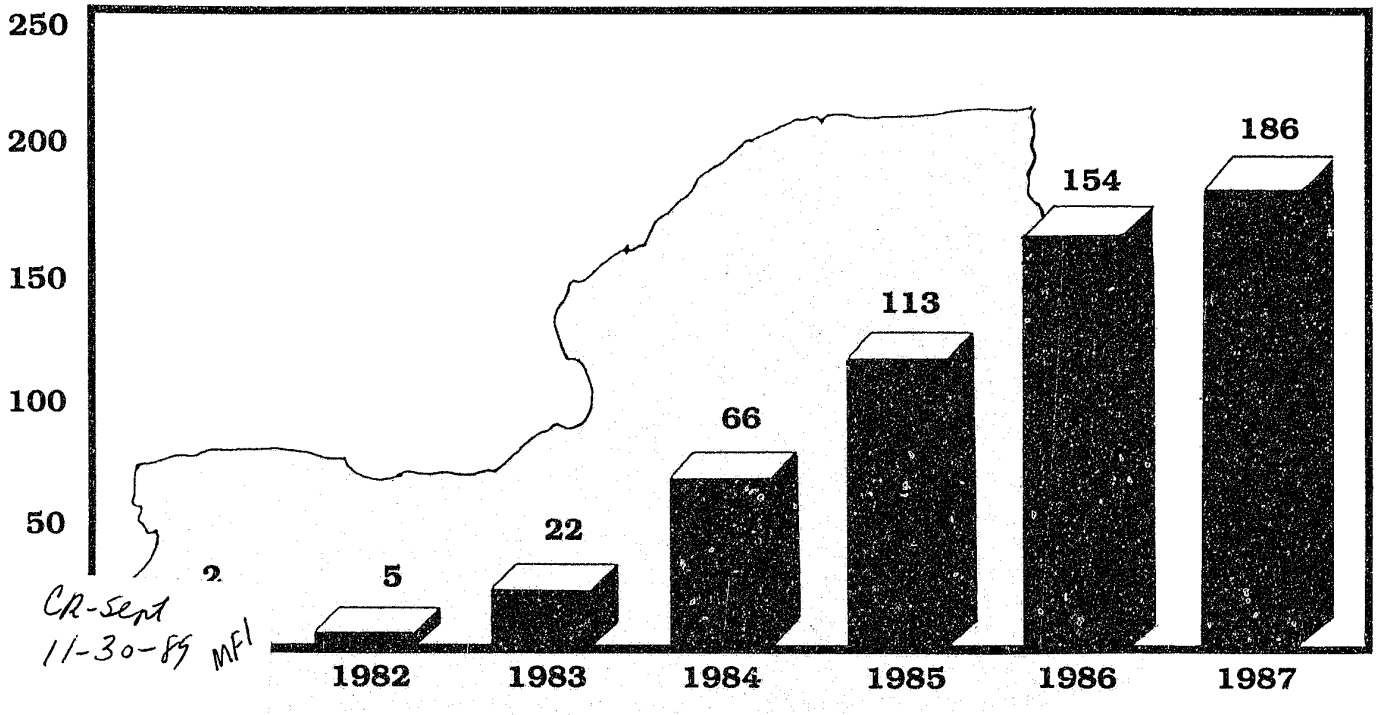
ACQUIRED IMMUNE DEFICIENCY SYNDROME

A Demographic Profile of New York State Inmate Mortalities 1981 - 1987

OCTOBER 1988

THIRD EDITION



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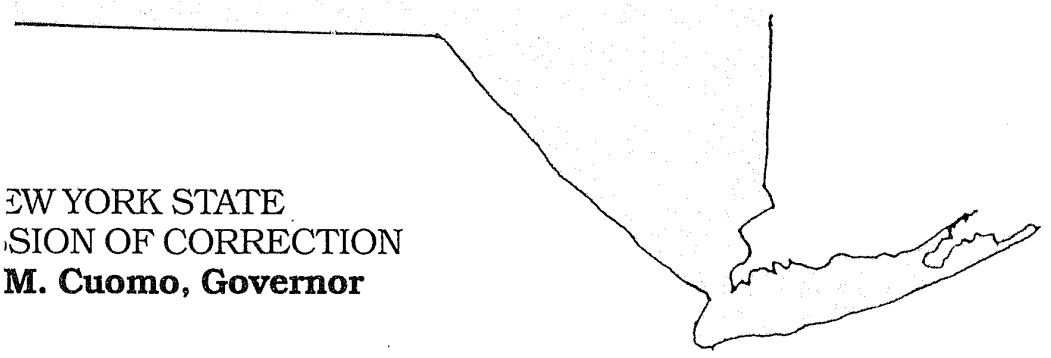

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THIRD EDITION

ACQUIRED IMMUNE DEFICIENCY SYNDROME

A DEMOGRAPHIC PROFILE OF NEW YORK STATE INMATE MORTALITIES 1981 - 1987

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and
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STATE OF NEW YORK
Mario M. Cuomo, Governor

October 1988

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ACQUIRED IMMUNE DEFICIENCY SYNDROME: A DEMOGRAPHIC PROFILE OF NEW YORK STATE INMATE MORTALITIES, 1981-1987 UPDATE

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

FOREWORD

The State Commission of Correction is required by Correction Law Section 47(1)(e) to "investigate and report...on the condition of systems for the delivery of medical care to inmates of correctional facilities..." The Commission is assisted in the fulfillment of this mandate through its Bureau of Health Systems Evaluation with the advice and direction of the Correction Medical Review Board, comprised of distinguished experts in the field of correctional health care. They include Michael Baden, M.D. and Phyllis Harrison-Ross, M.D.

Section 45(11) of the Correction Law provides authority for the Commission to "collect and disseminate statistical and other information and undertake research studies and analyses, through the personnel of the Commission in cooperation with any public or private agency in respect to the administration, program effectiveness and coordination of correctional facilities."

EXECUTIVE SUMMARY

The typical AIDS inmate mortality in the New York State correctional system was an Hispanic or black, single, male, 34 years of age, with a history of intravenous drug abuse prior to incarceration. He was born in the New York City metropolitan area, having lived in this area prior to entering the system. He was typically incarcerated in a state correctional facility. He was likely to have been convicted of robbery, burglary or drug-related offenses, and been in the system an average of 19 months prior to death. He was typically hospitalized in a New York State university-affiliated hospital, in the Mid-Hudson Region. He was most likely to have contracted the opportunistic infection, Pneumocystis carinii Pneumonia, and died after an average final hospital stay of 27 days.

DEMOGRAPHIC CHARACTERISTICS:

- AIDS in New York State's correctional system in predominantly a disease of males. Ninety-six percent of decedents were male; four percent were female.

- Ninety-five percent of inmates in the sample had a history of intravenous drug abuse.

- Only 11 percent of the sample admitted to a homosexual, bisexual or transsexual orientation.

- Forty-four percent of the cases were Hispanic; 45 percent black and 11 percent white. Compared to their ratio in the correctional population, Hispanics were disproportionately represented in death cases.

- Eighty-six percent of inmates lived in the New York City metropolitan area prior to incarceration.

- Correlating with the high ratio of drug abuse history, decedents had primarily been convicted of "money seeking" crimes related to drug abuse - 30% robbery, 20% burglary, 21% drug-related offenses.

- Fifty eight percent of the sample were unmarried.

- The average age of the males at death was 34. The youngest was 19; the oldest 64. Ninety-three percent of males were between the ages of 20 and 49 when they died.

- Fifty-nine percent of mortalities had been in the correctional system 1-18 months; 23 percent 19-36 months; 12 percent 37-54 months; and 4 percent 4.6-6 years. Five inmates had served 6.6-7 years at the time of death. Two inmates in this year's sample had been in the system 7.7 and 7.8 years prior to death.

- The highest number of hospital deaths occurred in the Mid-Hudson region, due to the location of the Sing Sing special care unit and the high concentration of correctional facilities in this geographic area.

- Two hundred sixty-six or 56 percent of inmate deaths took place in the state's 10 university affiliated medical centers. The remaining 44 percent died in community hospitals around the state. Twenty-nine inmate mortalities occurred in correctional facilities.

- The final period of hospitalization ranged from one day to eight months. Forty seven percent of inmates were hospitalized 1 day-2 weeks; 25 percent 15 days-1 month; 16 percent 31 days-2 months; 10 percent 61 days-5 months and 2 percent 151 days-8 months.

- The 467 cases consumed 12,717 acute hospital patient days with an average length of stay of 27 days.

- The most prevalent opportunistic infection at time of death was Pneumocystis carinii Pneumonia (PCP). Fifty-two percent of the cases were PCP or PCP in combination with some other opportunistic infection.

AIDS DISEASE PROFILE IN NEW YORK STATE DEPARTMENT OF CORRECTIONAL SERVICES FACILITIES:

- The greatest proportion of inmate mortalities in the sample came from state correctional facilities (DOCS). The majority of deaths occurred at maximum security facilities.

- Over 50 percent of all DOCS deaths between 1984 and 1987 have been due to AIDS.

- While the mortality rate for other-than-AIDS cases has been fairly stable, the AIDS mortality rate per 10,000 DOCS inmates has grown steadily.

- There has been a decrease in inmate survival rates and a lower mean survival rate for inmate cases compared to a New York City general population sample. The issue of diminished survivability and increased strains in DOCS community-based and facility health care resources is raised.

- The issue of AIDS transmission within facilities was raised in terms of seven inmates who were in the system 6.6 to 7.8 years before the onset of symptoms.

- Opportunistic infection rates in state facilities evidenced an upward trend in the proportion of Pneumocystis Carinii Pneumonia since 1981. There was a concomitant increase in the number and variety of opportunistic infections and types after 1983.

- Evidence points to a low inmate risk for Kaposi's Sarcoma, based on the small percentage of admitted homosexuals in the inmate population. Kaposi's Sarcoma and toxoplasmosis were more prevalent only in inmates who admitted a homosexual and drug abuse lifestyle.

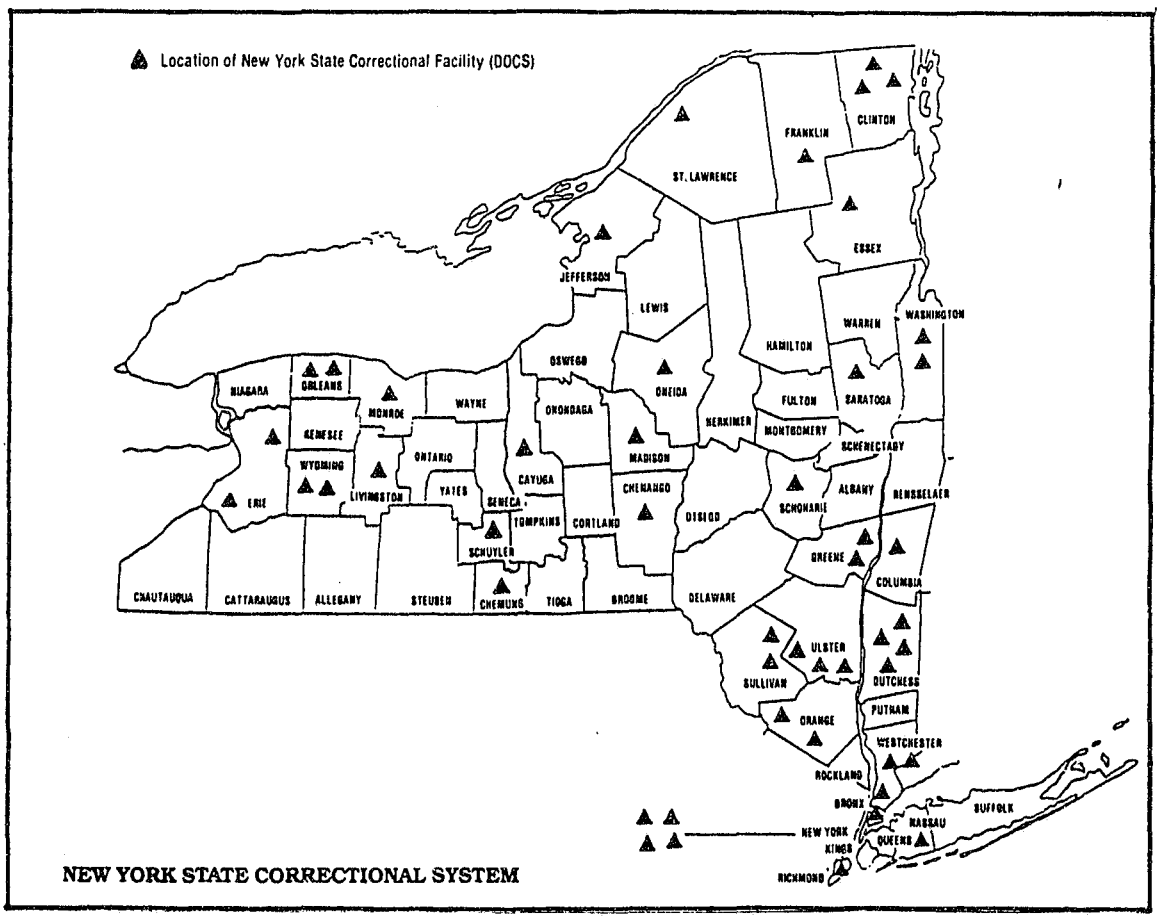
OVERVIEW OF NEW YORK STATE CORRECTIONAL SYSTEM AFFECTED BY AIDS

The State of New York correctional jurisdiction is made up of three major systems, the state correctional system, the county jail and penitentiary system and the New York City correctional system. Presently, they have a combined population of about 69,000 inmates.

The state correctional system is the second largest correctional system in the country (US Department of Justice, 1988), with 42,351 inmates as of August 19, 1988. It contains 51 institutions with populations ranging from 57 to 2,813.

The New York City correctional system census on August 19, 1988 was 16,013 with 16 sentenced and detention institutions and five hospital prison wards. Generally, an inmate convicted of a crime and sentenced to more than one year is transferred to state custody.

There are 56 counties operating jails, four of which also operate separate penitentiaries. This system contained 10,770 inmates on August 19, 1988. The county system is similar to the New York City system in that the maximum sentenced stay is one year.



NEW YORK STATE CORRECTIONAL SYSTEM

INTRODUCTION AND PURPOSE

The New York State Commission of Correction, as part of its oversight of state and local facilities, collects records of all inmate deaths, including AIDS mortalities, through its Medical Review Board and Bureau of Health Systems Evaluation. Drawing on these mandated functions, Governor Mario M. Cuomo directed the Commission to conduct a demographic study of all AIDS inmate deaths in New York State's criminal justice system - state prison facilities, county jails and penitentiaries, and New York City correctional facilities in October of 1985. Following a five-month study, the Commission published Acquired Immune Deficiency Syndrome: A Demographic Study of New York State Mortalities, 1981-1985, in March of 1986. The research had three broad purposes:

-- The identification of a large number of demographic charcteristics of inmates who have died of AIDS in New York's correctional system. Such a comprehensive demographic profile seeks to provide important data to correctional policy makers as to risk groups, opportunistic infection trends, resource needs, etc.

-- The identification of the most comprehensive profile of an AIDS mortality cohort in the nation. The national Centers for Disease Control (CDC) surveillance data base is limited to six published demographic variables and is unable to identify all correctional cases. The current study, drawing on a detailed data base, provides CDC with critical aggregate data on inmate deaths from a state correctional system with high concentrations of individuals at risk of developing AIDS.

-- The development of an accurate and authoritative data base for further research initiatives in New York State and nationally. The study emphasizes the use of primary data sources as a model for generating proactive policy decisions.

Since the report's publication, the Commission has continued to update the data base as part of its comprehensive AIDS surveillance program. A Second Edition for cases through October 31, 1986 was published in September, 1987. As AIDS continues to critically impact New York State's correctional and health care delivery system, this 1988 report update provides important information as to: 1) changes in demographic characteristics of inmates who are dying of AIDS in the state's correctional system; 2) trends in the disease profile among inmates - year-to-year variations in the time periods of the stages of the disease; and, 3) emerging policy and research issues suggested by these data.

AIDS Correctional Cases, Current Status

As of September 1, 1988 there have been 689 reported* AIDS inmate deaths in New York State facilities, county jails and New York City correctional facilities since the first confirmed mortality in 1981. While this edition adds 180 cases for the period November 1, 1986 through October 31, 1987, there were 184 AIDS inmate deaths for all of 1987, compared to 155 for 1986. This 19 percent increase is in contrast to the 78 percent increase in New York State correctional facility AIDS mortalities between 1984 and 1985, from 67 to 119.

The National Institute of Justice, AIDS in Correctional Facilities (National Institute of Justice, April, 1988) finds the number of inmate AIDS cases in correctional facilities to have increased at a similar rate to that in the United States general population. The NIJ report, based on a survey of 50 state correctional systems, the Federal Bureau of Prisons, and 31 large city and county jails, found 1,964 confirmed AIDS correctional cases as of October 1, 1987, a 59 percent increase. In comparison, there was a 61 percent increase for the United States as a whole for the period October 6, 1986 to October 5, 1987.

There are a number of possible reasons why there is such a high incidence of AIDS among inmates in New York State. First, the Centers for Disease Control report that New York State has 34 percent of all AIDS cases within the country. In addition, the Centers also report that New York City has an AIDS rate approximately 3 times higher than the AIDS rate in Los Angeles. Since the majority of inmates in New York State correctional facilities reportedly come from the New York metropolitan area, it should not be surprising that New York correctional facilities report a high incidence of AIDS. However, as noted above, the rates of increase of New York's AIDS inmate mortalities have been declining annually. The NIJ Report also shows a 17 percent decrease in the percentage of total cases represented by Middle Atlantic State correctional systems between 1985 and 1987. Nonetheless, AIDS deaths represent 58 percent of all New York correctional mortalities in 1987**.

Given the critical policy and health care delivery issues posed by AIDS in correctional settings, the New York State Commission of Correction has continued the demographic and epidemiological surveillance study of AIDS inmate mortality cases.

*As required by law, all inmate mortalities must be reported to the Commission within 6 hours. In some instances, jurisdictions report the cause of death as "AIDS related." These cases are listed as AIDS mortalities unless documents and internal investigation prove them otherwise.

**As of September 1, 1988, reported AIDS mortalities to the Commission constitute 59% of this year's correctional facility deaths.

METHODOLOGY

Data Sources and Variables

A major portion of the Bureau of Health Systems Evaluation investigation process involves obtaining a wide range of facility medical and correctional documents, as well as records of outside health care providers. Such documents are necessary to determine the circumstances surrounding the death of an inmate, and to evaluate aspects of correctional health care. These primary source documents include:

1. Correctional facility medical records
   a. admission history and physical examination on entry to system
   b. laboratory data completed on admission
   c. sick call records
   d. physician and nursing progress notes
   e. physician order sheets
   f. laboratory reports during period of incarceration
2. Correctional facility staff reports
3. Disciplinary, conviction and parole hearing records
4. Medical records from previous correctional jurisdiction
5. Transfer medical summary sent on entry to system
6. Ambulance transport records
7. Community hospital records
8. Vital sign sheets
9. Specialists' consultation reports
10. X-Ray diagnostic reports
11. Autopsy report (autopsy and toxicology required by law in NYS on all persons who die in custody)

The documents are recognized as a rich source of data for the identification of a demographic epidemiological profile of AIDS inmate mortalities. A comprehensive review of these documents yields a set of 19 variables which can be located consistently across cases:

- Age
- Sex
- Race
- Marital Status
- Date of death
- Place of birth
- Residence prior to entering the system
- Date of entry into correctional system
- Crime of conviction
- Intravenous drug abuse history
- Previous incarceration
- Date of onset of symptoms
- Specific symptom profile
- Date AIDS confirmed
- Sexual preference
- Assigned correctional facility at time of death

-- Hospital at time of death
-- Period of final hospitalization
-- Cause of death (as per autopsy)

Definition of Variables

A large number of variables such as age, sex, race, date of death, and cause of death can be verified across several documents. Several variables, however, require clarification to ensure the reliability and validity of the data base:

Race - In cases of Hispanic origin, records are not always consistent, i.e., individuals are variously described as black or white or Hispanic. As forensic pathologists are trained to recognize subtle physical racial indicators, the autopsy description of the pathologist is selected as a more reliable indicator of race.

Residence Prior to Entering the System - As the majority of the reported decedents are from the New York City metropolitan area, the specific borough of residence is selected where data are available. Residence in counties contiguous to New York City are also specified. All other cases are classified as "New York City (no borough specified)," "New York State (ouside New York City)," or "Other States." Residence outside the United States is defined as "Other Countries" and includes only four - Cuba, Colombia, the Dominican Republic and Jamaica.

Intravenous (I.V.) Drug Abuse History - Rather than relying solely on medical histories of inmates taken on entry to the system, hospital admission history, physical examination findings and autopsy results are used to verify a history of intravenous drug abuse (i.e., track marks).

Date of Onset of Symptoms - the quality of documentation and the varying expertise of health providers result in inconsistent reporting of the onset of symptoms. The quality of such assessments is found to improve in more recent medical records, with AIDS Related Complex (ARC) and other symptoms being recognized. Another difficulty in pinpointing the exact time of symptoms onset is inmate delays in reporting symptoms. For consistency in this study, the date of symptoms onset is obtained from the sick call record reflecting inmate's statement of the duration of symptoms.

Specific Symptoms Profile - There is a wide range of symptoms presented by inmates at time of sick call. A number of symptoms are found to relate to a specific opportunistic infection. However, a number of symptoms are common to many opportunistic infections or non-AIDS diseases. A symptoms profile has been developed by ranking reported symptoms from the most common to least frequent.

Date AIDS Confirmed - The date selected reflects the date on which the diagnostic procedure was completed (bronchoscopy, biopsy, etc.). In some cases, the inmate was seriously ill and unable to tolerate invasive diagnostic procedure. Therefore, the confirmation of the opportunistic infection for some cases was not documented until the time of autopsy.

Period of Final Hospitalization - The time period of final hospitalization is utilized. While a number of cases had multiple hospitalization periods, data are often missing on earlier hospital stays. In many cases, however the final hospitalization may be the first hospitalization.

Autopsy Report of Death - In order to compare the inmate profile to CDC figures for the population at large, specific opportunistic infections for which inmates received treatment are categorized. In some cases, the autopsy lists AIDS but is not specific as to the opportunistic infection. Therefore, final hospitalization medical records are used to designate the opportunistic infection, or infections.

Data Sample, Collection and Analysis

Over the course of the project, intern research assistants have been trained on the extraction and verification of variables from the numerous document sources contained in each mortality file. For this 1988 Update, a registered nurse under the supervision of the Associate Project Director extracted the medical data. Table 1 shows the jurisdictional origin of the sample total 506 cases:

Table 1: New York State Commission of Correction AIDS Study Sample Mortality Cases, 11/13/81-10/31/87, by Jurisdiction

	No. of Cases 11/13/81-10/31/85	% of Cases	No. of Cases 11/1/85-10/31/86 (including case updates)*	1987 Update Total	1987 Update % of Cases	No. of Cases 11/1/86-10/31/87	1988 Update Total	1988 Update % of Cases
Jurisdiction								
NYS Department of Correctional Services (DOCS) Facilities	156	88%	125	281	86%	147	428	85%
New York City Correctional Facilities	18	10%	21	39	12%	27	66	13%
NYS County Jails	3	2%	3	6	2%	6	12	2%
TOTAL	177	100%	146	326	100%	180	506	100%

*That is, cases added due to designation as "AIDS" rather than "natural."

Following data compilation and verification, the data are coded and analyzed utilizing SPSS/PC+ microcomputer software (Statistical Package for the Social Sciences). Data analysis and interpretation are supported by the Bureau of Health Systems Evaluation extensive library of primary and secondary source materials on AIDS.

Definition of AIDS/ARC (AIDS RELATED COMPLEX)

The following definitions of AIDS and ARC are provided as background for the concepts utilized in the report. CDC, in 1982, defined a case of AIDS as a disease, at least moderately predictive of a defect in cell-mediated immunity, occurring in a person with no known cause of diminished resistance to that disease (Centers for Disease Control, September 24, 1982: 508). The Centers have since refined the definition to include the presence of human T-cell lymphotropic virus-Type III/lymphadenopathy-associated virus (HTLV-III/LAV or HIV) and opportunistic infections like Pneumocystis Carinii Pneumonia, Kaposi's Sarcoma, and other unusual infections.

AIDS Related Complex, while not formally defined by CDC and not reportable to CDC, has the following generally accepted National Institute of Health definition:

Two or more symptoms and two abnormal laboratory findings suggestive of otherwise unexplained immune deficiency consistent with CDC-defined AIDS. In addition, a classification system for Human Immunodeficiency Virus Infections is applied to defining levels of care and public health policy.

This classification system utilizes four groups as follows:

Group I - Acute Infection
Group II - Asymptomatic Infection
Group III - Persistent generalized lymphadenopathy
Group IV - Other HIV disease

The opportunistic infections and neurological and constitutional manifestations described in this report are classified as part of Group IV.

In August, 1987 the Centers for Disease Control revised the case definition for AIDS. The definition was broadened significantly to include additional opportunistic infections not previously considered diagnostic of AIDS and to relax diagnostic criteria, allowing presumptive diagnosis of AIDS in the presence of certain infections together with laboratory evidence of HIV infection. These criteria are reflected in the 180 1987 cases comprising the new sample. In some cases, death preceded the definitional change and the diagnosis was confirmed retrospectively.

ORGANIZATION OF REPORT

This report update describes and summarizes the predominant characteristics of AIDS mortalities in New York State's correctional system from November, 1981 through October 31, 1987.

Chapter 1 presents a profile of the most common demographic characteristics of these cases as well as any changes in these characteristics resulting from the addition of new cases. The profile includes a breakdown by sex, residence, place of birth, crime conviction category, marital status, age, and time in correctional system. Additionally, important factors such as intravenous drug abuse history, sexual orientation, period of final hospitalization, hospital at time of death, and opportunistic infection at time of death are featured in the profile.

Chapter 2 outlines a comprehensive disease profile of AIDS in the New York prison system. A symptoms profile and average time periods of the stages of the diseases are presented as part of this disease profile. Critical stages are: 1) the time from system entry to onset of symptoms; 2) the time from onset to confirmation; and, 3) the time from confirmation to death. The chapter compares the survival rates of AIDS inmates to a general population sample.

HIV SEROPREVALENCE AMONG NEW YORK STATE DOCS ENTRANTS

In November, 1987, the NYS Department of Health, Division of Epidemiology began a research project to assess the rate of human immunodeficiency virus (HIV) infection within, among others, the NYS inmate subpopulation. Table 2 shows the HIV infection rate among new entrants to the DOCS by place of residence when arrested.

Table 2
HIV Seroprevalence
New York State Prison Entrants
Place of Residence When Arrested

	Number Tested	Number Positive	Percent Positive
RESIDENCE			
New York City	341	69	20.2
NYC (vicinity)	75	12	1.6
Upstate - Urban	12	1	8.3
Upstate - Rural	17	0	0
Mid-Hudson	19	0	0
Missing/Out-of-State (no region specified)	30	4	13.3
Total	494	86	17.4

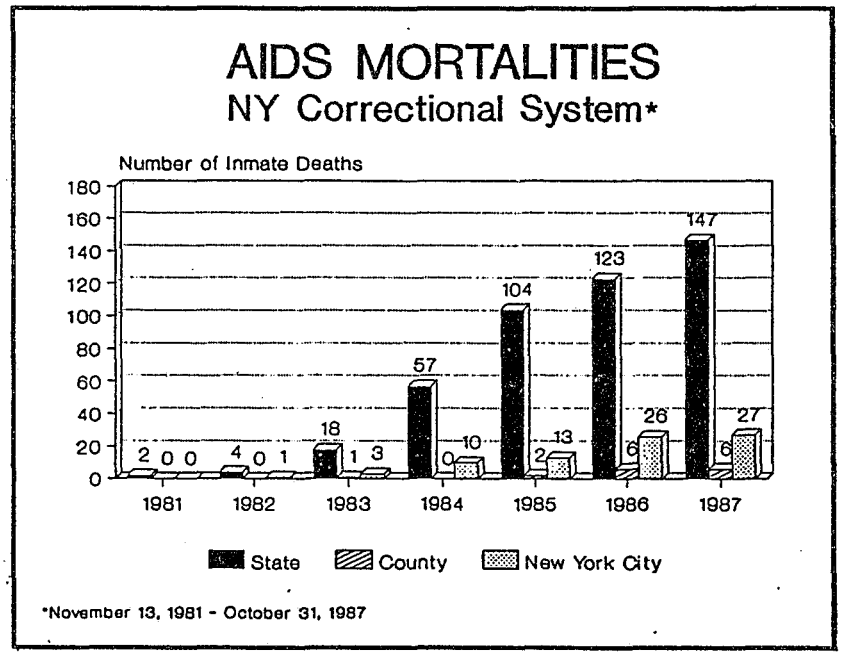
Source: NYS Department of Health
Office of Public Health
Division of Epidemiology, July, 1988

Chapter 1: NEW YORK STATE AIDS INMATE DEMOGRAPHIC PROFILE

Introduction

This chapter updates the statistical profile of 13 major characteristics of the 506 AIDS mortalities in the Commission sample. While the profile includes New York State, county jail, and New York City facilities for the study period, the largest percentage of cases are from the state prison (DOCS) system. The demographic profile is, therefore, primarily shaped by the distribution of mortality characteristics in this subgroup.

Mortalities by Jurisdiction



*November 13, 1981-October 31, 1987

Figure 1 illustrates the distribution of AIDS inmate deaths by correctional jurisdiction for the 506 cases in the sample. The lowest number of inmate AIDS mortalities occurred in the state's county jail system. There were a total of 12 deaths: one in 1983, two in 1985, 3 in 1986 and 6 in 1987. Based on an average annual jail population of 7,324 between 1981 and 1986, the AIDS mortality rate for New York's jail system is 164 per 100,000 population for this time period.**

Similarly, the 69 deaths in the New York City Correctional system as of October 31, 1987, represent a mortality rate of 642 deaths per 100,000 population. This is based on an average annual city system population of 10,441 between 1981 and 1986.

The greatest percentage of inmate deaths from AIDS is found in the state's correctional system (DOCS). With an average inmate population of 30,852 between 1981 and 1986, there were 1,384 mortalities per 100,000 population (New York State Department of Correctional Services, October, 1981-1986). The longer periods of incarceration in state facilities account for the higher mortality rate compared to city and county systems.

RISK BEHAVIORS

Sex of Inmate

Similar to the general population, AIDS in New York's correctional system is predominantly a disease of males. Table 3 shows that only 19 women have died from AIDS in the entire system during the study period. Of these, one died in county custody; five in New York City Department of Correction facilities and 13 in the state system. While there was an 80 percent increase in the number of women inmates dying of AIDS in 1985-86 cases over all previous years (1981-85: 5 female deaths; 1985-86: 9 female deaths) there were 5 female deaths in 1986-87 cases.

Table 3:
Sex of Inmate

	Number of Cases	*Percent of Cases*
Sex		
Male	487	96%
Female	19	4%
TOTAL	*506*	*100%*

**AIDS Mortality Rate =

$$\frac{\text{Total number AIDS deaths in jurisdiction} \times 100{,}000}{\text{Average Population of Jurisdiction}}$$

Because AIDS incidence rates are higher in correctional systems than in the population at large (National Institute of Justice, April, 1988), an ongoing concern for New York corrections officials is the proportion of high risk categories in the correctional population - numbers of inmates with histories of intravenous drug abuse and homosexual/bisexual orientation.

Figure 2

Inmate I.V. Drug Abuse History

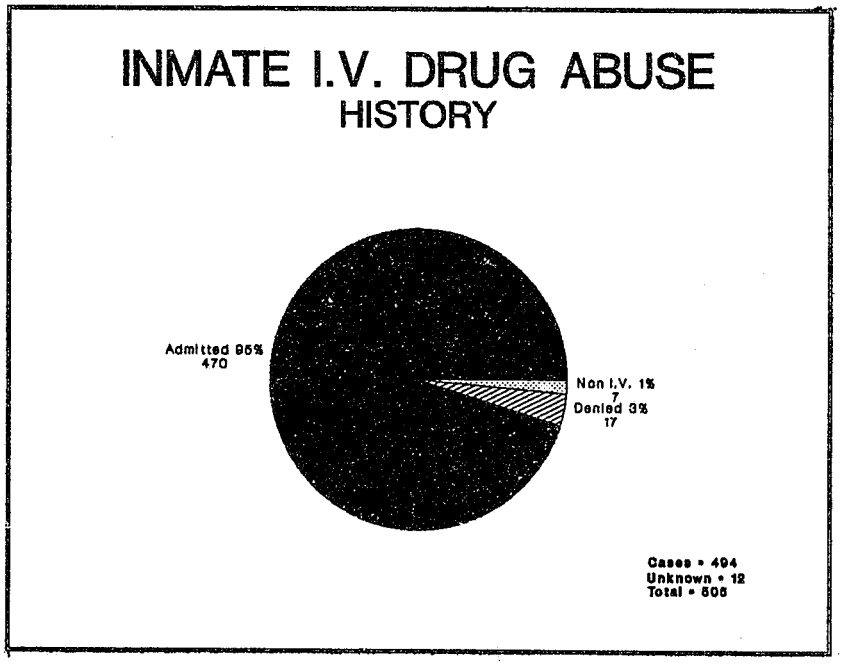


Figure 2 clearly illustrates the relationship between AIDS inmate mortalities and a history of intravenous drug abuse. Based on inmate self reports and other case documents examined, 95 percent of inmates who died from AIDS admitted to this lifestyle. This extremely high proportion of correctional intravenous drug users contrasts to the 19% reported in the general population. (Centers for Disease Control, Septebmer, 1988), and the more than one-third New York City AIDS cases through July, 1988 (NYS DOH, July, 1988). All 19 female correctional decedents had I.V. drug abuse histories.

Figure 3

Inmate Sexual Orientation

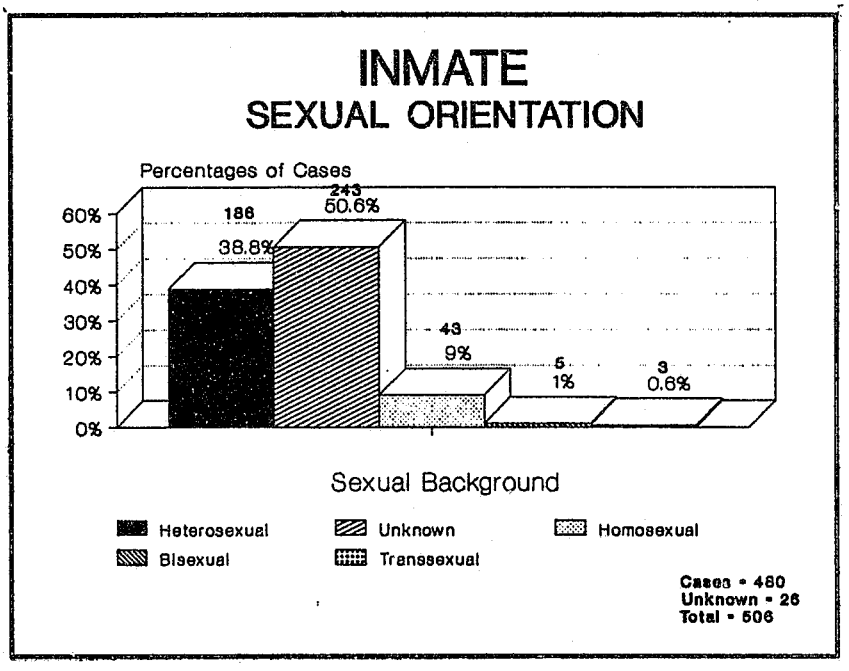


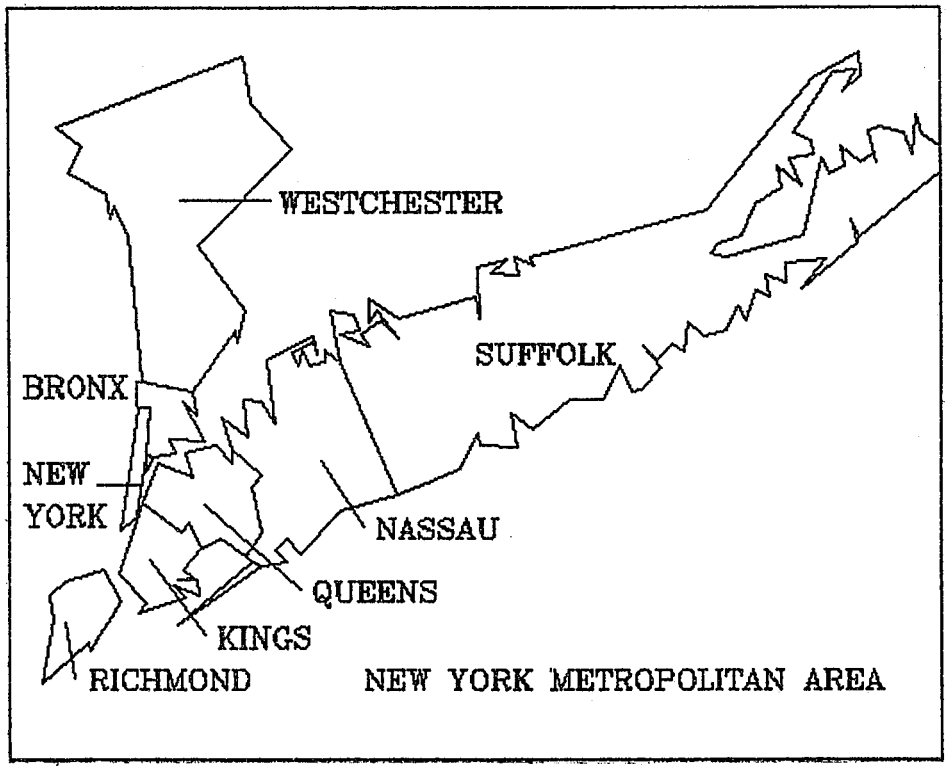
Figure 3 in comparison, shows that only 11 percent admitted an other-than-heterosexual orientational. While these proportions should be interpreted with caution given the 51 percent of "unknowns"*, the evidence confirms that I.V. drug abusers are the primary risk group in New York correctional facilities. This, however, does not discount the role of sexual activity in the transmission of AIDS among inmates.

Residence of Inmate

The high percentage of AIDS cases in New York's correctional system compared to other states and the large numbers of AIDS mortalities with an I.V. drug abuse history should correlate with inmate residence in the New York City metropolitan area prior to entry into the system.

Figure 4

Inmate Residence Prior to Entrance into Correctional System



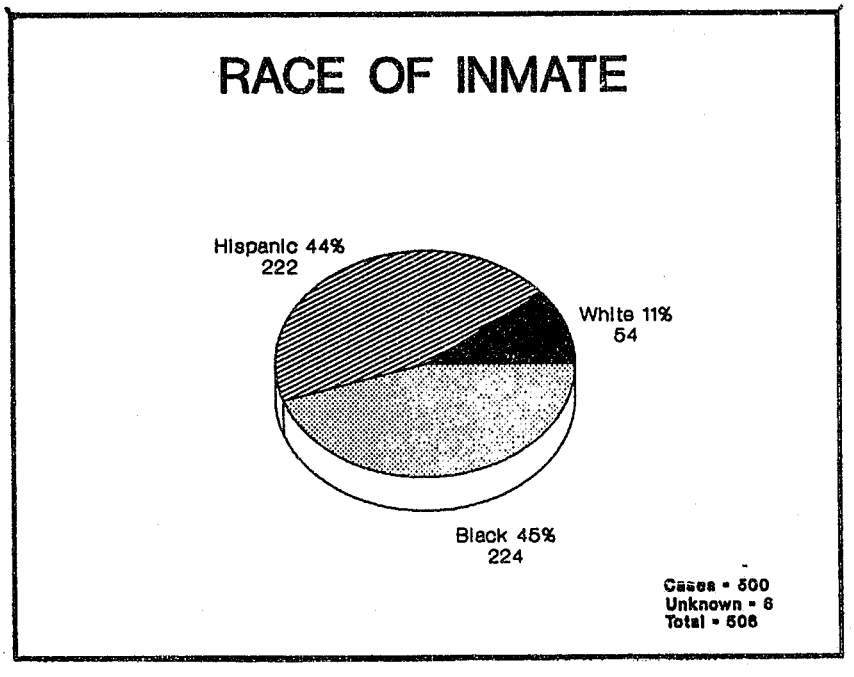
*The Commission's research of the first 177 AIDS inmate cases included an attempt to verify sexual orientation with data on these cases from the New York State Department of Health, Bureau of Communicable Disease Control. As Section 206(1)(j) of the Public Health Law precludes accessing cases with names, the verification was limited to attempting to match cases using key variables such as date of death, race, etc. As the caseload has increased, the usefulness of such a procedure diminishes. The verification, therefore, has not been repeated in the last two years' updates.

LOCATION	NUMBER OF CASES	PERCENT OF CASES
BRONX	117	23%
NEW YORK (MANHATTAN)	83	16%
QUEENS	57	11%
KINGS (BROOKLYN)	120	24%
RICHMOND (STATEN ISLAND)	7	1%
NEW YORK CITY (UNSPECIFIED BOROUGH)	55	11%
NASSAU COUNTY	9	2%
WESTCHESTER COUNTY	4	1%
NEW YORK STATE (OUTSIDE NYC)	15	3%
OTHER STATES	5	1%
UNKNOWN	34	7%
TOTAL	506	100%

Indeed, Figure 4 supports the theory that the high incidence of AIDS in New York City's high risk drug subculture accounts for the distinctive demographic profile of AIDS in New York State's correctional system. While the addition of this year's cases resulted in some small variations in specific location origins, the majority, 86 percent, still reside in the New York City metropolitan area prior to incarceration. Eight-five percent of these were admitted intravenous drug abusers. Given the disproportional number of black and Hispanics among New York City I.V. drug users, (National Institute of Justice, April, 1988:28), is there a high ratio of these two groups among AIDS inmate mortalities?

Figure 5

Race of Inmate



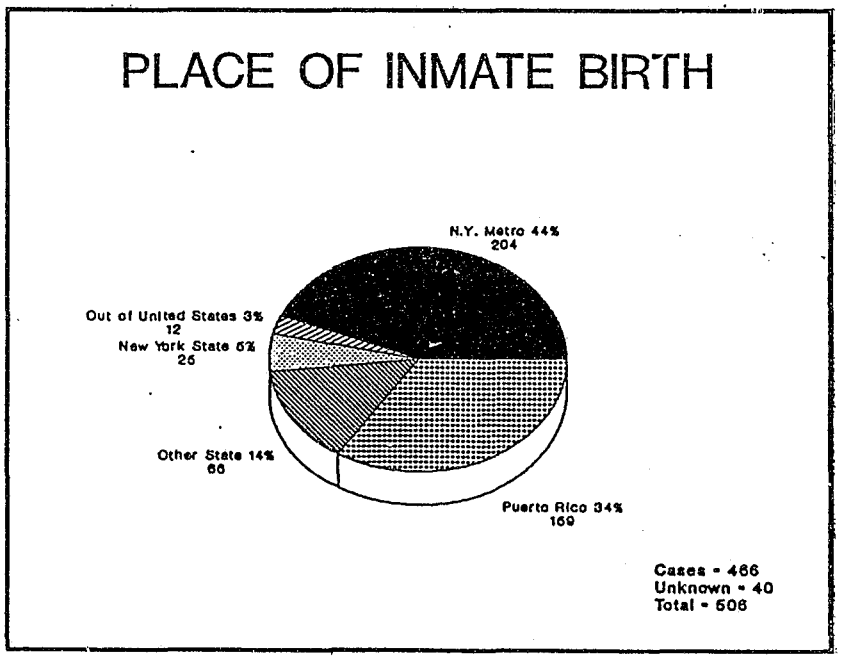
Clearly, blacks and Hispanics represent the largest percentage of AIDS fatalities as shown in Figure 5. Whites account for only 11 percent of the deaths due to AIDS. With the updated cases, the proportion of black AIDS inmate mortalities in the profile increased by 2 percent while the ratio of white deaths decreased 1 percent. The percentage of Hispanics among AIDS inmate fatalities declined by one percent.

According to an October 5, 1987 demographic profile of inmates in DOCS facilities (New York Department of Correctional Services), 2 percent of inmates are white, 30 percent are Hispanic and 50 percent are black. Assuming this distribution has remained fairly constant over the period 1981 through 1987, then whites, and to a lesser degree blacks, are under-represented among AIDS mortalities. Hispanics, on the other hand, are over-represented.

An examination of the 506 cases shows very little difference between the groups as to rates of I.V. drug abuse; 94 percent of whites compared to 95 percent of Hispanics and 95 percent of blacks were admitted I.V. drug abusers. However, compared to whites, blacks and Hispanics were in the system longer. Seventeen percent of blacks and 18 percent of Hispanics in the sample were in the system three years or longer, compared to only 17 percent of whites.

Figure 6

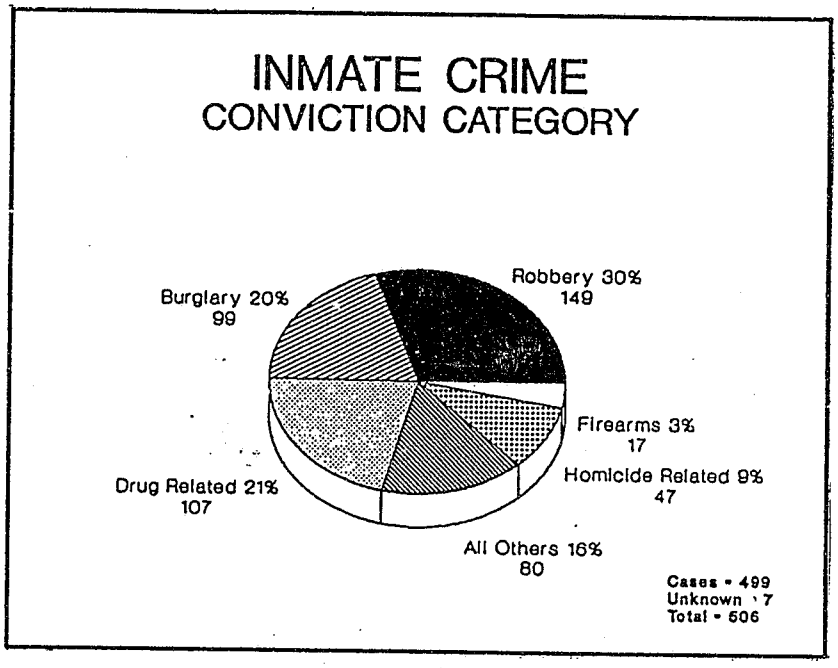
Place of Inmate Birth



Forty-four percent of the cases analyzed listed inmate place of birth in the greater New York metropolitan area (Figure 6). Another 34 percent listed Puerto Rico or a Caribbean country as their birthplace. This update finds a slight increase in the percentage of cases born in New York City and an accompanying decrease in "New York State" birth origin. It is noteworthy that 95 percent of the sample born in New York City and 98 percent from outside the United States entered the state's correctional system from this metropolitan area. This presents a profile of individuals who largely confined their drug use and crime-related activities to New York City.

Figure 7

Crime Conviction Category



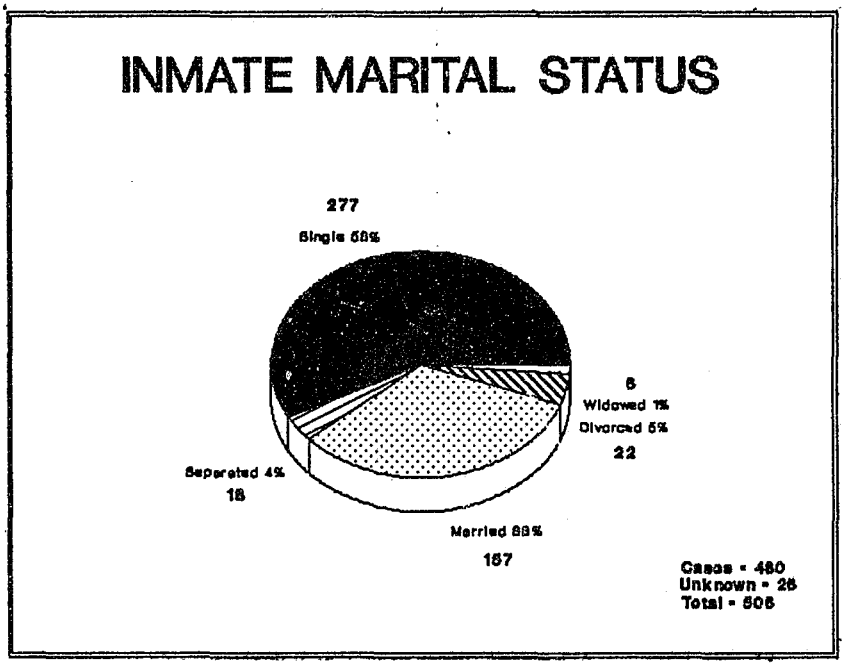
Recent National Institute of Justice research has underscored the relationship between drug abuse and crime. Heroin abusers have been found to commit high rates of robbery and burglary and to be as likely as non-abusers to commit crimes like homicide, sexual assault, robbery and firearms offenses (National Institute of Justice, March/April, 1987, pp.2-3).

Given the high ratio of I.V. drug abusers, particularly heroin addicts in this sample, it is not surprising that their criminal conviction profile reflects these national studies. Figure 7 shows

inmates in this study were primarily convicted of robbery (30%), burglary (20%), and drug related offenses (21%).

Figure 8

Inmate Marital Status



The majority of inmates who died from AIDS were not married (Figure 8). Fifty-eight percent were single, compared to 33 percent who were married. A small number were separated, divorced or widowed.

While the high proportion of individuals who are single correlates with a drug abuse profile, the one-third of mortalities who were married underscores the importance of inmate health education while incarcerated. Eight-two percent of children in New York State (124 cases) who have AIDS have one or both parents who are I.V. drug abusers (New York State Department of Health, July, 1986:p.3).

Figure 9

Age of Inmate at Death

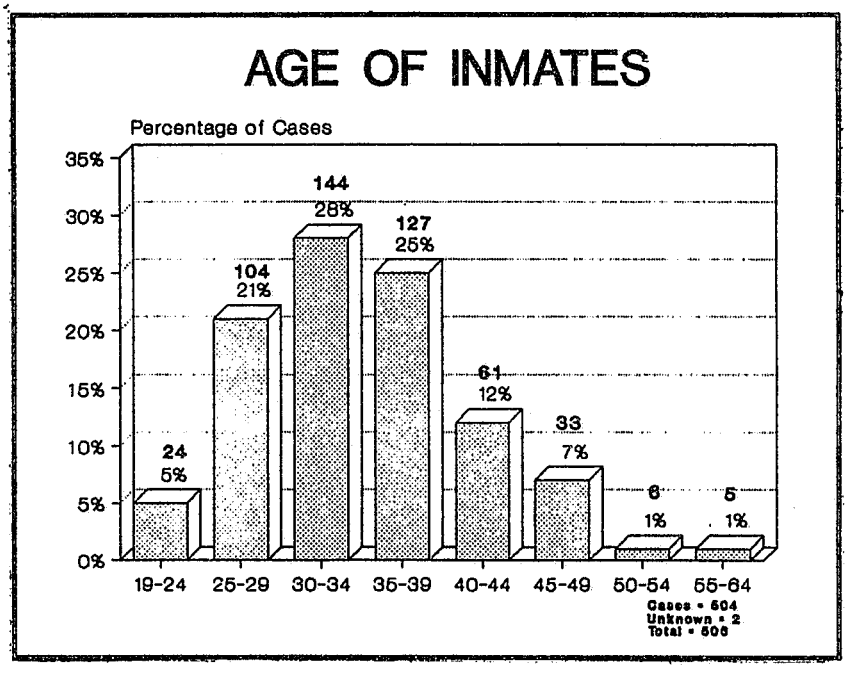
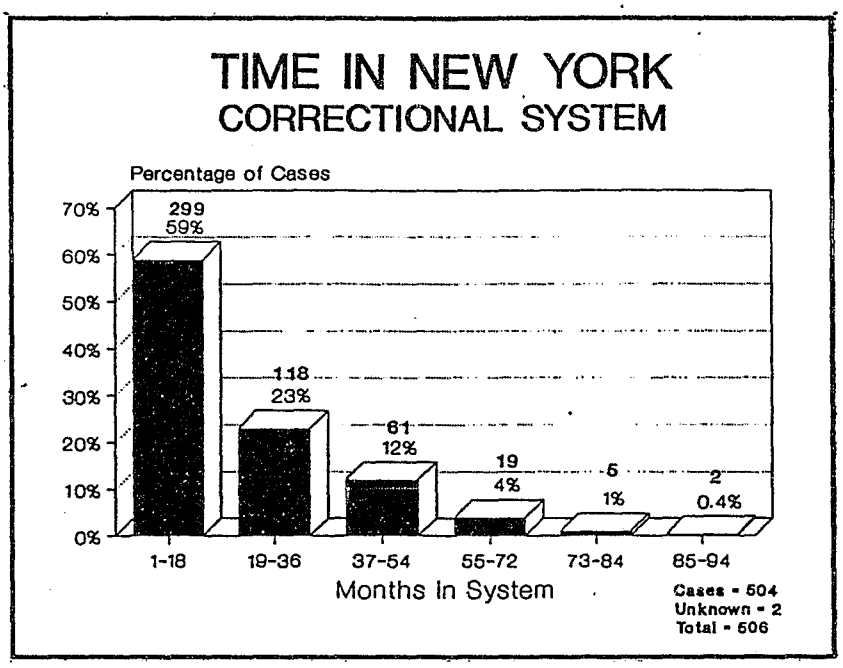


Figure 9 displays the age range at death. The youngest decedent was 19; the oldest 64. Ninety-eight percent of the male mortalities were between the ages of 20 and 49. This compares with 87 percent of men afflicted with AIDS in the United States civilian population in this age range (CDC, September 12, 1988). The average age of death of male inmates with AIDS in the same is 34, slightly younger than the national average 36.8 for males afflicted with the disease.

Figure 10

Time in Correctional System



Fifty-nine percent of inmates had been in the state correctional system 1-18 months at the time of their death (Figure 10). Another 23 percent had completed 19-36 months. Twelve percent served 37-54 months or up to four and one-half years. Four percent or 19 cases had been in the system 4.6-6 years (55-72 months), and two individuals had served 6.6-7 years. This year's edition includes two individuals who were in the system 7.7 and 7.8 years prior to death.

While CDC indicates a developmental period for AIDS ranging from 6 months to 7 years (84 months) or longer, the average developmental period is three years. Since inmates who are continuously incarcerated for more than 5 years had no access to high risk groups outside the correctional system and were far beyond the average developmental period, the possibility of transmission within facilities may be a cause of concern.

Hospital at Time of Death

In 1981, the New York State correctional system utilized only the State University of the Upstate Medical Center, Syracuse, and Westchester County Medical Center (WCMC) for evaluation and acute

inpatient hospitalization of inmates with AIDS. As the incidence of the disease increased across state facilities, it became necessary to utilize local community hospitals for patient care. By 1984, a special care unit (12 beds) was established by DOCS at Sing Sing Correctional Facility because of its proximity to Westchester County Medical Center and New York City. This also made family visits more convenient since most of the AIDS victims were from this area.

Since 1981, DOCS has had to provide inpatient medical-surgical services and outpatient diagnostic services by accessing 31 medical centers and community general hospitals throughout the state, only three of which contain secure prison wards. The most recently established secure unit is at St. Clare's Hospital in New York City, where eight beds are available for DOCS inmates. Current plans call for an increase in secure beds at St. Clare's to a total of 25.

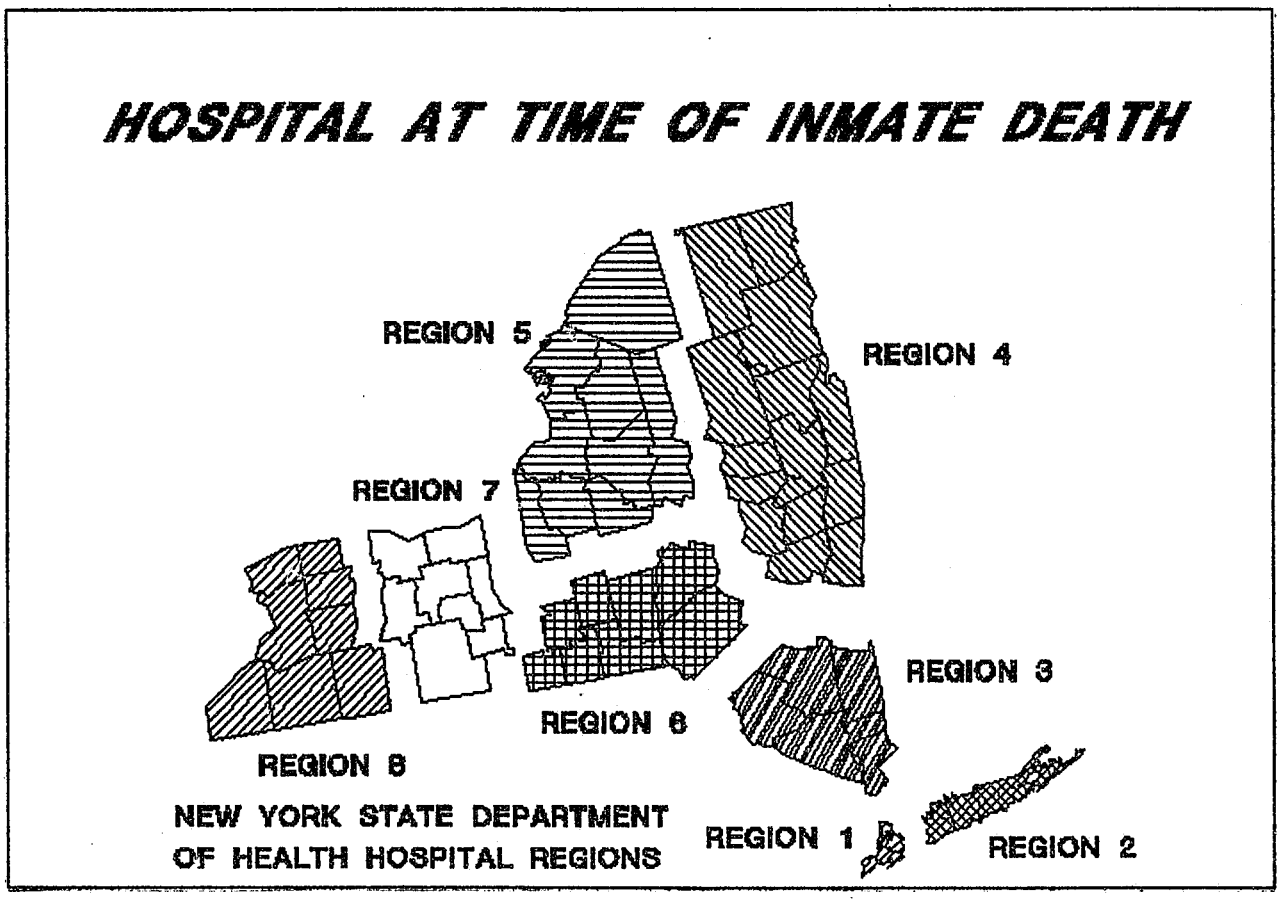
Figure 11 shows the distribution of inmate deaths across the New York State Department of Health's eight hospital regions. The statistical breakdown of inmate deaths shows that the highest number of deaths occurred in Mid-Hudson Region 3. This is due to the location of Sing Sing in the region, as well as the high concentration of correctional facilities in the general geographic area. There were twenty-nine inmates deaths within correctional facilities, twenty-three more than in the original report. Sixteen of these occurred in 1987, compared to six in 1986, four in 1985 and three in 1984.

Two hundred sixty-six or 56 percent of hospital deaths were reported in the state's ten university-affiliated medical centers. The remaining 44 percent died at community hospitals around the state. However, due to the termination of the contract with Westchester County Medical Center, in September, 1986, DOCS shifted critically ill inmates to other hospitals statewide. In 1985, inmate AIDS deaths at WCMC accounted for 49 percent of medical center inmate mortalities. The rate dropped to 40 percent in 1986 and to 2 percent in 1987. The effect is shown in the increase in community hospital AIDS inmate mortalities over this time period. Seventy-one percent of 1985 AIDS inmate deaths occurred at medical centers; 20 percent at community hospitals. In contrast, community general hospitals were the site for 61 percent of 1987 inmate deaths, compared to 39 percent at medical center locations. Eight 1987 mortalities took place at four community hospitals where there were no previous inmate cases.

The lack of secure hospital beds, decreasing hospital bed availability with accompanying increased demands on facility infirmaries, and lowered access to infectious disease outpatient services raise serious concerns for the quality and cost of inmate health care. These issues are examined in Chapter 2.

Figure 11

Hospital at Time of Inmate Death



REGION AND HOSPITAL	NUMBER OF CASES	PERCENT OF CASES
REGION 1: NEW YORK CITY		
St. Clare's	29	6%
Richmond Memorial Hospital	8	2%
Bayley Seton Hospital	8	2%
*Bellevue Hospital Center	34	7%
City Hospital Center at Elmhurst	9	2%
*Kings County Hospital Center	29	6%
*Veterans Administration Hospital, Manhattan	1	less than 1%
Columbia Presbyterian	1	less than 1%
TOTAL REGION	**119 Deaths**	**25%**
REGION 2: LONG ISLAND		
*Nassau County Medical Center	8	2%
*University Hospital, Stony Brook	3	less than 1%
TOTAL REGION 2	**11 Deaths**	**2%**
REGION 3: MID-HUDSON		
Community General Hospital of Sullivan County, Harris	13	3%
Horton Memorial Hospital	25	5%
Vassar Brothers	6	1%
White Plains	1	less than 1%
St. Agnes Hospital	4	1%
Phelps Memorial Hospital	9	2%
*Westchester County Medical Center	101	21%
Northern Westchester	3	1%
St. Luke's	10	less than 1%
St. Francis	1	less than 1%
Kingston City	2	less than 1%
TOTAL REGION 3	**175 Deaths**	**37%**
REGION 4: NORTHEAST		
Greene County Memorial	3	1%
*Albany Medical Center	26	5%
Glens Falls Hospital	25	5%
Champlain Valley Physicians Hospital	10	2%
General Hospital of Saranac Lake	14	3%
Columbia Memorial	2	less than 1%
Emma Lang Stevens	3	1%
TOTAL REGION 4	**83 Deaths**	**17%**

REGION 5: CENTRAL

*State University of the Medical Center, Syracuse	22	5%
Hepburn Hospital, A. Barton	4	1%
Faxton	8	2%
Mercy-Watertown	2	less than 1%
TOTAL REGION 5	**36 Deaths**	**8%**

REGION 6: SOUTHERN

Arnot-Ogden Memorial Hospital	6	1%
Bassett (Cooperstown)	2	less than 1%
TOTAL REGION 6	**8**	**2%**

REGION 7: ROCHESTER

*Strong Memorial Hospital of the University of Rochester	2	less than 1%
Roswell Park	2	less than 1%
TOTAL REGION 7	**4 Deaths**	**1%**

REGION 8: BUFFALO

*Erie County Medical Center	40	8%
TOTAL REGION 8	**40 Deaths**	**8%**

TOTAL HOSPITAL DEATHS, ALL REGIONS	476	94%
DIED IN FACILITY	29	6%
MISSING	1	less than 1%

*University-affiliated Hospital

Figure 12
Period of Final Hospitalization

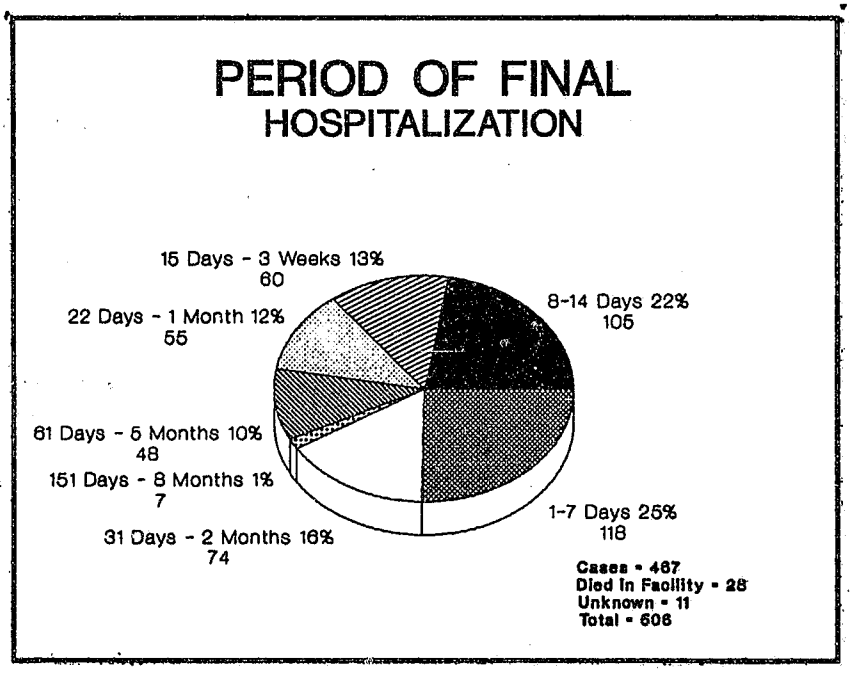
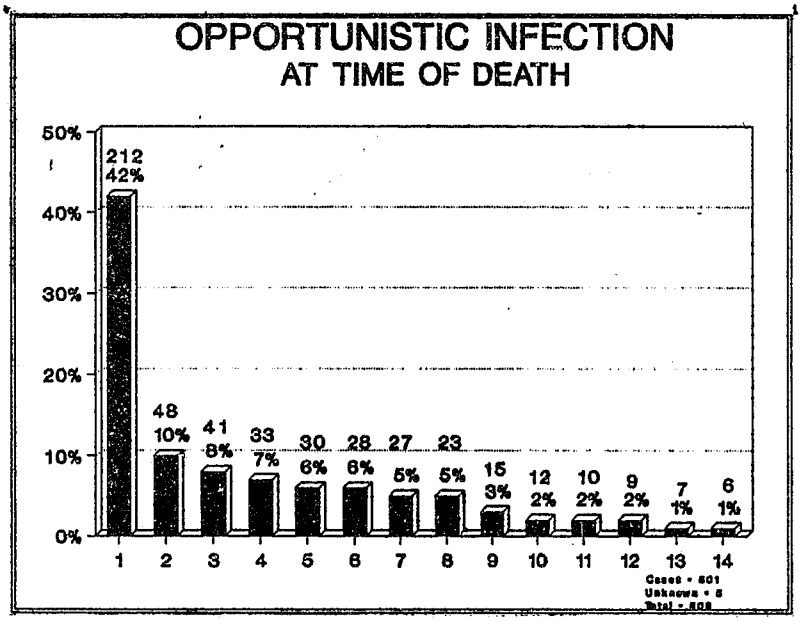


Figure 12 presents the final period of hospitalization for the sample. This ranged from one day to eight months. Forty seven percent of inmates were in the hospital one day to two weeks. This compares to 12 percent of cases whose final hospitalization stay was 61 days to 8 months. Overall, these 467 cases consumed 12,717 acute hospital patient days during their terminal hospitalization with an average length of stay of 27 days. Given the trends identified above, these figures raise critical questions as to the cost of delivery of health care within New York State Corrections. What portion of DOCS available hospital days is consumed by AIDS cases? The utilization of community hospital or medical center hospital beds coupled with the need for security supervision has a major impact on the number of beds

available for elective inmate admissions. The current unavailability of skilled nursing or intermediate care services to inmates extends acute care lengths of stay.

Figure 13
Opportunistic Infection at Time of Death



1. Pneumocystis Carinii Pneumonia
2. All Others
3. Pneumocystis Carinii Pneumonia+
4. Toxoplasmosisz
5. Mycobacterium Avium
6. Cryptococcus
7. Candidiasis
8. Malignant Brain Lymphoma
9. Cytomegalovirus
10. Kaposi's Sarcoma
11. Kaposi's Sarcoma+
12. Cytomegalovirus+
13. Cryptococcus+

Figure 13 portrays the relative proportions of the thirteen opportunistic infections reported at time of death. Similar to the original report, PCP is the most common opportunistic infection among AIDS inmates. Fifty-four percent of the deaths were due to Pneumocystis Carinii Pneumonia along or PCP in combination with other opportunistic infections (PCP+).

Summary Demographic Profile

Based on the update of demographic statistics, there has been no dramatic change in the NYS AIDS inmate mortality profile. The typical AIDS inmate mortality in the New York State correctional system was an Hispanic or black, single male, 34 years of age, with a history of intravenous drug abuse prior to incarceration. He was born in the New York City metropolitan area, having lived in this area prior to entering the system. He was typically incarcerated in a state correctional facility. He was likely to have been convicted of robbery, burglary or drug-related offenses, and been in the system an average of 20 months prior to death. He was typically hospitalized in a New York State university-affiliated hospital, in the Mid-Hudson Region. He was most likely to have contracted the opportunistic infection, Pneumocystis carinii Pneumonia, and died after an average final hospital stay of 27 days.

CHAPTER 2: A DISEASE PROFILE OF AIDS IN NEW YORK STATE FACILITIES (DOCS)

Introduction

The demographic profile of AIDS inmates outlined in this update is largely shaped by cases coming from state correctional facilities. Table 4 confirms that AIDS deaths have been widespread throughout this system.

Table 4: Assigned DOCS Facility at Time of Death by Number and Percent of Deaths

Type of Facility	Name of Facility	No. of Deaths	% of Deaths
Maximum	Attica	24	5.6
	Auburn	19	4.4
	Bedford	10	2.3
	Clinton	23	5.4
	Downstate	24	5.6
	Eastern	9	2.1
	Elmira	7	1.6
	Great Meadow	15	3.5
	Green Haven	21	4.9
	Sing Sing	80	18.7
	Sullivan	3	.7
	Wende	4	.9
	Total Maximum	**243**	**56.7**
Medium	Adirondack	13	3.0
	Albion	3	.7
	Altona	7	1.6
	Arthurkill	13	3.0
	Bayview	1	.2
	Collins	5	1.1
	Fishkill	17	4.0
	Franklin	5	1.1
	Greene	8	1.8
	Groveland	9	2.1
	Hudson	3	.7
	Long Island (closed 3/26/85)	3	.7
	Mid-Orange	8	1.8
	Mid-State	8	1.8
	Mt. McGregor	5	1.2

	Ogdensburg	7	1.6
	Orleans	7	1.6
	Otisville	14	3.3
	Queensboro	11	2.6
	Taconic	6	1.4
	Wallkill	8	1.8
	Washington	7	1.6
	Watertown	4	.9
	Woodbourne	7	1.6
	Wyoming	2	.5
	Total Medium	**181**	**42.4**
Minimum	Camp Beacon	1	.2
	Camp Gabriel	1	.2
	Camp Georgetown	1	.2
	Edgecombe	1	.2
	Total Minimum	**4**	**.9**
	Total Deaths All DOCS Facilities	**428**	**100%**

The greatest number of deaths were reported at maximum security facilities. This illustrates a preference for management of AIDS patients (prior to final hospitalization) in maximum security settings which have the highest concentrations of health care resources - i.e., infirmary capacity, nursing staff, physician coverage, etc. However, more than one-third of the inmates were housed (and managed) in facilities distributed around the state, many of which are less richly endowed with health care resources and which are often remote from large medical centers. (New York State Commission of Correction, April, 1984). In all, the deaths were distributed among 81 percent of DOCS facilities. Since the September, 1987 report, four additional facilities have reported AIDS mortalities.

A Bureau of Health Systems Evaluation review of all mortality cases in Department of Correctional Services facilities from 1981 through the end of December, 1987 shows that since 1983, more than 50 percent of deaths in DOCS facilities have been due to AIDS*.

*As of September 1, 1988, there have been 114 reported 1988 AIDS deaths in New York State DOCS facilities.

Figure 14

DOCS Mortalities per 10,000
1981-1987

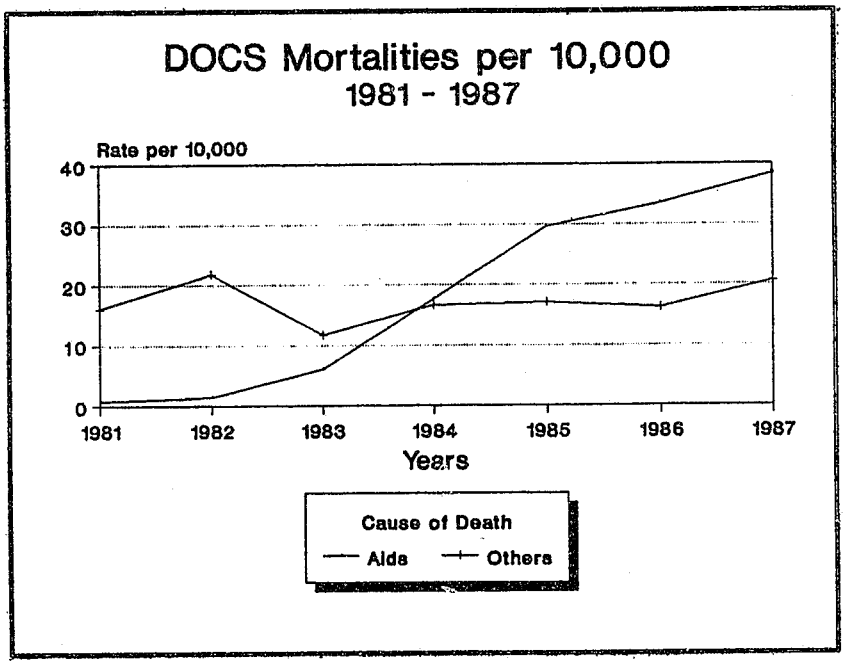


Figure 14 charts the 1981-1987 AIDS mortality rate in DOCS facilities, compared to the rate for all other categories of death (per 10,000 of inmate population). While the mortality rate for other-than-AIDS cases has been fairly stable, the graph clearly shows the upward trend for AIDS mortalities.

In order to learn more about the natural history and progression in New York's state prison system, this chapter presents findings on: 1) the progression of the disease - average time periods from entry into the system to onset of symptoms, to confirmation and death; and 2) a comparison of AIDS inmate survival rates to a NYC AID study cohort. The 428 state facility mortality cases of the sample are the data base for this analysis.

Disease Progression: Research and Quality of Care Issues

The length and variation of the developmental period of AIDS presents particular challenges to correctional administrators and health staff in terms of developing comprehensive treatment policies and procedures. While there is considerable variation between

individuals, an examination of particular groups, or "cohorts" may be useful in identifying trends across such groups over time.

With this goal in mind, state facility inmate mortality cases were grouped by year and data extracted and computed for the following "disease stages": 1) number of days from entry into the system to onset of symptoms; 2) number of days from onset to confirmation of symptoms; and, 3) number of days from confirmation to death.

To assure accuracy, the data were extracted by the Project Associate who has the medical expertise to interpret the various medical and facility forms and select the appropriate dates. Time periods were then computed in exact calendar days for each case. Table 4 gives the average aggregate time in days and months for each disease stage by year. A comparison of each year's mortality "cohort" over time for each stage yields a number of observations and questions for further research.

Table 5: AIDS Progression in New York State Prisons: Average Time Periods By Year - Time in System, Entry to Onset, Onset to Confirmation, Confirmation to Death, Final Hospitalization

	Average Time in System	Average Time Entry into System to Symptoms Onset	Average Time Onset to Confirmation	Average Time Confirmation to Death	Average Time Final Hospitalization
1982	18.3 mos. (549 days)	11.3 mos. (340 days)	0.8 mos. (25 days)	4.2 mos. (126 days)	0.6 mos. (17 days)
1983	18.8 mos. (563 days)	11.3 mos. (339 days)	3.5 mos. (104 days)	5.3 mos. (159 days)	1.5 mos. (47 days)
1984	21.5 mos. (647 days)	14.3 mos. (430 days)	4.6 mos. (137 days)	6.3 mos. (189 days)	1.3 mos. (39 days)
1985	26 mos. (781 days)	23.0 mos. (690 days)	3.0 mos. (82 days)	5.2 mos. (155 days)	1.2 mos. (35 days)
1986	20 mos. (596 days)	16.5 mos. (496 days)	2.3 mos. (68 days)	4.5 mos. (135 days)	0.7 mos. (21 days)
1987	23.7 mos. (711 days)	15.7 mos. (471 days)	4.2 mos. (127 days)	4.3 mos. (128 days)	0.9 mos. (28 days)

Average Time in System

A comparison of 1982-1987 inmate mortalities shows little variation in the average incarceration period for each year's cohort - from 18.3 months in 1982 to 23.7 months in 1987.

While each cohort's average time in the system is a function of sentencing variation, the trend toward longer sentences in the state will have an impact on the number of AIDS cases. Are greater numbers of IV drug abusers entering New York State's correctional system for longer periods of time? If so, what are the ramifications of such a trend for the future incidence rate of AIDS in New York State Department of Correctional Services facilities?

Average Time, Entry Into System to Onset

Similarly, there is variation in the length of time from entry into DOCS facilities to the onset of symptoms of AIDS - from 11.3 months in 1982 to 23 months in 1985, dropping to 16.5 in 1986 and to 15.7 months in 1987. This pattern in 1986-87 suggests improvement in the ability of DOCS clinicians to detect early, often ambiguous symptoms as being related to immunodeficiency.

Theoretically, if education about AIDS is improving among correctional health care professionals and inmates, then earlier recognition of symptoms might shorten this time span because of earlier documentation of symptoms. Such improvements could account for the 1986-1987 decrease in the average time of entry to onset.

Average Time, Confirmation to Death

Since 1984, the average time period from confirmation of AIDS to death has been declining - from 6.3 months in 1984 to 4.5 in 1986*, even as rates of confirmation of the disease appeared to be improving. The downward trend continues in 1987 (4.3 months). These declining survival rates may reflect the presence of demographic factors in the inmate population associated with diminished survival.

A comparison of New York State inmate survival rates to a New York City study cohort is provided in the next section of the report.

Average Time, Final Hospitalization

Since 1983, the average period of final hospitalization has been close to a month and gradually decreasing to an average of 21 days in

*This is not due to extremes in the distribution of n's - The coefficient of variation is 1.1 in 1984, 1.3 in 1985 and 1.1 in 1986.

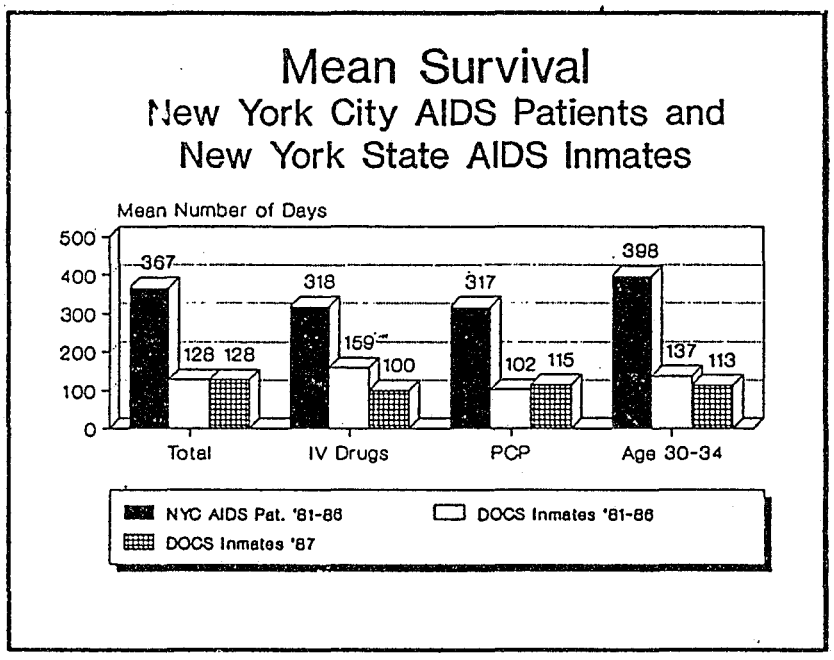
1986. This downward trend may be related to the hospitalization of AIDS inmates in general. It increased slightly in 1987. The high acute care bed utilization rates suggested by these figures argues strongly for development of intermediate care levels for inmate-patients, as discussed in Chapter 1.

Survival Rates and Quality of Care

Figure 15 presents mean survival rates from a New York City civilian AIDS study cohort* and the New York State Department of Correctional Services inmate cases in this study.

Figure 15

Mean Survival, New York City AIDS Patients and New York State AIDS Inmates (in days)



Without controlling for any other variables, it is obvious that DOCS inmates have shorter survival rates than this general population samples. The same applies when variables specific to DOCS inmate

***Rothenberg, Richard, et al. "Survival with AIDS" Centers for Disease Control, Atlanta, GA, 1986. The cohort represents over 5,800 cases (through December, 1985) drawn for a study of the probability of AIDS survival and the effects of variables like gender, race/ethnicity, age, risk group, and type of illness on survival.**

demographics and epidemiology are selected, e.g., Pneumocystis infection, IV drug abuse and the 30-34 age group. One would not expect to find inmate survival rates to be less than half that of the general population sample and declining annually. Are these findings in any way related to the identified deficits in inmate health care resources and patient management practices found in this study?

Current research indicates that early detection and aggressive therapy in a medical center setting followed by close monitoring by medical-center based infectious disease departments extends, both the duration and quality of life for AIDS victims. What remains lacking is convincing evidence that each confirmed patient receives vigorous monitoring and aggressive therapy in an appropriate setting.

A July, 1987 Commission survey found 362 identified AIDS and ARC patients distributed among 33 state correctional facilities. Of these, a total of 235 were being managed in either facility infirmaries or in population. The conditions of medical management vary among the 33 facilities, but their access to tertiary care medical centers is nearly uniformly limited. Additionally, staffing resources have not increased to meet this need. This, when viewed in conjunction with the increase in deaths at facilities vs. hospitals (3 in 1984; 4 in 1985; 6 in 1986; and 15 in 1987) and the year-to-year increases in AIDS confirmations only at autopsy (1983-3; 1984-4; 1985-12; 1986-28; 1987-22{as of 10/31}) suggests that the increased strain on limited DOCS health care resources, both facility and community-based, is having a negative impact on DOCS' ability to achieve nominal results in its management of AIDS.

Transmission of AIDS

As referenced above, there are a small number of inmates (seven) who died of AIDS during the study period who had been continuously incarcerated for 6-8 years.

Without any additional evidence, it is difficult to assert that these cases seroconverted during incarceration. CDC studies of AIDS report incubation periods as long as 84 months, or 7 years. The cases, therefore, do appear suspicious, but, again, no definite conclusions can be drawn as to how the virus might have been transmitted. A recent longitudinal study of inmates in Maryland found a 1.5% seropositivity rate among long-term inmates who had volunteered to be tested (National Institute of Justice, 1988). Based on such studies and evidence of other sexually transmitted diseases within correctional systems, the National Institute of Justice report on AIDS states that "...there are no conclusive data on the extent of transmission of infection within correctional facilities."

Summary

The demographic profile of AIDS inmates is largely shaped by state correctional facility (DOCS) cases. While AIDS mortalities have been widespread in this system, the majority of deaths have been at maximum security facilities. Over 50 percent of all DOCS deaths the last three years have been due to AIDS. While the mortality rate for other-than-AIDS cases has been fairly stable, the AIDS mortality rate per 10,000 DOCS inmates has grown steadily.

A disease profile of the sample mortalities found a progressive downward trend in the average time between confirmation and death. There is an annual decrease in inmate survival rates and a lower mean survival rate for inmate cases compared to a New York City cohort. This diminished survivability may be related to increased strains in DOCS community-based and facility health care resources. Finally, the issue of AIDS transmission within facilities is raised in relationship to inmate cases found to be continuously incarcerated 6-8 years.

CONCLUSION

Acquired Immune Deficiency Syndrome: A Demographic Profile of New York State Inmate Mortalities 1981-1987, Third Edition represents an ongoing initiative to assess the nature and scope of the incidence of AIDS in New York State's correctional settings.

The report provides a comprehensive picture of the natural history of the disease in a subpopulation which has been the subject of intensive study by the Commission over the past six years. The data provided and the questions posed form the foundation for future research initiatives in New York State and the nation. The study's interpretive analyses of the data are offered to correctional and health care policymakers to assist them in strategic planning for the successful management of AIDS and the myriad problems associated with its critical impact on New York State.

REFERENCES

Blattner, William A., Robert J. Biggar, Stanley H. Weiss, Mads Melbye, James J. Goedert. "Epidemiology of Human T-Lymphotropic Virus Type III and the Risk of Acquired Immunodeficiency Syndrome." Annals of Internal Medicine103 (November, 1985), pp.665-670.

Gaunay, William and Rosemary L. Gido, Update: Acquired Immune Deficiency Syndrome: A Demographic Profile of New York State Inmate Mortalities, 1981-1986 (Second Edition), New York State Commission of Correction: Albany, New York, September, 1987.

Gaunay, William and Rosemary L. Gido, Acquired Immune Deficiency Syndrome: A Demographic Profile of New York State Inmate Mortalities, 1981-1985, New York State Commission of Correction: Albany, New York, March, 1986.

Centers for Disease Control, Morbidity and Mortality Weekly Report-U.S. AIDS Activity, October 20, 1986. Atlanta, Georgia.

Centers for Disease Control, Morbidity and Mortality Weekly Report 31 (September 24, 1982), pp. 507-14.

Centers for Disease Control, Morbidity and Mortality Weekly Report 36:15 (August 14, 1987) pp.15-65.

Curran, James W., W. Meade Morgan, Ann M. Hardy, Harold W. Jaffee, William W. Darrow, and Walter R. Dowdle. "The Epidemiology of AIDS: Current Status and Future Prospects." Science 229 (September, 1985), pp. 1352-1357.

DesJarlais, Don C., Eric Wish, Samuel R. Friedman, Rand Stoneburner, Stanley Yancovitz, Donna Mildvan, Wafaa El-Sadr, Elizabeth Brady, and Mary Cuadrado. "Intravenous Drug Use and the Heterosexual Transmission of the Human Immunodeficiency Virus - Current Trends in New York City." New York State Journal of Medicine87:5 (May, 1987), pp. 283-286.

National Institute of Justice, AIDS in Correctional Facilities: Issues and Options, U.S. Department of Justice: Washington, D.C., April, 1988.

National Institute of Justice, NIJ Reports: Drugs and Crime, U.S. Department of Justice: Washington, D.C., March/April, 1987.

"National Prisoner Statistics, Mid-Year Count", U.S. Department of Justice, 1988.

New York State Commission of Correction. "Detection, Diagnosis and Treatment of AIDS in Correctional Settings". April, 1984. Albany, New York.

New York State Department of Correctional Services. "Characteristics of Female Inmates Held Under Custody 1975-1985." September, 1986. Albany, New York

New York State Department of Correctional Services. "An Examination of the Trend of Female New York Commitments, 1976 to 1984." June, 1986. Albany, New York.

New York State Department of Correctional Services. "Inmate Profile." November 3, 1986. Albany, New York.

New York State Department of Correctional Services. "Monthly Analysis of Admissions and Releases." October 1981-1985. Albany, New York.

New York State Department Of Health, Bureau of Communicable Disease Control. AIDS Surveillance Monthly Update. October, 1985. Albany, New York.

New York State Department of Health, Bureau of Communicable Disease Control. AIDS Surveillance Monthly Update. June, 1986. Albany, New York.

New York State Department of Health, Bureau of Communicable Disease Control. AIDS Surveillance Monthly Update. July, 1986. Albany, New York.

New York State Department of Health, Bureau of Communicable Disease Control. AIDS Surveillance Monthly Update. July, 1988. Albany, New York.

New York State Department of Health, Office of Public Health, Division of Epidemiology. Epidemiology Notes3:7. July, 1987. Albany, New York.

New York State Division of Substance Abuse Services. "Heroin Update for New York State. December, 1986. New York, New York.

Sanchez, Jose E. and Bruce D. Johnson. "Crime Rates Among Drug-Abusing Women at Rikers Island" in Johnson, Bruce D. and Eric D. Wish, Crime Rates Among Drug Abusing Offenders (Chapter 3). July, 186. New York: Narcotic and Drug Research, Inc.

"Update: Acquired Immune Deficiency Syndrome - United States." Morbidity and Mortality Weekly Report 35:39 (December 12, 1986), pp. 756-766.

Wish, Eric D., Elizabeth Brady, and Marcy Cuadrado. "Urine Testing of Arrestees: Findings from Manhattan." June 5, 1986. New York: Narcotic and Drug Research, Inc.