734	14,753	49,487	796	754	1,550
2003	39,792	17,633	57,425	38,804	16,698	55,501	988	936	1,924
2004	42,594	19,165	61,759	41,411	18,045	59,455	1,183	1,121	2,304
2005	43,869	20,047	63,916	42,497	18,747	61,244	1,372	1,300	2,672
2006	43,777	20,321	64,098	42,250	18,874	61,124	1,527	1,447	2,975
2007	42,663	20,124	62,787	40,995	18,544	59,539	1,668	1,580	3,248
2008	40,807	19,567	60,374	39,022	17,876	56,898	1,785	1,691	3,476
2009	38,466	18,757	57,223	36,593	16,980	53,573	1,874	1,776	3,650
2010	35,979	17,835	53,814	34,046	16,001	50,047	1,934	1,834	3,767
2011	**33,447**	**16,841**	**50,288**	**31,495**	**14,989**	**46,484**	**1,952**	**1,852**	**3,804**
2012	31,543	16,078	47,621	29,630	14,263	43,893	1,913	1,815	3,728
2013	30,131	15,511	45,641	28,280	13,754	42,033	1,851	1,757	3,608
2014	28,964	15,040	44,004	27,200	13,365	40,565	1,764	1,675	3,439
2015	28,063	14,687	42,750	26,410	13,116	39,526	1,653	1,570	3,224

TABLE 4: Estimated HIV infection by key population groups, 2011

Key Affected Populations	Total Population (age 15+ years	Estimated HIV infections (15—49 years)	% of total infections
People who inject drugs (PWIDs)	31,103	939	2.2%
Male Sex Workers, Transgender and their Clients (MTCs)	73,894	3,099	7.2%
Other men who have sex with men (MSM)	172,525	6,245	14.4%
Female Sex Workers (FSWs)	26,574	647	1.5%
Clients of FSWs	727,854	1,915	4.4%
Male Labour Migrants	1,281,125	11,672	27.0%
Remaining Male Population	4,663,778	6,914	16.0%
Remaining Female Population	7,276,167	11,808	27.3%
Total	**14,253,020**	**43,239**	**100.0%**

TABLE 5: Estimated number of new HIV infections, 2000-2015

Year	Total HIV Population			HIV population: Adults (15+)			HIV population: Children (0-14)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2000	6,748	2,914	9,661	6,553	2,728	9,281	195	185	380
2001	7,175	3,152	10,328	6,934	2,922	9,856	242	230	472
2002	6,983	3,115	10,097	6,701	2,847	9,548	282	268	550
2003	6,304	2,864	9,168	5,990	2,566	8,555	314	299	612
2004	5,306	2,460	7,766	4,972	2,142	7,114	334	318	652
2005	4,223	2,004	6,227	3,880	1,678	5,558	343	326	669
2006	3,235	1,570	4,805	2,919	1,269	4,189	316	301	617
2007	2,481	1,237	3,718	2,174	945	3,119	307	292	599
2008	1,856	957	2,813	1,567	682	2,249	289	275	564
2009	1,353	725	2,078	1,088	473	1,562	265	252	516
2010	1,134	616	1,751	896	390	1,286	238	226	464
2011	**932**	**505**	**1,437**	**738**	**320**	**1,058**	**194**	**185**	**379**
2012	714	374	1,088	590	256	845	124	118	242
2013	541	283	825	447	193	640	95	90	185
2014	437	225	662	367	158	525	70	66	136
2015	356	178	534	309	133	441	48	45	93

TABLE 6: Estimated number of annual AIDS deaths, 2000-2015

Year	Total HIV Population			HIV population: Adults (15+)			HIV population: Children (0-14)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2000	706	284	991	652	233	884	55	52	106
2001	989	402	1,391	918	334	1,251	71	68	139
2002	1,340	547	1,887	1,251	463	1,713	89	85	174
2003	1,749	718	2,467	1,643	617	2,260	106	101	207
2004	2,194	906	3,101	2,072	790	2,863	122	116	238
2005	2,635	1,097	3,732	2,500	968	3,468	136	129	265
2006	3,025	1,269	4,295	2,883	1,134	4,017	142	135	278
2007	3,312	1,406	4,718	3,164	1,266	4,430	148	140	288
2008	3,448	1,485	4,933	3,296	1,341	4,637	152	144	296
2009	3,444	1,508	4,952	3,292	1,363	4,655	152	144	297
2010	3,390	1,510	4,900	3,240	1,367	4,607	150	143	293
2011	**3,251**	**1,472**	**4,722**	**3,108**	**1,337**	**4,445**	**142**	**135**	**277**
2012	2,421	1,110	3,531	2,300	994	3,293	122	116	238
2013	1,767	822	2,589	1,664	725	2,389	103	97	200
2014	1,420	665	2,085	1,334	583	1,917	86	82	168
2015	1,076	499	1,576	1,007	433	1,440	69	66	135

TABLE 7: Estimated ART needs (Adult and Children) and Mothers needing PMTCT

Year	Need of ART 15+			Need for ART Children (0-14)			Total ART Need			Mother Needing PMTCT
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
2000	1,305	444	1,749	188	179	367	1,493	623	2,116	857
2001	1,893	662	2,554	251	239	490	2,144	901	3,044	1,088
2002	2,681	961	3,641	322	306	628	3,003	1,267	4,269	1,280
2003	3,674	1,347	5,021	397	377	774	4,071	1,724	5,795	1,436
2004	4,835	1,811	6,645	471	447	918	5,306	2,258	7,563	1,534
2005	6,080	2,325	8,406	541	513	1,054	6,621	2,838	9,460	1,568
2006	7,311	2,855	10,166	594	564	1,158	7,905	3,419	11,324	1,450
2007	8,431	3,360	11,791	770	731	1,501	9,201	4,091	13,292	1,404
2008	9,384	3,818	13,203	808	767	1,575	10,192	4,585	14,778	1,324
2009	10,173	4,227	14,400	837	794	1,630	11,010	5,021	16,030	1,220
2010	10,812	4,587	15,399	985	935	1,921	11,797	5,522	17,320	1,100
2011	**17,330**	**7,839**	**25,169**	**1,087**	**1,032**	**2,119**	**18,417**	**8,871**	**27,288**	**933**
2012	17,011	7,823	24,834	1,048	995	2,042	18,059	8,818	26,876	840
2013	17,162	8,020	25,181	1,018	967	1,984	18,180	8,987	27,165	755
2014	17,635	8,365	26,000	998	948	1,945	18,633	9,313	27,945	674
2015	18,153	8,742	26,896	973	924	1,896	19,126	9,666	28,792	599

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