



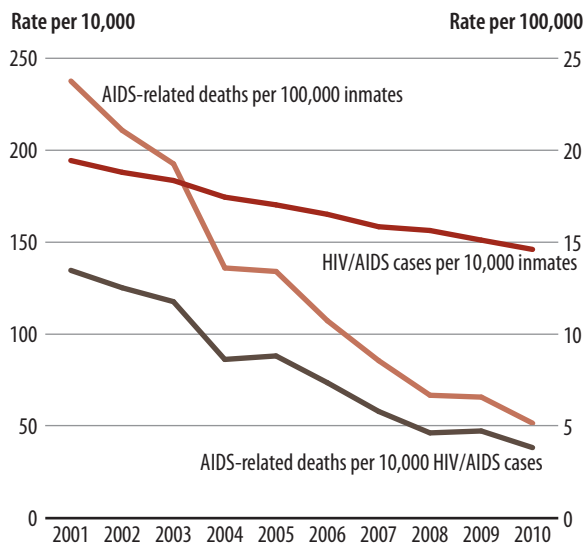
HIV in Prisons, 2001-2010

Laura M. Maruschak, *BJS Statistician*

At yearend 2010, state and federal prisons held a reported 20,093 inmates who had HIV or AIDS, down from 20,880 at yearend 2009. As a result of this decline, the estimated rate of HIV/AIDS among prisoners in custody dropped from 151 HIV/AIDS cases per 10,000 inmates in 2009 to 146 per 10,000 in 2010. The number of state and federal inmates who died from AIDS-related causes also declined between 2009 and 2010, from 94 to 72 deaths. During the same period, the rate of AIDS-related deaths among inmates with HIV/AIDS declined from 47 deaths per 10,000 inmates to 38 per 10,000.

The 1-year declines between 2009 and 2010 were consistent with trends over the past decade. Between 2001 and 2010, the estimated rate of HIV/AIDS among state and federal prison inmates declined an average of 3% each year (figure 1). During the same period, the AIDS-related death rate declined an average of 13% per year among inmates with HIV/AIDS and 16% among all prison inmates. (See *Methodology* for estimation method for missing data on HIV/AIDS cases.)

FIGURE 1
Rate of HIV/AIDS cases and AIDS-related deaths among state and federal prison inmates, 2001-2010



Source: Bureau of Justice Statistics, National Prisoner Statistics Program (NPS-1) and Deaths in Custody Reporting Program (DCRP).

HIGHLIGHTS

- The rate of HIV/AIDS among state and federal prison inmates declined from 194 cases per 10,000 inmates in 2001 to 146 per 10,000 at yearend 2010.
- AIDS-related deaths among all state and federal prison inmates declined an average 16% per year between 2001 and 2010, from 24 deaths per 100,000 inmates in 2001 to 5 per 100,000 in 2010.
- Among state and federal inmates with HIV/AIDS, the rate of AIDS-related deaths dropped significantly, from 134 deaths per 10,000 inmates with HIV/AIDS in 2001 to 38 per 10,000 in 2010.
- When grouped by 2010 yearend custody populations, the declining rate of HIV/AIDS in small, medium, and large state prisons had the same 3% average annual decline in the national rate between 2001 and 2010.
- Between 2001 and 2010, the average annual decline of 16% in the national AIDS mortality rate was similar to the decline in small (down 12%), medium (down 17%), and large (down 19%) state prison populations.
- Rates of HIV/AIDS cases and AIDS-related deaths declined across all sizes of prison populations.
- In 2009, the AIDS mortality rate among state prison inmates (6 per 100,000) fell below the rate for the U.S. general population (7 per 100,000).
- AIDS-related deaths in state prisons declined from 89 in 2009 to 69 in 2010 among males, from 70 to 43 among black non-Hispanics, and from 87 to 60 among all state inmates age 35 or older.

Findings in this report are based on data collected from 50 states and Federal Bureau of Prisons through the Bureau of Justice Statistics' (BJS) National Prisoner Statistics (NPS-1) (which annually collects data on prisoner counts, characteristics, admissions, and releases) and Deaths in Custody Reporting Program (DCRP) (which collects individual-level data on cause of inmate death and characteristics of those who died).

This bulletin provides data on national trends in the estimated rates of HIV/AIDS cases and AIDS-related deaths among state and federal prison inmates for 2001 through 2010. It includes age-specific comparisons between state prison inmates and the U.S. general population from 2001 through 2009. It also provides jurisdiction-level data for 2009 and 2010 on the number of state and federal inmates who were infected with HIV/AIDS, HIV/AIDS cases by sex, confirmed AIDS cases, and AIDS-related deaths that occurred in state prison by demographics of inmates who died.

Rates of HIV/AIDS and AIDS-related deaths in prisons have declined steadily since 2001

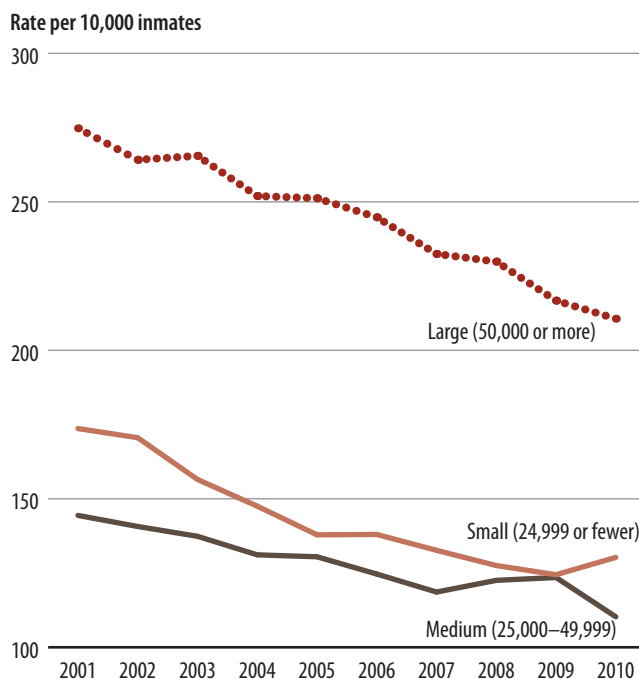
Between 2001 and 2010, the estimated number of inmates with HIV/AIDS declined by 16%, and the number of AIDS-related deaths in prison declined by 77% (not shown in table) resulting in declines in the rates of HIV/AIDS and AIDS-related deaths among all inmates and those with HIV/AIDS. At yearend 2001, the estimated rate of HIV/AIDS among state and federal prison inmates was 194 HIV/AIDS cases per 10,000 inmates. By yearend 2010, the estimated rate was 146 cases per 10,000. Among the total inmate population, the rate of AIDS-related deaths declined from 24 per 100,000 inmates in 2001 to 5 per 100,000 in 2010. Among the inmate population with HIV/AIDS, the rate declined from 134 AIDS-related deaths per 10,000 inmates in 2001 to 38 per 10,000 in 2010. (See *Methodology* for discussion of calculation of rates.)

Rates of HIV/AIDS cases and AIDS-related deaths declined across all sizes of prison populations

Regardless of the size of the state prison population, as measured by the number of inmates in custody at yearend 2010, trends in the rates of HIV/AIDS cases and AIDS-related deaths in state prisons followed the overall decline of the national rate. States were grouped into three categories based on the size of their 2010 yearend custody populations. The smallest group included states with 24,999 or fewer inmates, the medium group included states with 25,000 to 49,999 inmates, and the largest group included states with 50,000 or more inmates. (See *Methodology*

for a list of states included in each group.) From 2001 to 2010, the rate of HIV/AIDS declined from 275 to 211 HIV/AIDS cases per 10,000 inmates in the largest group, from 144 to 110 cases per 10,000 inmates in the medium group, and from 174 to 130 cases per 10,000 inmates in the smallest group (figure 2). Over the 9-year period, all groups, regardless of population size, saw an average annual decline of about 3% in the rate of HIV/AIDS cases.

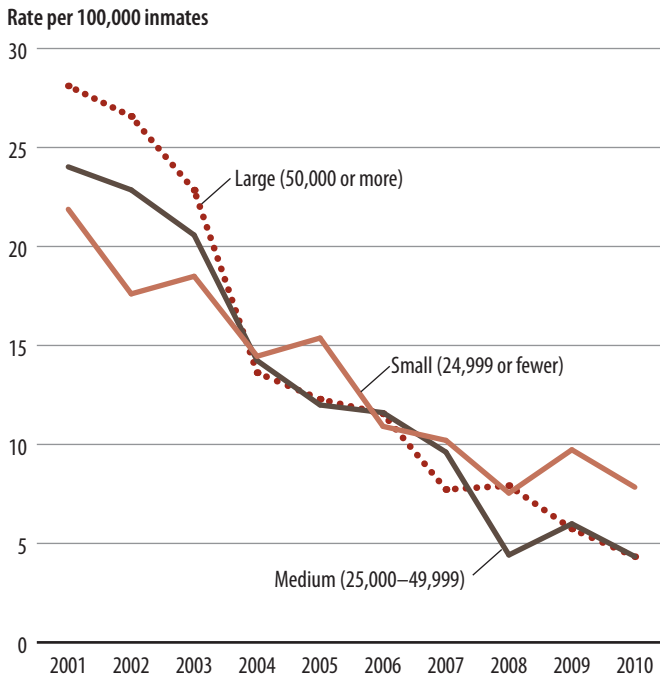
FIGURE 2
Rate of HIV/AIDS cases per 10,000 inmates, by size of state prison custody population, 2001–2010



Note: Classification based on 2010 yearend custody population.
Source: Bureau of Justice Statistics, National Prisoner Statistics Program (NPS-1).

Between 2001 to 2010, the rate of AIDS-related deaths declined from 28 to 4 per 100,000 inmates in the large group of states, from 24 to 4 per 100,000 inmates in the medium group, and from 22 to 8 per 100,000 inmates in the small group. The smallest average annual decline in the rate of AIDS-related deaths was observed in small states (down 12%), followed by medium (down 17%) and large states (down 19%) (figure 3).

FIGURE 3
Rate of AIDS-related deaths per 100,000 inmates, grouped by size of state prison custody population, 2001–2010

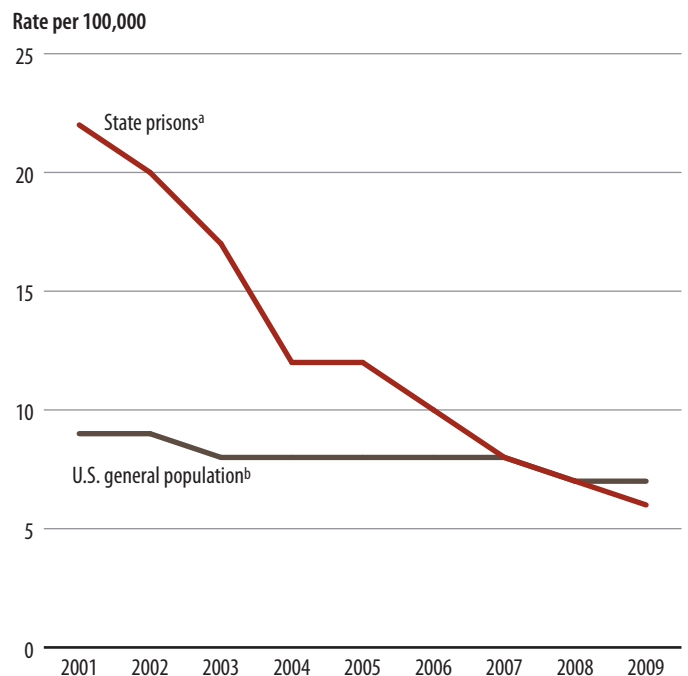


Note: Classification based on 2010 yearend custody population.
Source: Bureau of Justice Statistics, National Prisoner Statistics Program (NPS-1) and Deaths in Custody Reporting Program (DCRP).

The rate of AIDS-related deaths for state prison inmates dropped below the rate for the U.S. general population

To make AIDS-related death rate comparisons to the general population, individual-level data from DCRP were used to calculate age-specific rates of AIDS-related deaths among those in state prison and AIDS-related deaths as a percentage of all deaths in state prison. (See *Methodology* for calculation of age-specific death rates and for sources of national mortality data.) The rate of AIDS-related deaths in state prisons among inmates ages 15 to 54 declined sharply between 2001 and 2009, compared to the more modest decline observed among the same age group in the U.S. general population. As a result, the AIDS-related death rate in state prisons fell below the rate in the U.S. general population in 2009. Between 2001 and 2009, the AIDS-related death rate among state prisoners ages 15 to 54 declined from 22 deaths per 100,000 inmates to 6 per 100,000, while the rate among that age group in the general population declined from 9 per 100,000 to 7 per 100,000 (figure 4).

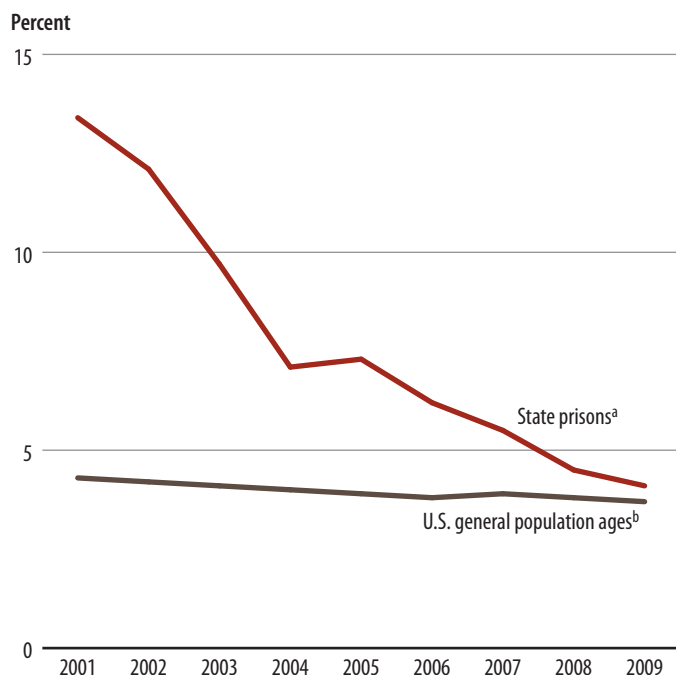
FIGURE 4
Rate of AIDS-related deaths in state prisons and in the U.S. general population among persons ages 15 to 54, 2001–2009



^aThe number of AIDS-related deaths used to calculate the rate was based on individual reports submitted to the Deaths in Custody Reporting Program (DCRP).
^bExcludes deaths reported in state prisons. See *Methodology* for data sources.
Source: Bureau of Justice Statistics, Deaths in Custody Reporting Program and National Prisoner Statistics-1 data collections; Center for Disease Control and Prevention, HIV/AIDS Surveillance Report and Monthly Vital Statistics Reports.

As a percentage of all inmate deaths, AIDS-related deaths among state prisoners ages 15 to 54 declined from 13.4% to 3.6% between 2001 and 2009. The AIDS death rate, as a percentage of all deaths among the general population ages 15 to 54, remained relatively stable at about 4% (figure 5).

FIGURE 5
Percent of AIDS-related deaths among all deaths in state prisons and in the U.S. general population among persons ages 15 to 54, 2001–2009



Note: Deaths by execution were not included in the calculation of the percent of AIDS-related deaths among all deaths in state prisons. For data on executions, see *Capital Punishment, 2010-Statistical Tables*, NCJ 236510, BJS website, December 2011.

^aThe number of AIDS-related deaths used to calculate the rate was based on individual reports submitted to the Deaths in Custody Reporting Program (DCRP).

^bExcludes deaths reported in state prisons. See *Methodology* for data sources.

Source: Bureau of Justice Statistics, Deaths in Custody Reporting Program; Center for Disease Control and Prevention, HIV/AIDS Surveillance Report and Monthly Vital Statistics Reports.

Selected findings from 2009 and 2010 data

- A reported 20,093 inmates with HIV/AIDS were in custody in state or federal prison at yearend 2010, down from 20,880 at yearend 2009 (table 1).
- The reported number of state inmates with HIV/AIDS decreased from 19,290 in 2009 to 18,515 in 2010. The number of federal inmates with HIV/AIDS also declined, from 1,590 in 2009 to 1,578 in 2010.
- California, Florida, New York, and Texas each reported holding more than 1,000 inmates with HIV/AIDS at yearend 2010. These states held 51% (9,492) of all state prisoners with HIV/AIDS.
- Among state and federal inmates with HIV/AIDS at yearend 2010, 18,337 were male and 1,756 were female, compared to 19,027 male and 1,853 female inmates at yearend 2009 (table 2).
- Among jurisdictions reporting the number of inmates with confirmed AIDS in both 2009 and 2010 (37 states and the Bureau of Federal Prisons), 4,344 inmates had confirmed AIDS in 2009 and 3,913 in 2010—a decrease of 431 cases (table 3).*
- After an increase of five AIDS-related deaths in state prisons between 2008 and 2009 (89 to 94), the number fell to 72 deaths in 2010. Seven federal inmates died from AIDS-related causes, which was unchanged from 2009 (table 4).
- AIDS-related deaths in state prisons declined from 89 in 2009 to 69 in 2010 among males, from 70 to 43 among black non-Hispanics, and from 87 to 60 among all state inmates ages 35 or older (table 5).

*BJS no longer estimates for jurisdictions not reporting confirmed AIDS due to insufficient data in recent years. See previous HIV reports for estimated confirmed AIDS cases and methodologies.

TABLE 1

Inmates in custody of state and federal prison authorities and reported to be HIV positive or have confirmed AIDS, by jurisdiction, yearend 2008–2010

Jurisdiction	Total HIV/AIDS cases ^a			HIV/AIDS cases as a percent of total custody population ^b		
	2008	2009	2010	2008	2009	2010
U.S. total^c	21,611	20,880	20,093	1.6%	1.5%	1.5%
Federal	1,538	1,590	1,578	0.9%	0.9%	0.9%
State	20,073	19,290	18,515	1.6%	1.6%	1.5%
Alabama	275	275	252	1.1	1.0	1.0
Alaska	13	28	/	0.4	0.7	/
Arizona	179	154	164	0.6	0.5	0.5
Arkansas	118	112	128	0.9	0.8	0.9
California	1,402	1,235	1,098	0.8	0.7	0.7
Colorado	173	185	181	1.0	1.0	1.0
Connecticut	380	320	301	2.0	1.8	1.7
Delaware	132	71	73	1.9	1.1	1.1
Florida	3,250	3,082	2,920	3.6	3.4	3.2
Georgia	961	951	912	1.8	1.8	1.9
Hawaii	23	24	18	0.7	0.8	0.5
Idaho	28	23	20	0.6	0.4	0.4
Illinois	457	460	487	1.0	1.0	1.0
Indiana	/	/	/	/	/	/
Iowa	41	28	36	0.5	0.3	0.4
Kansas	46	53	33	0.5	0.6	0.4
Kentucky	131	90	87	1.0	0.7	0.7
Louisiana	458	573	665	2.2	2.9	3.5
Maine	9	8	15	0.4	0.4	0.8
Maryland	588	565	722	2.6	2.6	3.2
Massachusetts	264	247	206	2.4	2.2	1.8
Michigan	341	404	233	0.7	0.9	0.5
Minnesota	44	48	47	0.5	0.5	0.5
Mississippi	246	222	254	2.0	1.9	2.3
Missouri	304	313	273	1.0	1.0	0.9
Montana	6	7	7	0.4	0.4	0.4
Nebraska	16	21	20	0.4	0.5	0.4
Nevada	116	132	133	0.9	1.1	1.1
New Hampshire	16	12	12	0.6	0.4	0.5
New Jersey	520	417	420	2.3	2.0	1.9
New Mexico	33	34	27	0.5	0.5	0.4
New York	3,500	3,200	3,080	5.8	5.5	5.5
North Carolina	824	791	720	2.1	2.0	1.8
North Dakota	6	7	9	0.4	0.5	0.6
Ohio	414	379	381	0.8	0.8	0.8
Oklahoma	139	146	155	0.8	0.8	0.9
Oregon ^d	55	66	63	0.4	0.5	0.5
Pennsylvania	727	782	703	1.5	1.6	1.5
Rhode Island	54	48	47	1.4	1.4	1.5
South Carolina	409	418	412	1.7	1.8	1.8
South Dakota	13	11	11	0.4	0.3	0.3
Tennessee	188	195	219	1.3	1.3	1.5
Texas	2,450	2,414	2,394	1.8	1.7	1.7
Utah	36	38	35	0.7	0.7	0.6
Vermont	14	17	3	1.0	1.1	0.2
Virginia	433	433	306	1.4	1.5	1.0
Washington	79	78	75	0.5	0.5	0.4
West Virginia	25	19	25	0.5	0.4	0.5
Wisconsin	132	145	128	0.6	0.7	0.6
Wyoming	5	9	5	0.4	0.6	0.3
Northeast	5,484	5,051	4,787	3.2%	3.0%	2.9%
Midwest	1,814	1,869	1,658	0.8%	0.8%	0.7%
South	10,627	10,357	10,244	2.0%	2.0%	2.0%
West	2,148	2,013	1,826	0.7%	0.7%	0.6%

Note: Excludes inmates held in private facilities.

/Not reported.

^aCounts published in previous reports may have been revised.

^bExcludes data from Alaska due to incomplete reporting.

^cExcludes inmates in jurisdictions that did not report data.

^dThe number of HIV/AIDS cases in Oregon was based on a 3/9/09 count for 2008, a 7/20/2010 count for 2009, and a 6/28/11 count for 2010.

Source: Bureau of Justice Statistics, National Prisoner Statistics Program (NPS-1).

TABLE 2

Inmates in custody of state and federal prison authorities and reported to be HIV positive or have confirmed AIDS, by jurisdiction, yearend 2009 and 2010

Jurisdiction	Male				Female			
	Number		Percent		Number		Percent	
	2009	2010	2009	2010	2009	2010	2009	2010
U.S. total*	19,027	18,337	1.5%	1.4%	1,853	1,756	1.9%	1.9%
Federal	1,495	1,498	0.9%	0.9%	95	80	0.8%	0.7%
State	17,532	16,839	1.6%	1.5%	1,758	1,676	2.1%	2.0%
Alabama	260	236	1.1%	1.0%	15	16	0.9%	1.0%
Alaska	20	/	0.6	/	8	/	1.5	/
Arizona	135	154	0.5	0.5	19	10	0.5	0.3
Arkansas	101	121	0.8	0.9	11	7	1.1	0.6
California	1,146	1,023	0.7	0.7	89	75	0.8	0.8
Colorado	160	159	1.0	1.0	25	22	1.3	1.1
Connecticut	268	261	1.6	1.6	52	40	4.8	3.9
Delaware	63	65	1.0	1.1	8	8	1.7	1.8
Florida	2,749	2,636	3.2	3.1	333	284	6.3	5.3
Georgia	864	832	1.7	1.8	87	80	2.3	2.1
Hawaii	18	14	0.7	0.5	6	4	1.2	0.7
Idaho	19	16	0.4	0.4	4	4	0.6	0.5
Illinois	411	439	1.0	1.0	49	48	1.9	1.6
Indiana	/	/	/	/	/	/	/	/
Iowa	27	31	0.3	0.4	1	5	0.1	0.6
Kansas	48	29	0.6	0.3	5	4	0.9	0.6
Kentucky	81	78	0.7	0.7	9	9	1.0	0.7
Louisiana	488	599	2.6	3.3	85	66	7.7	6.1
Maine	8	15	0.4	0.8	0	0	0.0	0.0
Maryland	533	658	2.5	3.0	32	64	3.1	6.6
Massachusetts	230	192	2.2	1.8	17	14	2.4	1.8
Michigan	385	231	0.9	0.5	19	2	1.1	0.1
Minnesota	45	43	0.5	0.5	3	4	0.5	0.7
Mississippi	196	221	1.9	2.2	26	33	1.8	2.6
Missouri	309	259	1.1	0.9	4	14	0.2	0.6
Montana	7	7	0.5	0.5	0	0	0.0	0.0
Nebraska	19	19	0.5	0.5	2	1	0.5	0.2
Nevada	111	118	1.0	1.0	21	15	2.2	1.6
New Hampshire	12	12	0.4	0.5	0	0	0.0	0.0
New Jersey	385	389	1.9	1.9	32	31	3.6	3.7
New Mexico	33	27	0.6	0.4	1	0	0.2	0.0
New York	2,930	2,820	5.2	5.2	270	260	10.8	11.7
North Carolina	716	650	1.9	1.7	75	70	2.6	2.5
North Dakota	7	9	0.6	0.7	0	0	0.0	0.0
Ohio	350	355	0.8	0.8	29	26	0.7	0.7
Oklahoma	136	146	0.9	0.9	10	9	0.4	0.4
Oregon	61	59	0.5	0.5	5	4	0.5	0.4
Pennsylvania	720	629	1.5	1.4	62	74	2.4	2.9
Rhode Island	40	40	1.2	1.3	8	7	4.3	3.9
South Carolina	391	388	1.8	1.8	27	24	1.8	1.6
South Dakota	11	9	0.4	0.3	0	2	0.0	0.5
Tennessee	181	199	1.3	1.4	14	20	1.2	1.7
Texas	2,182	2,153	1.7	1.6	232	241	2.3	2.3
Utah	32	30	0.7	0.6	6	5	1.1	0.9
Vermont	17	3	1.2	0.2	0	0	0.0	0.0
Virginia	398	275	1.5	1.0	35	31	1.5	1.3
Washington	72	70	0.5	0.4	6	5	0.5	0.4
West Virginia	18	23	0.4	0.5	1	2	0.2	0.4
Wisconsin	131	93	0.6	0.4	14	35	1.1	2.8
Wyoming	8	4	0.6	0.2	1	1	0.5	0.5
Northeast	4,610	4,361	2.9%	2.8%	441	426	5.2%	5.3%
Midwest	1,743	1,517	0.8%	0.7%	126	141	0.8%	0.9%
South	9,357	9,280	1.9%	1.9%	1,000	964	2.7%	2.5%
West	1,822	1,681	0.7%	0.6%	191	145	0.8%	0.7%

Note: Excludes inmates held in private facilities.

/Not reported.

*Excludes inmates in jurisdictions that did not report HIV/AIDS infection by sex.

Source: Bureau of Justice Statistics, National Prisoner Statistics Program (NPS-1).

TABLE 3**Inmates in custody of state and federal prison authorities and reported to have confirmed AIDS, by jurisdiction, yearend 2009 and 2010**

Jurisdiction	Number ^a		Percent	
	2009	2010	2009	2010
U.S. total^b	4,349	3,928	0.5%	0.5%
Federal	621	615	0.4%	0.4%
State	3,728	3,313	0.5%	0.4%
Alabama	92	71	0.3%	0.3%
Alaska	5	/	0.1	/
Arkansas	46	44	0.3	0.3
Colorado	21	20	0.1	0.1
Connecticut	134	138	0.7	0.8
Delaware	13	10	0.2	0.2
Illinois	74	85	0.2	0.2
Iowa	15	13	0.2	0.1
Kansas	7	3	0.1	--
Kentucky	6	18	--	0.1
Louisiana	156	131	0.8	0.7
Maine	0	15	0	0.8
Maryland	162	161	0.7	0.7
Massachusetts	111	132	1.0	1.2
Michigan	301	34	0.7	0.1
Minnesota	18	20	0.2	0.2
Mississippi	50	55	0.4	0.5
Missouri	83	102	0.3	0.3
Montana	0	1	0	0.1
Nebraska	6	4	0.1	0.1
Nevada	29	41	0.2	0.3
New Hampshire	0	12	0	0.5
New Jersey	76	73	0.4	0.3
New Mexico	15	13	0.2	0.2
New York	610	540	1.0	1.0
North Carolina	333	287	0.8	0.7
North Dakota	1	1	0.1	0.1
Ohio	123	134	0.3	0.3
Rhode Island	/	15	/	0.5
South Carolina	217	203	0.9	0.9
South Dakota	0	0	0	0
Tennessee	42	40	0.3	0.3
Texas	823	779	0.6	0.6
Utah	29	27	0.6	0.5
Vermont	7	0	0.5	0
Washington	68	64	0.4	0.4
West Virginia	4	3	0.1	0.1
Wisconsin	43	24	0.2	0.1
Wyoming	8	0	0.5	0
Northeast	938	925	0.8%	0.8%
Midwest	671	420	0.3%	0.2%
South	1,944	1,802	0.6%	0.5%
West	175	166	0.3%	0.3%

Note: BJS no longer estimates for jurisdictions not reporting confirmed AIDS due to insufficient data in recent years. See previous HIV reports for estimated confirmed AIDS cases and methodologies. Excludes inmates held in private facilities.

/Not reported.

--Less than 0.05%.

^aIn 2009 and 2010, Arizona, California, Florida, Georgia, Hawaii, Idaho, Indiana, Oklahoma, Oregon, Pennsylvania, and Virginia did not report data.

^bExcludes inmates in jurisdictions that did not report type of HIV/AIDS infection.

Source: Bureau of Justice Statistics, National Prisoner Statistics Program (NPS-1).

TABLE 4
AIDS-related deaths among state prison inmates in custody, 2008–2010

Jurisdiction	Number			Rate per 100,000 inmates		
	2008	2009	2010	2008	2009	2010
U.S. total	102	101	79	7	7	5
Federal	13	7	7	6	3	3
State	89	94	72	7	7	5

Note: Includes deaths in private facilities.

Source: Bureau of Justice Statistics Deaths in Custody Reporting Program.

TABLE 5
AIDS-related deaths among state prison inmates in custody, by demographic characteristics, 2008–2010

Characteristics	Number of AIDS-related deaths ^a			Rate of AIDS-related deaths per 100,000 inmates ^b		
	2008	2009	2010	2008	2009	2010
State total	89	94	72	7	7	5
Sex						
Male	78	89	69	6	7	6
Female	11	5	3	12	5	3
Race/Hispanic^c						
White ^d	21	15	23	4	3	5
Black ^d	57	70	43	27	33	21
Hispanic	10	8	5	2	1	1
Age						
19 or younger	0	0	0	0	0	0
20–24	0	3	1	0	1	0
25–34	9	4	11	2	1	3
35–44	21	29	22	5	7	5
45–54	43	38	25	23	20	13
55 or older	16	20	13	24	30	20

Note: Includes deaths in a private facilities.

^aBased on individual reports submitted to the program.

^bTo calculate the age rates, the number of state prisoners by age was first estimated by applying the age distribution reported in the 2004 Survey of Inmates in State Correctional Facilities to the 2008–2010 midyear custody counts in NPS-1.

^cDetail does not sum to total because deaths among those of other races are excluded.

^dExcludes persons of Hispanic/Latino origin.

Source: Bureau of Justice Statistics Deaths in Custody Reporting Program (DCRP), National Prisoner Statistics Program (NPS-1).

Methodology

National Prisoner Statistics

The federal government began collecting National Prisoner Statistics (NPS-1), which primarily measures prison population movement, in 1926. The series comprises reports from the Departments of Corrections in the 50 states and the Federal Bureau of Prisons. NPS-1 includes yearend counts of prisoners by jurisdiction, sex, race, Hispanic/Latino origin, and admissions and releases during the year. In 1991, the Bureau of Justice Statistics (BJS) began using the NPS-1 to collect data on HIV and confirmed AIDS cases in prisons. BJS respondents indicated the circumstances under which inmates were tested for HIV and reported the number of inmates with HIV/AIDS in their custody. Until 2007, the respondents provided the number of deaths occurring among inmates under their jurisdiction, including those from AIDS-related causes. In this report, yearend and midyear custody counts as well as midyear jurisdiction counts were used when calculating the rates of HIV/AIDS cases and AIDS related death in prison. Jurisdiction refers to the legal authority of state or federal correctional officials over a prisoner regardless of where the prisoner is held. Jurisdiction counts include inmates in private facilities. To have custody of a prisoner, a state or federal prison system must hold that inmate in one of its facilities. Custody counts do not include inmates held in private facilities.

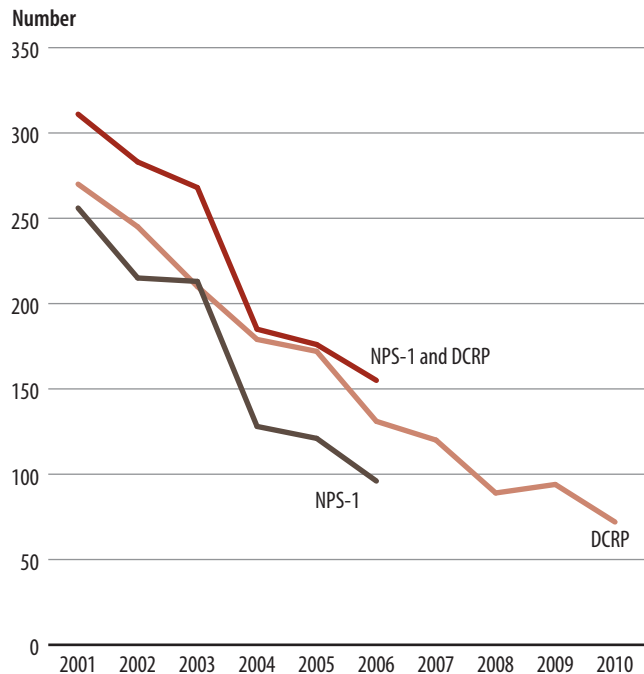
Measuring deaths in prison

From 1991 to 2006, BJS used NPS-1 to collect data on the number of deaths among inmates under the jurisdiction of each prison system by cause, including AIDS-related deaths. In 2001, BJS implemented the Deaths in Custody Reporting Program (DCRP), which collects information describing events and characteristics of each death excluding executions, occurring among inmates in custody of state prisons. Deaths reported through DCRP include those that occurred in private facilities. Prior to 2001, BJS relied solely on data in the NPS-1 to report on AIDS-related deaths. From 2001 to 2006, BJS estimated the number of AIDS-related deaths using both data sources. The greater of the two numbers of deaths reported was used to calculate the totals for those years. After 2006, BJS stopped collecting detailed data on deaths in NPS-1 and relied solely on the DCRP data. Whether using reported or estimated data from multiple data sources, a downward trend in the number of AIDS-related deaths has been observed (figure 6).

Rate of HIV/AIDS and AIDS-related deaths in prison

To calculate the estimated rate of HIV/AIDS among inmates in custody of state and federal prison, the estimated yearend count of HIV/AIDS cases was divided by the yearend custody population for each year.

FIGURE 6
Number of AIDS-related deaths in state prison, 2001–2010



Source: Bureau of Justice Statistics, National Prisoner Statistics Program (NPS-1) and Deaths in Custody Reporting Program (DCRP).

To calculate the rate of AIDS-related deaths in prison per inmate population for 2001 to 2006, the number of AIDS-related deaths estimated in each year from the NPS-1 and DCRP were divided by the midyear jurisdiction population for 2001 to 2006. The midyear jurisdiction population was the denominator because deaths in the NPS-1 were reported among those inmates under the jurisdiction of each prison system. For 2007 to 2010, the number of AIDS-related deaths reported in DCRP was divided by the midyear custody count (including inmates held in private facilities) in state prisons plus the midyear jurisdiction count in federal prisons. The midyear state custody population was the denominator because deaths reported in DCRP were among those inmates in custody of state prisons. The denominator included the midyear federal jurisdiction population because deaths reported in the federal prisons were among those under federal jurisdiction.

To calculate the rate of AIDS-related deaths among those at risk for dying from HIV/AIDS (those estimated to have HIV/AIDS), the number of AIDS-related deaths reported in each year was divided by an estimate of the average daily population of inmates in prison with HIV/AIDS. The average daily population of those with HIV/AIDS for a given year was the average of the most recent year's estimated yearend count of those with HIV/AIDS and the estimated yearend count from the previous year.

For comparisons to the general population ages 15 to 54, data on deaths reported in the DCRP between 2001 and 2010 were used solely for the calculations of AIDS-related death rates among those 54 or younger in the state prison population.

Grouping of states by yearend custody

To assess the trends in the rates of HIV/AIDS and AIDS-related deaths among inmates, state prison populations were grouped into categories of small, medium, and large. Groups were based on the size of the 2010 yearend custody populations. Included in the small group were states with fewer than 25,000 inmates, specifically North Dakota, Vermont, Montana, Wyoming, Maine, New Hampshire, Rhode Island, Hawaii, South Dakota, New Mexico, Alaska, Nebraska, Idaho, West Virginia, Utah, Delaware, Kansas, Minnesota, Iowa, Massachusetts, Mississippi, Kentucky, Nevada, Oregon, Arkansas, Tennessee, Washington, Connecticut, Oklahoma, Colorado, Louisiana, New Jersey, Wisconsin, Maryland, South Carolina, and Indiana. Included in the medium group were states with 25,000 to 49,999 inmates, specifically Alabama, Virginia, Missouri, Arizona, North Carolina, Michigan, Pennsylvania, Illinois, Ohio, and Georgia. Included in the large group were states with 50,000 or more inmates, specifically New York, Florida, Texas, and California.

AIDS-related deaths in the U.S. general population

The number of AIDS-related deaths for persons ages 15 to 54 was based on the Center for Disease Control's (CDC), *HIV/AIDS Surveillance Report*, yearend editions (Vols. 17-22). Deaths in the U.S. population for persons ages 15 to 54 were taken from the CDC, National Center for Health Statistics' (NCHS) *Monthly Vital Statistics Report*, Vol. 45, No. 11(S). Also, deaths were taken from the NCHS's *National Vital Statistics Report*, Vol. 52, No. 3; Vol. 53, No. 5; Vol. 53, No.15; Vol. 54, No. 19; Vol. 57, No. 14; Vol. 58, No.19; Vol. 59, No.10; and Vol. 60, No.4.

For 2005, U.S. general population deaths can be found in the NCHS's *Deaths: Preliminary Data for 2005*. For 2001 to 2009, AIDS-related deaths were calculated as a percentage of all deaths among persons ages 15 to 54 in the U.S. general population. The national estimate of AIDS-related deaths of persons ages 15 to 54 minus AIDS-related deaths of persons ages 15 to 54 in state prisons was divided by the national mortality estimates of persons ages 15 to 54 minus total deaths of persons ages 15 to 54 in state prisons.

For 2001 to 2009, the rates of AIDS-related deaths in the U.S. general population were calculated by taking the difference of the national estimate of AIDS-related deaths for persons ages 15 to 54 and the number of AIDS-related deaths for state inmates ages 15 to 54, and dividing it by the U.S. general population estimate of those 15 to 54 minus the state prison population ages 15 to 54.

Estimating for missing data on HIV/AIDS cases

The NPS-1 database for 2001 to 2010 was missing data on the number of inmates with HIV/AIDS in state and federal prison in six states that did not report the number of cases for 1 or more years. The missing data ranged from a state missing 1 year of

data to another state where data for all 10 years (2001 through 2010) were not reported. Estimates do not include counts from the state missing data in all years and rates were calculated using a denominator that excluded this state prison population thereby assuming that the rate in this state was equal to the national rate. The remaining four states included two missing data for 2 years and two missing data for 5 years.

The five states that reported missing data (excluding the one state that did not report data in any year) reported HIV/AIDS cases in 2001 and, in that year, comprised 3.4% of the total number of reported HIV/AIDS cases in state correctional facilities (759 out of 22,553 total cases). In 2008, the five states comprised a similar share of the total number of reported HIV/AIDS cases in state correctional facilities (3.3% or 665 out of 20,073).

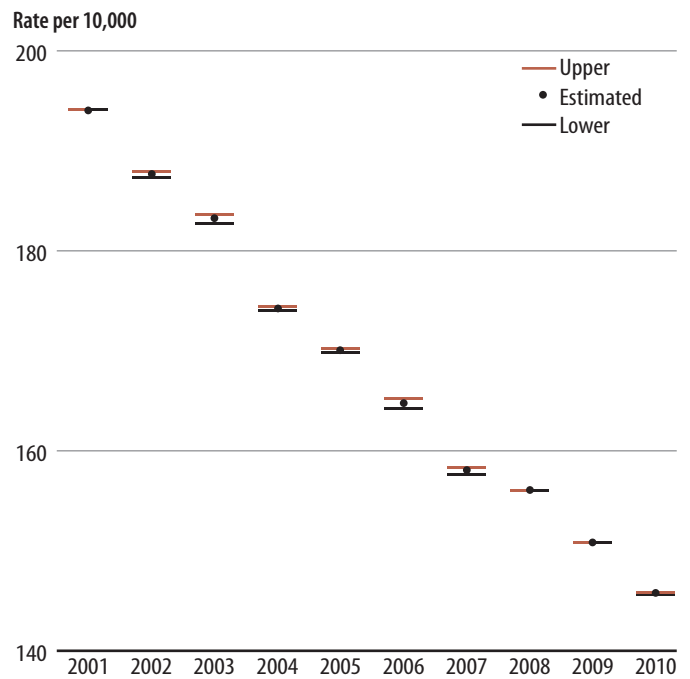
STATA, a statistical software package, was used to linearly interpolate the number of HIV/AIDS cases that were not reported. This method estimates the missing value by using observed data values that are closest in time to the missing data value. The missing value is assumed to fall on a straight line plotted between two known data points. The ipolate function in STATA interpolates the missing value in instances where observed values appear before and after the missing value to be estimated. The epolate function extrapolates the missing value where observed values appear only before or after the missing value that is to be estimated.

For example, the interpolated value of HIV/AIDS cases (y) in a given state (x) is computed by using the closest known values for reported HIV/AIDS cases. If in 2001 (x_1) there were 15 (y_1) cases and in 2003 (x_2) there were 10 (y_2) known cases, the interpolated value for 2002 is computed using the following formula: $y = y_1 + (x - x_1)(y_2 - y_1) / (x_2 - x_1)$. In this example, the interpolated number of HIV/AIDS cases for that state in 2002 would be an estimated 12.5. In some cases, data were missing for multiple consecutive years. Data were interpolated using a multi-stage process. For example, in a state missing 2006 and 2007 data, the interpolated value for 2006 was derived by using observed values from 2005 and 2008. The interpolated value for 2007, in turn, was derived by using the interpolated value from 2006 and the observed value from 2008.

In one state it was necessary to extrapolate the missing value as it occurred in the last year of the series (2010). This was computed by using a linear equation to predict values beyond the observed values using the epolate function in STATA 10. A linear equation is derived from the observed values for 2008 and 2009 ($y = 15x - 2$) and then used to predict the value for 2010 where $x = 3$ to determine the third year value (2010) in the linear trend from 2008. The growth rate from 2009 to 2010 is assumed to be the same as from 2008 to 2009 ($x = 15$) and the formula is solved as $43 = (45) - 2$. The extrapolated value for 2010 is 43 HIV/AIDS cases.

State-specific imputed values are not included in the report tables, but were used to calculate national rates of HIV/AIDS cases in prison and rates by size of state prison custody population. For each state with imputed values, both upper and lower estimates were produced around the imputed values. These upper and lower limits were calculated for each state's imputed value or values by adding the largest 1-year increase in HIV/AIDS cases and subtracting the largest 1-year decrease from the imputed value or values. New national rates based on upper and lower limits did not vary more than plus or minus 1 HIV/AIDS case per 10,000 inmates for any given year (figure 7). The variation in reporting by states from year to year did not affect the overall downward trend in the rate of HIV/AIDS in prisons.

FIGURE 7
Estimated rate of HIV/AIDS among state and federal inmates, with upper and lower limits, 2001–2010



Source: Bureau of Justice Statistics, National Prisoners Statistics Program (NPS-1).



The Bureau of Justice Statistics is the statistical agency of the U.S. Department of Justice. James P. Lynch is director.

This report was written by Laura M. Maruschak. Todd Minton verified the report. Fan Zhang and Kyle Harbecsek, BJS interns, provided statistical assistance. The U.S. Census Bureau, U.S. Department of Commerce, carried out the data collection and processing.

Catherine Bird and Jill Thomas edited the report, and Barbara Quinn produced the report under the supervision of Doris J. James.

September 2012, NCJ 238877



Office of Justice Programs
Innovation • Partnerships • Safer Neighborhoods
www.bjs.gov