

HIV/AIDS in the United States: Disease Burden and Resource Allocation

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Key Findings

- The HIV/AIDS epidemic in the United States (US) is highly concentrated, both geographically and demographically.
- The majority of AIDS cases (historically and currently) come from just five states: New York, California, Florida, Texas and New Jersey are home to 35.3% of the US population, but account for 55% of AIDS cases diagnosed through 2007 and 52% of persons living with AIDS at the end of 2007.
- Communities of color bear the brunt of the HIV/AIDS epidemic nationally. Representing just 27% of the US population, Blacks and Hispanics account for 64% of all persons living with AIDS. Over 50% of minorities living with AIDS are from New York, California, Florida, Texas or New Jersey.
- Overall federal domestic spending on HIV/AIDS increased 9.4% from 2006 to 2008 (at about the rate of inflation),

Figure 1: Top 5 HIV/AIDS States



while US spending to combat the global HIV/AIDS epidemic nearly doubled (+81.9%) during this same timeframe.

- Nearly 3 billion dollars of federal funding was allocated in 2007 for domestic HIV/AIDS programs. Ryan White and Centers for Disease Control and Prevention (CDC) funding made up 90% of program-related funding, with tight concordance between the distribution of federal funding and the distribution of HIV and AIDS cases nationally.

Introduction

HIV/AIDS is recognized as one of the most, if not the most, significant global public health challenges of our time. The HIV/AIDS epidemic is now well established in the US. As the epidemic continues to age, it is becoming increasingly important to assess the extent to which federal resources to combat HIV and AIDS are equitably allocated to states based on current disease burden. Epidemiologic data serve as a primary tool for conducting such an assessment. This research brief examines the distribution of

HIV and AIDS cases in relation to federal resource allocation. The following questions are addressed:

- What is the geographic and demographic distribution of the current HIV/AIDS epidemic in the US?
- Has this distribution shifted over time?
- What is the relationship between current disease burden and current funding for the HIV/AIDS epidemic in the US?

US HIV/AIDS Epidemic Highly Concentrated: Five States Bear Largest Burden

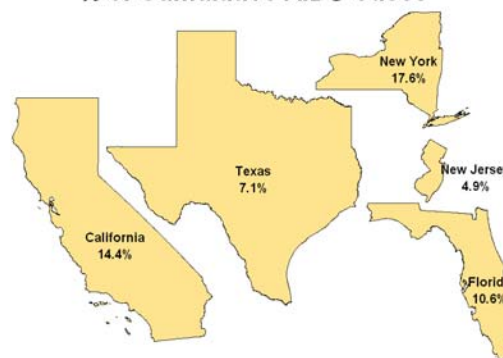
The AIDS epidemic is highly concentrated in the United States. Of the over one million AIDS cases reported nationally through 2007, more than 50% have come from five states: New York, California, Florida, Texas and New Jersey. Despite comprising just 35% of the US population, these five states have accounted for 55% of all AIDS cases reported through 2007 (Table 1). Over half a million deaths among persons with HIV/AIDS have occurred in the United States through 2007. Nearly 6 in 10 of these deaths (57.1%) have occurred among those diagnosed in one of the top 5 states (mortality data not displayed).¹

The current burden of the AIDS epidemic is also displayed in Table 1, which indicates that the estimated number of Persons Living with AIDS (PLWA) at the end of 2007 had reached nearly half a million. As with cumulative

AIDS cases, Table 1 also highlights the current overrepresentation of the AIDS epidemic among the top 5 states. These five states are home to over one-half (51.5%) of all persons living with AIDS. New York (24.9) and Florida (21.7) have annual AIDS case rate per 100,000 nearly twice the national average of 12.5² (AIDS case rate data not displayed).

The advent of highly active antiretroviral therapy (HAART) in the mid 1990's significantly slowed progression to AIDS in many persons with HIV. Today's AIDS surveillance data reflect disease transmission patterns in the past. HIV data are better indicators of current transmission patterns; however, HIV reporting is still not established enough in the US to draw reliable conclusions regarding its geographic distribution. In fact, at the end of 2007 there were still 3 states

Figure 2: Top 5 HIV/AIDS States % of Cumulative AIDS Cases



Five states have accounted for 55% of all AIDS cases reported through 2007

excluded from CDC's published annual name-based HIV reporting data³ and 15 states excluded from state-by-state estimates of persons living with HIV (not AIDS).⁴ Considering these caveats, available HIV data are presented in Table 2 and in Figure 3. Table 2 reveals that almost 5 in 10 persons estimated to be living with HIV were from just 4 states: New York, Florida, Texas, and New Jersey. These four states account for 130,293 of the 263,936 persons living with HIV (not AIDS) at the end of 2006 (49.4%). California is one of the 17 states that have

Table 1: Cumulative AIDS Cases and Persons Living with AIDS

	Population		Cumulative AIDS Cases Through 2007			Persons Living with AIDS in 2007		
	# of Persons	% of US Total	# of Cases	% of US Total	US Rank	# of Cases	% of US Total	US Rank
Top 5 States								
New York	19,046,040	6.4	181,461	17.6%	1	75,253	16.1%	1
California	36,163,340	12.1	148,949	14.4%	2	65,582	14.0%	2
Florida	18,029,900	6.0	109,524	10.6%	3	48,059	10.3%	3
Texas	23,406,070	7.8	72,828	7.1%	4	34,940	7.5%	4
New Jersey	8,595,440	2.9	50,964	4.9%	5	17,671	3.8%	7 ²
Top 5 States	105,240,790	35.3	563,726	54.7%	----	241,505	51.5%	----
Rest of the US¹	192,974,570	64.7	467,106	45.3%	----	227,073	48.5%	----
Total US¹	298,215,360	100.0	1,030,832	100.0%	----	468,578	100.0%	----

¹ Includes the District of Columbia. ² Pennsylvania ranked 5th and Georgia ranked 6th. Source for Cumulative AIDS Cases: Kaiser State Health Facts. Reported number of AIDS cases, all ages, cumulative through 2007. Available at: <http://www.statehealthfacts.org/comparemaptable.jsp?ind=502&cat=11>. Accessed 2/25/09. Source for Persons Living with AIDS: Kaiser State Health Facts. Estimated number of persons living with AIDS, all ages, 2007. Available at: <http://www.statehealthfacts.org/comparemaptable.jsp?ind=516&cat=11>. Accessed 2/25/09.

US HIV/AIDS Epidemic Highly Concentrated Continued....

not been conducting name-based HIV surveillance long enough to generate estimates on the number of persons living with HIV. Although clearly incomplete, the data that are available on persons living with HIV appear to be consistent with AIDS data in terms of their geographic concentration among a select few states.

Figure 3 presents data on new HIV infections reported in 2007. There were 63,230 new HIV cases reported in 2007. Fifty-two percent of these cases (n=33,016) were reported from one of the top 5 States, while the remaining 48% of cases (n= 30,214) were reported elsewhere in the US. It is important to note that states with the newest HIV reporting systems may be detecting existing cases as well as new HIV cases. For example, Illinois and Washington initiated HIV reporting in 2006, and accounted for 19.5% of total

Table 2: Estimated Persons Living with HIV (not AIDS) at end of 2007

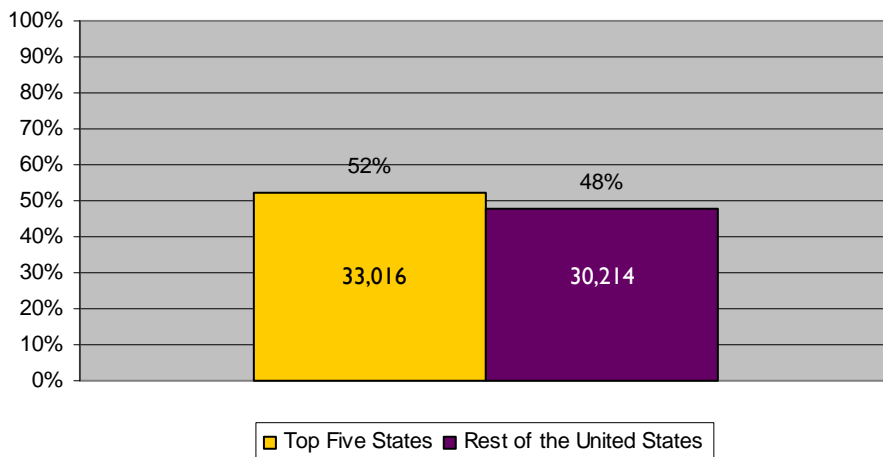
Top 5 States	# of Cases ¹	% of US total	US Rank
New York	46,390	17.6%	1
California	NA	NA	NA
Florida	39,686	15.0%	2
Texas	26,605	10.1%	3
New Jersey	17,612	6.7%	4
Top 4 States	130,293	49.4%	----
Rest of the United States	133,643	50.6%	----
United States	263,936	100.0%	----

¹Includes data from 33 states. US dependents and the District of Columbia with Confidential Name-Based HIV infection reporting in place long enough to generate estimates of persons living with HIV. Source: Centers for Disease Control and Prevention. Available online at: <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/2007report/pdf/table14.pdf>. Accessed 2/25/09.

HIV cases reported in 2006. By 2007, these 2 states accounted for just 6.7% of total cases. Similarly, California initiated HIV reporting in 2007 and accounted for 27.8% of all cases nationwide. This is the primary reason why it is too early to draw definitive conclusions from HIV reporting data, even among those states with data available. It will take a few more years before HIV reporting data are established nationwide to the point where meaningful interpretation concerning the geographic distribution of HIV can be made.

HIV reporting is still not established enough in the US to draw reliable conclusions regarding its geographic distribution.

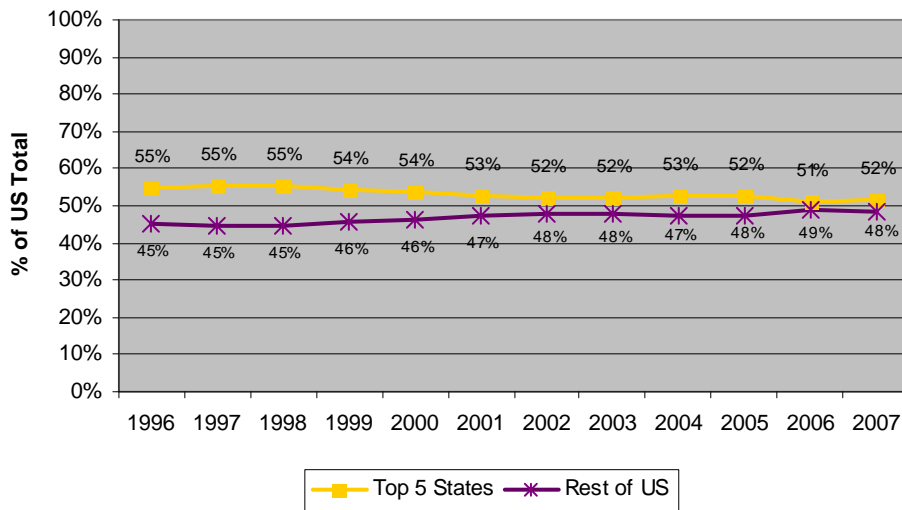
Figure 3: Distribution of New HIV Infection Cases in 2007



Note: Includes data from 47 states and District of Columbia with Confidential Name-Based HIV Infection reporting as of December 2007.

Source: Kaiser State Health Facts. Available online at: <http://www.statehealthfacts.org/comparemaptable.jsp?ind=524&cat=11>. Accessed 2/25/2009.

Figure 4: Distribution of Persons Living with AIDS: 1996-2007



Source for years 1995 through 2006: CDC HIV/AIDS Annual Surveillance Reports 1996 through 2006. Available at: <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/past.htm#surveillance>. Accessed 2/25/09. Source for the year 2007: Kaiser State Health Facts. Estimated Number of Persons Living with AIDS, 2007. Available at: <http://www.statehealthfacts.org/comparemappable.jsp?typ=2&ind=516&cat=11&sub=121>. Accessed 7/20/09.

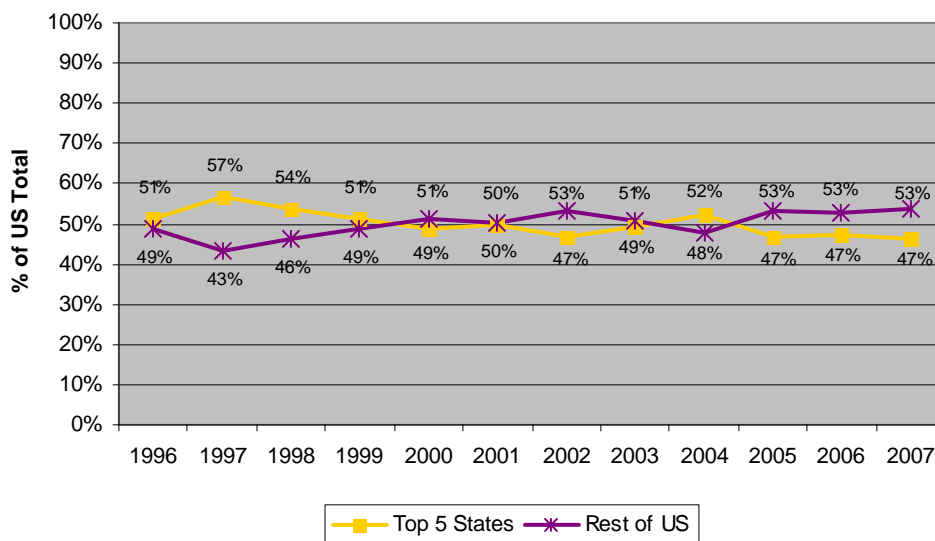
Stability in the Distribution of the AIDS Epidemic

Epidemiologic data fail to indicate that a shifting of the HIV/AIDS epidemic is occurring in the US. In fact, the distribution of living AIDS cases over time clearly demonstrates the geographic stability in the burden inflicted by the AIDS epidemic. Figure 4 above demonstrates that New York, California, Florida, Texas and New Jersey have accounted for anywhere between 51% and 55% of living AIDS cases per year between 1996 and 2007. Although Figure 5 below does reveal a slight decrease in the percentage of new AIDS cases

occurring among the top 5 states in the past three years (from 52% of total cases in 2004 to 47% of cases in 2007), a closer examination of the data suggests that this may simply be part of random fluctuation. In fact, the percentage of new AIDS cases accounted for by the top five states has fluctuated by about 10 percentage points between 1996 and 2007. Based on these data it is clearly premature to conclude that the HIV/AIDS epidemic is shifting away from its geographic epicenter.

There has been tremendous stability in the geographic distribution of the HIV/AIDS epidemic in the US

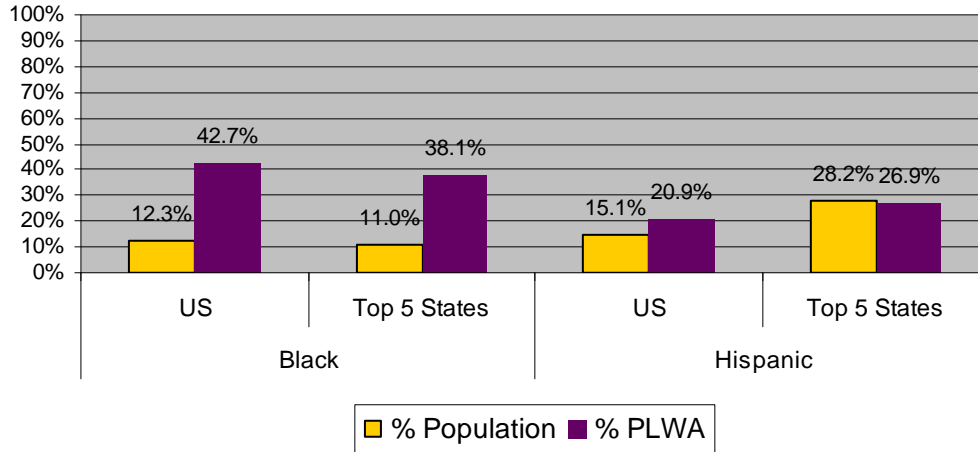
Figure 5: Distribution of New AIDS Cases: 1996-2007



Source for years 1995 through 2006: CDC HIV/AIDS Annual Surveillance Reports 1996 through 2006. Available at: <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/past.htm#surveillance>. Accessed 2/25/09.

Source for the year 2007: Kaiser State Health Facts. New AIDS cases. Available at: <http://www.statehealthfacts.org/comparemappable.jsp?ind=508&cat=11>. Accessed 2/25/09

Figure 6: Distribution of Black and Hispanic Persons Living with AIDS Relative to Population



Source for population data: US Census Bureau, Population Division. Table 5: Estimates of the population by race alone or in combination and Hispanic origin for the United States and States: July 1, 2007. Available at: <http://www.census.gov/popest/states/asrh/tables/SC-EST2007-05.xls>. Accessed 02/25/09.

Source for PLWA data: Kaiser State Health Facts. Distribution of persons estimated to be living with AIDS, by race/ethnicity, 2007. Available at: <http://www.statehealthfacts.kff.org/comparetable.jsp?ind=520&cat=11&sub=121&r=62&typ=1&o=a>. Accessed 2/25/09.



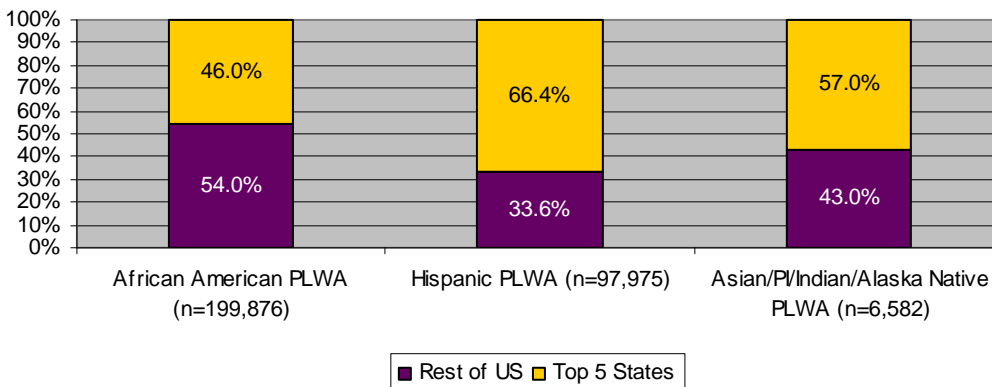
Males and Communities of Color Impacted Most

The HIV/AIDS epidemic disproportionately impacts males, who account for 80% of cumulative AIDS cases nationally and 76.5% of persons estimated to be living with AIDS as of 2007.⁵ Although Blacks and Hispanics represent just 27.4% of the US population, nationally more than 6 in 10 PLWA are Black (42.7%) or Hispanic (20.9%) (Figure 6). Minorities are similarly overrepresented in the AIDS epidemic in the top 5 states, representing 39.2% of the population in these

states but accounting for 65.0% of all persons living with AIDS (Figure 6). Over 50% of minorities living with AIDS reside in one of the top 5 states. More specifically, 91,946 of the nation's 199,876 Black PLWA (46%) reside in New York, California, Florida, Texas or New Jersey, while 2 in 3 Hispanic PLWA (65,058 out of 97,975) reside in these five states. Over half (57%) of the nation's 6,582 Asian/PI/Indian/Alaska Native PLWA reside in one of the top 5 states (Figure 7).

More than one in every two persons of color living with AIDS is from a top 5 state

Figure 7: Geographic Distribution of Communities of Color PLWA in 2007



Source: Kaiser State Health Facts. Distribution of persons estimated to be living with AIDS, by race/ethnicity, 2007. Available at: <http://www.statehealthfacts.kff.org/comparetable.jsp?ind=520&cat=11&sub=121&yr=62&typ=1>. Accessed 2/25/09.

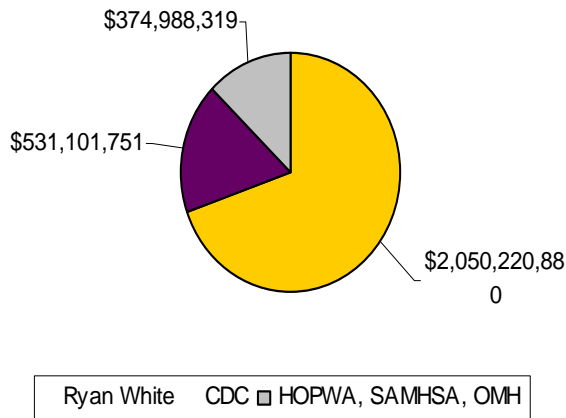
Funding the Fight Against HIV and AIDS

Distribution of Funding Mirrors Distribution of Cases Across US

Unlike US spending on the global HIV/AIDS epidemic, which nearly doubled between 2006 and 2008 (+81.9%), federal funding for the epidemic nationally has remained relatively stable in recent years. In fact, by 2008, 1 out of every 4 dollars allocated to combat HIV and AIDS went to fund global rather than domestic initiatives, up from 1 out of every 6 dollars in 2006.⁶ Figure 8 displays the distribution of federal funding for US HIV/AIDS programs in 2007. The federal government allocated over 2.9 billion dollars to fight the HIV/AIDS epidemic in 2007. Ryan White funding for the care and treatment of persons living with HIV and AIDS accounted for the majority of federal support – over 2 billion dollars in 2007 (Figure 8).

Figure 9 clearly demonstrates the equitable distribution of Ryan White funding. In fact, there is tight concordance between the distribution of funding and the distribution of PLWA. This is true for the top 5 states: 49.9% of all Ryan White funding in 2007 went to these five states, which were charged with providing services to 51.5% of all PLWA in the United States. It is also important to note that New York, Florida, Texas, and New Jersey received 37.7% of Ryan White funding in 2007 (California’s share was 12.2%), yet these 4 states accounted for an estimated 49% of persons living with HIV (not AIDS) in 2007 (see Table 2).

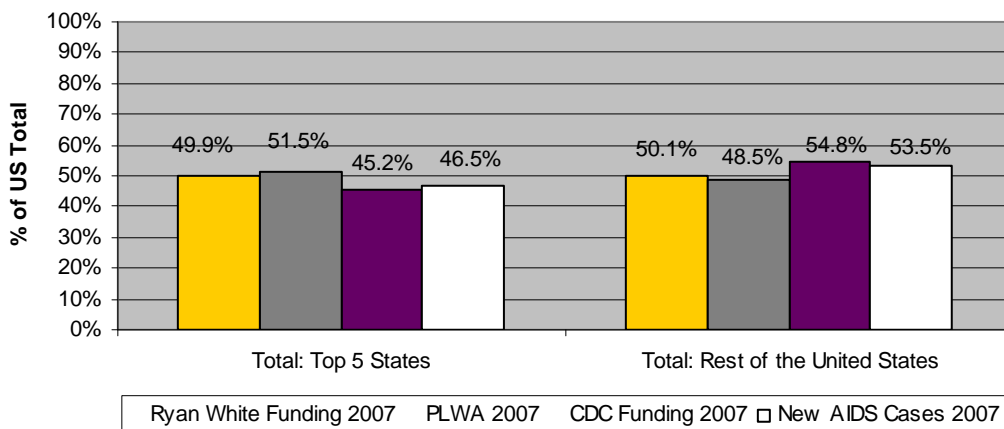
Figure 8: Federal HIV/AIDS Funding 2007



Source for Federal Funding data: Kaiser State Health Facts. Total HIV/AIDS Federal Funding, FY 2007. Available at: <http://www.statehealthfacts.org/comparetable.jsp?ind=528&cat=11&sub=125&yr=30&typ=4&sort=845&o=d>. Last Accessed 2/25/09.

Centers for Disease Control and Prevention (CDC) funding for the prevention of new cases of HIV represents the next largest source of federal support to combat HIV and AIDS in the US, over 500,000 million dollars in 2007 (Figure 8). As with Ryan White funding, CDC funding mirrors the epidemic, with tight concordance between CDC prevention dollars and new cases of AIDS. More specifically, New York, California, Florida, Texas and New Jersey received 45.2% of CDC funding in 2007 and experienced 46.5% of new AIDS cases in 2006 (Figure 9). Since CDC prevention dollars can also target PLWA (i.e., prevention with positives) it is appropriate to consider the distribution of PLWA when assessing the distribution of CDC dollars. As noted, the top 5 states accounted for 51.5% of PLWA in 2007.

Figure 9: Federal Funding in 2007 in Relation to AIDS in 2007



Source for funding: Kaiser State Health Facts: Total HIV/AIDS Federal Funding, FY2007. Available at: <http://www.statehealthfacts.org/comparetable.jsp?ind=528&cat=11&sub=125&yr=30&typ=4&sort=845&o=d>. Accessed 2/25/09.



WHERE'S THE BRIEF?

This statistical brief is available for download on the NYSDOH public web site:
www.health.state.ny.us

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Limitations

This position paper is limited in its scope. It is designed to respond to specific issues concerning the geographic and demographic distribution of HIV and AIDS nationally, and how that distribution relates to federal funding for the epidemic. This paper is not meant to provide a comprehensive examination of the US HIV/AIDS epidemic, and it does not include many salient issues, such as trends in HIV/AIDS deaths, changes in transmission modalities over time, etc. For more information, please visit the CDC website <http://www.cdc.gov/hiv/>, for links to surveillance reports, research studies, and other publications specific to HIV/AIDS in the US.

Conclusion

The US HIV/AIDS Epidemic is highly concentrated, both geographically and demographically. Five states (New York, California, Florida, Texas, and New Jersey) account for the majority of existing AIDS cases. This has been the case historically, and the most current data provide no evidence that this is changing. Current federal funding for HIV and AIDS tightly mirrors the epidemic, with near-perfect concordance between funding and disease burden. As the number of persons living with HIV and AIDS continues to increase, HIV prevention (primary and secondary) becomes especially critical. Nowhere is this more important than in the top 5 states, which are home to the largest PLWA population in the nation.

Future Research

The CDC has recently published a new methodology for estimating HIV incidence (the number of new HIV infections per year).⁷ That methodology led to the publication of new HIV incidence figures for the US.⁸ Results indicated that, nationally, there were an estimated 56,300 new HIV infections occurring in 2006. Because the national estimate is based on data from just 22 states, state-specific data on new HIV infections are available only for those states. As HIV reporting becomes more established and incidence data become available for all states, it will be useful to consider new cases of HIV infection within the context of persons living with HIV and AIDS. These individuals represent the available pool of individuals capable of transmitting the disease in any given state. Examining the number of estimated incident infections as a rate of persons living with HIV and AIDS in a state can provide insight into the extent to which HIV prevention efforts are working in the US. Look for this topic in an upcoming research brief from the New York State Department of Health AIDS Institute.

References

1. Kaiser Family Foundation. Kaiser State Health Facts: Reported deaths among persons with AIDS, cumulative through 2007. Available at: <http://www.statehealthfacts.org/comparemaptable.jsp?ind=525&cat=11>. Accessed 7/21/09.
2. Kaiser Family Foundation. Kaiser State Health Facts: AIDS case rate per 100,000 population, all ages, 2007. Available at: <http://www.statehealthfacts.org/comparemaptable.jsp?ind=513&cat=11>. Accessed 7/21/09.
3. Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report: Table 18, Cases of HIV infection and AIDS in the United States and dependent areas. Available at: <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/2007report/table18.htm>. Accessed 3/10/09.
4. Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report: Table 14. Estimated numbers persons living with HIV infection (not AIDS) at the end of 2007, by area of residence—the end of 2007, by area of residence—United States and dependent areas. Available at: <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/2007report/table9.htm>. Accessed 7/21/2009.
5. Kaiser Family Foundation. Kaiser State Health Facts: Distribution of persons estimated to be living with AIDS, by sex, 2007. Available at: <http://www.statehealthfacts.kff.org/comparetable.jsp?ind=519&cat=11&sub=121&yr=62&typ=1>. Accessed 7/21/09.
6. Kaiser Family Foundation. HIV/AIDS Policy Fact Sheet, April 2008. Available at: <http://www.kff.org/hiv/aids/upload/7029-041.pdf>. Accessed 7/21/09.
7. Karon JM, Song R., Brookmeyer R, Kaplan EH, Hall IH. Estimating HIV incidence in the United States from HIV/AIDS surveillance data and biomarker HIV test results. *Statistics in Medicine*. 2008;27(23): 4617-4633.
8. Hall HI, Song R, Rhodes P, Prejean J, An Q, Lee LM, et al. Estimation of HIV Incidence in the United States. *Journal of the American Medical Association*. 2008; 300(5): 520-529.