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My Fellow Citizens:

I want to acknowledge the Commission on HIV/AIDS involvement in the creation of this report. They spent many hours of their work time and their free time in the compilation and editing of this information being presented. The major editors were John Bunting (Baltimore City Department of Social Services), Dr. William Blattner (University of Maryland Institute of Virology), Dr. Rena Boss-Victoria (Morgan State University Public Health Program) and Colin Flynn (Md. State AIDS Administration) and we must thank them for their endeavor to make us aware of the future we are facing.

Traditionally, HIV/AIDS in Baltimore City was attributed to those who are male homosexuals who shared needles and sex. Today, the Epidemic is looking at the face of heterosexual men, women and children in the African-American Community who are dying in increasing numbers. This segment of our population represents entire generations who are not aware that they are involved in this crisis. Partner Notification, which is mandated in the State of Maryland should start to turn the tide of this epidemic and should be strictly enforced in Baltimore City, as it is in all other jurisdictions of Maryland.

In Baltimore City there appears to be a lack of prevention regimes and there are persuasive thoughts that there may be differences in therapeutic regimes of treatment among the major research institutions in our city.

We can no longer be silent. The message must be the same as it was in combating measles and polio. Those vaccines prevented the demise of children in all walks of life. This epidemic must be treated as any other life-threatening disease for our general population. We must look at the prevention side of this epidemic as a possible solution. There will be no progress in the eradication of HIV/AIDS if we do not stop this disease at its beginning.

At the end of this report, you will find rationale behind the recommendations. This information was gathered at the Town Hall meeting on HIV/AIDS held November 1, 2001 at Morgan State University and from the scheduled Commission meetings.

Not since the Middle Passage has this many African descendants been lost, never to return. And in 2002, the numbers are greater now than ever before.

Sincerely,

Sheila Dixon

**President**

Baltimore City Council

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## **A Message from the Commission Chair**

Today's HIV/AIDS epidemic in Baltimore threatens to rob us of the renaissance we so richly deserve. Added to the personal suffering of both infected and affected citizens is the loss of economic and social progress that is necessary for a city to prosper.

The Baltimore City Council has taken a bold and important step in ridding our city of this scourge. By saying "we don't know enough about HIV/AIDS to effectively combat the disease", it has said "we are willing to do battle and we want some guidance". The Commission has labored hard to provide that guidance.

There are no words to express my personal gratitude to the Commissioners for their dedication and commitment to this report. Some of the best and the brightest people in Baltimore were engaged in this endeavor. While not everyone was able to serve on the Commission, those who did gave abundantly and freely of their time, energy and expertise. Many others gave valuable testimony and insight concerning the services and programs available to people living with HIV and AIDS. They have all served the Council and the citizens of Baltimore well.

Special thanks go to the editors of the report: Colin Flynn, Dr. William Blattner, and Dr. Rena Boss-Victoria. They spent countless hours correcting, editing, and rewriting the drafts.

And the Commission was supported and staffed by gifted and visionary staff from Council President Dixon's office: Wanda Watts and Peter Dolkart. Without their assistance, this report could not have been written.

I would also like to acknowledge the Commission's gratitude to our hosts who provided meeting space and generous hospitality: The Episcopal Diocesan Center, Bethel AME Church, Douglas Memorial Community Church, Carver Vocational-Technical High School, Morgan State University, and The Institute of Human Virology at the University of Maryland's Medical Biotechnology Center.

And finally a word of gratitude to Council President Sheila Dixon for her vision of a city and a world without AIDS. Like so many in our city, her life has been transformed by HIV. Unlike too many, she has accepted the challenge of change and transformation.

The elected leaders of Baltimore have many priorities and tasks that enhance the life of our city and its citizens. As they combat the most devastating plague in our city's history, the Commission is ready and willing to continue its struggle in that battle. Together, we will make a difference.

John Bunting, Chair

**Baltimore City Council**

**Commission on HIV and AIDS**

**Prevention and Treatment**

**Final Report – April 9, 2002**

**For Distribution only to the Commissioners and  
staff of the City Council President Dixon**

## **EXECUTIVE SUMMARY**

The City of Baltimore has one of the highest rates of HIV and AIDS in the United States. In the City, many communities are affected, but racial minorities, particularly African-Americans are hardest hit, at greatest risk, and have the least resources for preventing and treating those at risk for infection and disease. This report finds that a **State of Emergency** with respect to the HIV/AIDS epidemic exists within the City of Baltimore. HIV/AIDS affects the health, welfare, and economic interests of the citizens in each of its Council Districts.

***The Baltimore City Council Commission on HIV and AIDS Prevention and Treatment recommends that this State of Emergency be addressed immediately by mobilizing local, regional, and national resources from the public and private sector to augment current inadequate resources to develop a more comprehensive response that coordinates efforts to address this crisis to reverse the cycle of suffering and death brought on the citizens of Baltimore by this relentless plague.***

**The Baltimore City Council Commission on HIV and AIDS Prevention and Treatment** convened more than a dozen full commission meetings, obtained testimony from people infected and affected, held a Town Hall meeting to solicit public input, and spent over one hundred hours in small workgroups. Based on these deliberations the Commission identified strengths and weaknesses in the City's approach to the HIV/AIDS epidemic and made recommendations for addressing this State of Emergency.

### **Strengths:**

- A diverse and effective network of HIV/AIDS service providers;
- Local medical and social research institutions such as Johns Hopkins University, University of Maryland, Morgan State University, and Coppin State College that are national leaders in research and treatment of HIV/AIDS;
- Experience of state and local government agencies in tracking and assessing the progression of HIV/AIDS in the region;
- A faith-based community ready to meet the challenges of combating HIV and AIDS; and,
- Strong and competent leadership in communities most affected by HIV/AIDS such as African-Americans, the drug injecting population, and the gay, lesbian, and bisexual community.

### **Weaknesses:**

- Lack of attention and priority given to the epidemic by local public and health officials;
- Insufficient coordination and integration of services by providers;
- Insufficient cost analysis of treatment, social impact, and loss of productivity;
- Insufficient prevention and treatment strategies linked with substance abuse programs;
- Insufficient support from the business community and other economic stakeholders;
- Insufficient effective and sustained public school education on HIV/AIDS;

- Insufficient integration of prevention and treatment programs to assist both the infected and affected communities to reduce HIV exposure and transmission;
- Inadequate perception of individual risk; and,
- Inadequate unrestricted resources for HIV testing and screening outreach to improve access.

While there have been successes in addressing HIV and AIDS in the City, inadequate coordination and innovation has hampered efforts to sufficiently address HIV/AIDS and its co-morbidities, which include drug addiction, sexually transmitted diseases, homelessness, and poverty.

Although, Baltimore City accounts for less than 15% of Maryland's total population, the City is **home to over 50% of HIV-infected individuals in the state of Maryland**. African-Americans represent 89% of all citizens living with HIV/AIDS in Baltimore City with more than 3 in 100 African-American males infected with HIV in Baltimore (6,189 infected out of the 191,076 African-American males in Baltimore City).

While injection drug use has been a leading cause of infection, **there is ample evidence of heterosexual transmission** as a major component of the emerging epidemic. One in five new cases of AIDS reported heterosexual transmission and two in five of the new cases of HIV infection report heterosexual transmission. The rising proportion of cases resulting from heterosexual exposure often are linked to the high rates of addiction in the City, either directly through sex for drugs or through sex involving a partner who was HIV infected through drug use. However, an increasing amount of direct heterosexual transmission in the absence of drug use is likely. In addition, it is well established that active substance abuse is a barrier to effective HIV therapy, since medications are not reliably taken and active substance abuse leads to high-risk sexual and needle sharing behaviors that put others at risk.

The community of men who have sex with men has been severely impacted by this disease. Men who have sex with men, particularly African-American men who have sex with men, while making up only a small proportion of total cases, continue to experience the highest rates of infection in the City.

While treatment advances have been made, and the City is blessed to have top research and clinical care facilities at its major universities and among dedicated providers, there is a disparity in the impact of these advances among ethnic groups. Nationally, from 1995-1997, the rate of death attributed to AIDS declined by 75% among whites but only 55% among African-Americans. A recent study showed that among patients 18-40 years old, 58% of whites but only 23% of African-Americans had complete viral suppression one year after starting antiretroviral therapy.

Emerging resistance to the life saving medications that have benefited persons who are HIV infected is contributing to the ongoing high mortality due to HIV infection. Further, these resistant viruses account for 7.7% of new infections.

In Baltimore, the widespread use of antiretroviral therapy in a setting of limited funding, inadequate support to optimize adherence, and interrupted medical management has the potential to make this situation worse by limiting future treatment options for those who harbor a resistant virus.

## **RECOMMENDATIONS**

**The Commission on HIV/AIDS recommends that the Baltimore City Council shall:**

- 1. Declare a "State of Emergency" with respect to the HIV/AIDS Epidemic in Baltimore City.**
- 2. Develop and implement an oversight process that includes stakeholders for assessing deficiencies in the implementation of HIV/AIDS programs, the adequacy of funding, and the quality of services in Baltimore City:**
  - Establish line-item funding in Baltimore City Budget for HIV Prevention/AIDS programs:
    - Require public/private clinics that receive City Funding to incorporate initial HIV education and early detection screenings as part of their routine intake and care procedure,****
  - Establish legislation to support and appropriate funding and programs for HIV Prevention/AIDS:
    - Pattern language such as the State of New York Legislative Resolution Assembly No. 362,****
  - Establish legislation to increase funding and capacity for existing services:
    - Existing services must be expanded and extended to reach populations at greatest risk,****
  - Government of the City of Baltimore establish an Office of HIV Prevention/AIDS to report by request to the City Council of Baltimore City:
    - Create and Coordinate organized operational and advocacy structures to support multiple and flexible HIV Prevention Programming.****

**These actions will provide an opportunity to target those who are disproportionately impacted by this raging epidemic.**

- 3. Effectively engage the private sector and the leadership of the neighboring counties in the metropolitan area about the economic consequences of the HIV/AIDS epidemic on commerce and business.**

- 4. Generate additional city, state, federal, and private funds to address the epidemic through coordinated efforts of the Baltimore City Department of Health, the Maryland AIDS Administration, the academic centers in Baltimore, and community-based organizations serving the people of Baltimore.**
- **Require the Baltimore City Health Department to develop and implement a plan to address the ongoing need to build infrastructure, capacity, and recruit and retain leadership within the Bureau of HIV and AIDS.**
  - **Commission an objective independent assessment of the direct and indirect costs of the HIV/AIDS epidemic on Baltimore City and its citizens and the adequacy of resources to address this State of Emergency in the City.**
  - **Expand resources for HIV/AIDS surveillance with a focus on expanding access to HIV testing and using new testing methods in order to reach hard-to-reach communities that may be undercounted.**
  - **Provide a Baltimore City Council liaison to the Maryland Prevention Community Planning Group (CPG), Central Maryland Prevention Regional Working Group (RWG), the Greater Baltimore HIV Health Services Planning Council (Ryan White Title I Program) and the Central Maryland HIV Health Services Consortium (Ryan White Title II Program).**
  - **Increase resources to provide culturally and linguistically sensitive prevention services for at-risk and HIV infected persons, and to evaluate the effectiveness of these prevention services.**
  - **Establish and fund comprehensive school health and HIV prevention education in grades K-12 employing programs that are age appropriate and culturally and linguistically sensitive.**
  - **Require the Baltimore City Health Department and Baltimore City's medical providers and institutions to expand access to health screening services that will promote early diagnosis and entry into care for HIV infection.**
  - **Require the Baltimore City Health Department and Baltimore City's medical providers and institutions to become more effective in identifying HIV-infected individuals, enrolling them into care, and integrating prevention education as part of their ongoing care.**
  - **Examine the potential benefits of using alternative and innovative health care delivery systems outside traditional medical settings, to enhance medication adherence as an option for patients with HIV infection.**
  - **Require the Baltimore City Health Department and Baltimore City's medical providers and institutions to continue to address the prevention and**

treatment of illnesses associated with HIV infection (substance abuse, hepatitis C, mental illness, syphilis, and others) and to further integrate their care with HIV treatment.

- Require the Baltimore City Health Department and Baltimore City's medical providers to participate in partner notification in accordance with Article 10, Health General, Annotated Code of Maryland §18-337:

**Section (b) *Notice to others by health care providers.*** – If an individual informed of the individual's HIV positive status under §18-336 of this title refuses to notify the individual's sexual and needle-sharing partners, the individual's physician may inform the local health officer and/or the individual's sexual and needle-sharing partners of:

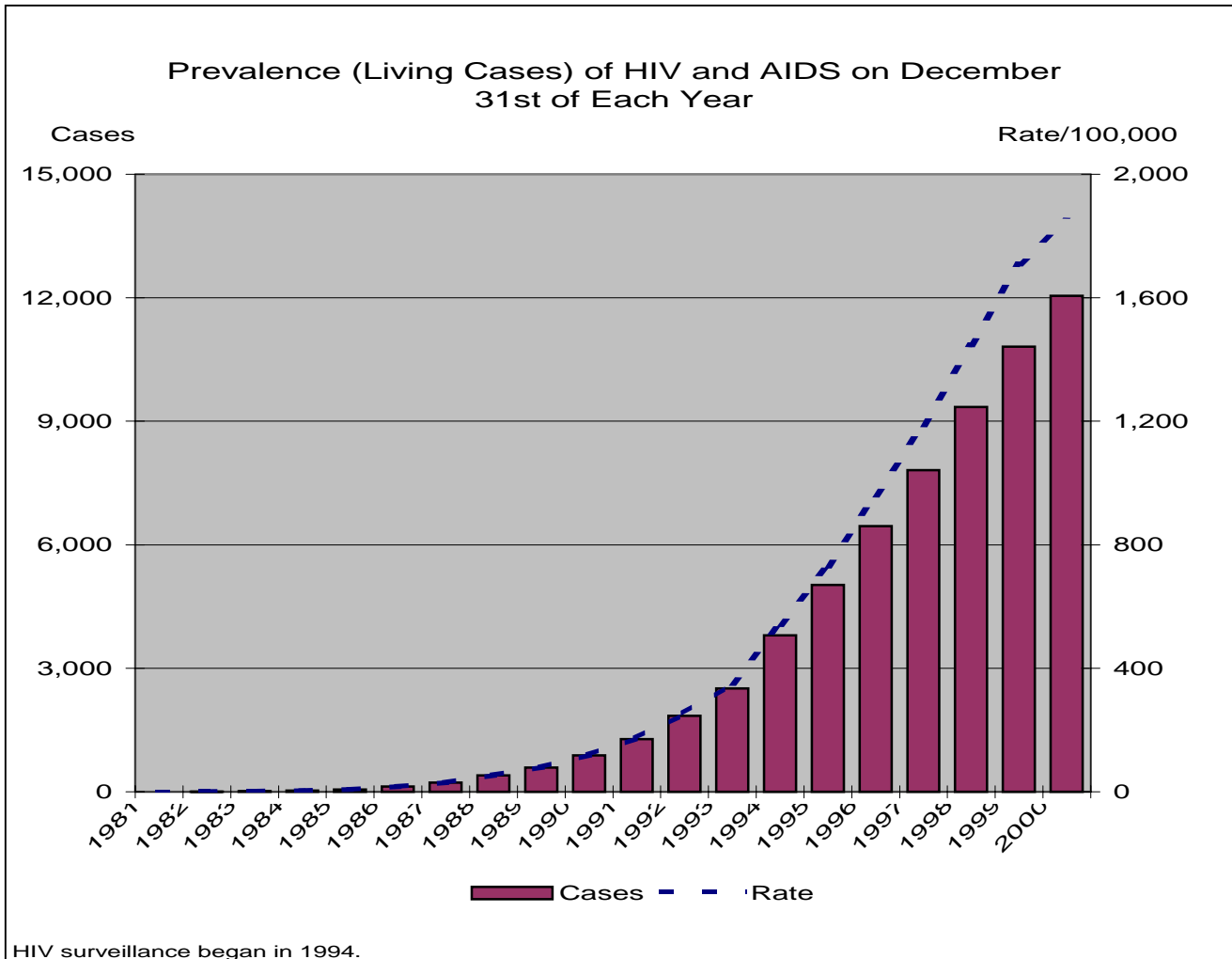
- (1) The individual's identity; and
- (2) The circumstances giving rise to the notification.

# STATISTICS

## INTRODUCTION

The City of Baltimore has one of the highest rates of HIV and AIDS in the country. Increasingly racial minorities, particularly African Americans, are hardest hit and although injection drug use is still the leading cause of infection in the City, there are a rising proportion of cases resulting from heterosexual exposure.

Currently it is estimated that 2% of all persons residing in Baltimore are infected with HIV and among those between 40-49 years of age, 1 in 20 are known to be infected. (Methods for collecting this information are provided in the appendix). It is likely that these numbers represent minimal estimates, since many persons in the City of Baltimore do not know that they are HIV infected because they do not perceive that they are at risk and have not been tested. As a consequence, access to life-saving therapy and implementation of prevention is hampered.



Residents of the City of Baltimore are in the midst of a major epidemic involving a chronic, progressive disease that is almost always fatal when it is not treated. The residents and leadership of the City are challenged to confront this epidemic and augment strategies for blocking its further spread by (1) increasing access to counseling and testing, particularly those in hard-to-reach populations, and (2) enhancing access to care and additional prevention programs to insure that all citizens are fully armed to prevent the spread of HIV infection.

## **Baltimore HIV/AIDS Facts**

- Over 12,000 people were known to be living with HIV and AIDS on 12/31/2000, using data as reported through 9/30/2001.
- It is estimated that another 6,000 people are HIV infected and have not been tested.
- Together these 18,000 people represented approximately one out of every 36 residents of Baltimore City.
- Approximately 1,000 new cases of HIV infection are being reported each year.
- The number of new cases of HIV infection was increasing at an average rate of five percent per year from 1995 through 2000.
- Baltimore's first case of AIDS was reported in December 1981, only six months after AIDS was first recognized.
- 12,042 cumulative cases of AIDS were reported from the beginning of the epidemic through 9/30/2001.
- 6,490 (54%) of the people diagnosed with AIDS had died as of 9/30/2001.
- In 2000, the Baltimore metropolitan area had the eighth highest rate of new reports of AIDS cases among major metropolitan areas in the United States.
- 89% of people living with HIV and AIDS on 12/31/2000 (as reported through 9/30/2001) are African-American.
- 63% of people living with HIV and AIDS on 12/31/2000 (as reported through 9/30/2001) are men, although women make up a larger proportion every year.
- 32% of people living with HIV and AIDS on 12/31/2000 (as reported through 9/30/2001) are in their 30's, most of whom were probably infected in their 20's.
- Among AIDS cases diagnosed during 2000 and reported through 9/30/2001, 64% were injection drug users, 19% reported heterosexual contact with an infected person, 13% were gay or bisexual men, and 3% were gay or bisexual men who also inject drugs. Heterosexual transmission has been steadily increasing.

- Through 12/31/2000, as reported through 9/30/2001, 278 children have been infected with HIV, 176 of whom have developed AIDS.
- Among men aged 15-22 who reported having sex with other men, 8% tested in a study during 1996-1998 were HIV infected and 16% of the African-American men were infected.

## DESCRIPTION OF THE CASES

Baltimore City cases represent 52% of all cases in the State of Maryland. Within the City of Baltimore there are significant variations by age, race, gender, exposure group and City Council District. For example between the ages of 30 and 49 years of age, between 3.9

Prevalence (Living Cases) of HIV and AIDS on December 31, 2000\*

	Population	HIV and AIDS Cases	Percent Distribution	Rate per 100,000 pop.
<b>Total</b>	651,154	12,047	100.0%	1,850.10
<b>Age on 12/31/2000</b>				
<13	117,516	163	1.4%	138.70
13-19	65,691	71	0.6%	108.08
20-29	95,384	768	6.4%	805.17
30-39	98,081	3,848	31.9%	3,923.29
40-49	95,376	5,066	42.1%	5,311.61
50-59	68,145	1,685	14.0%	2,472.67
60+	110,961	446	3.7%	401.94
Unknown		-		
<b>Race/Ethnicity</b>				
White	201,566	1,122	10.0%	556.64
Black	417,009	9,948	89.0%	2,385.56
Hispanic	11,061	53	0.5%	479.16
Other	21,518	55	0.5%	255.60
Unknown		869		
<b>Gender</b>				
Male	303,687	7,584	63.1%	2,497.31
Female	347,467	4,434	36.9%	1,276.09
Unknown		29		
<b>Exposure</b>				
MSM/IDU		276	3.8%	
MSM		1,096	15.0%	
IDU		4,130	56.4%	
Heterosexual		1,598	21.8%	
Other		223	3.0%	
Unknown		4,724		
<b>Council District</b>				
1	135,582	1,781	15.5%	1,313.60
2	112,102	3,003	26.1%	2,678.81
3	95,111	1,042	9.0%	1,095.56
4	139,597	2,987	25.9%	2,139.73
5	70,612	883	7.7%	1,250.50
6	98,150	1,818	15.8%	1,852.27
Unknown		533		

\* Number of cases of HIV and of AIDS alive on December 31, 2000, as reported through September 30, 2001.

and 5.3% of all residents of the City of Baltimore are infected with HIV or have AIDS. This translates into approximately 1 in 20 persons in these age groups. Among all African Americans of all age groups, almost 1 in 40 are infected. While injection drug use accounts for over half of all infections, 1 in 5 are now due to heterosexual exposure marking an important trend of increase in the general population. The numbers of cases within council districts varies by almost four-fold. However, there are variations in the number of persons living in different council districts, thus the rate of

infection as measured by the number of cases per unit of population varies by more than two-fold. The highest rate of 2.7% is noted in District 2 (approximately 1 in 38 people residing in that district are HIV infected) and the lowest in District 3 of 1.1% (1 in 91). However, these levels are much higher than the average for the United States as noted below.

## NATIONAL COMPARISONS

National statistics are available for AIDS cases but not for HIV infection. The federal Centers for Disease Control and Prevention (CDC) provides the number of AIDS cases reported each year for states and territories and for metropolitan areas. Metropolitan areas include one or more central cities and surrounding suburban counties, and in many instances include rural areas.

The Baltimore metropolitan area includes Baltimore City and Anne Arundel, Baltimore, Carroll, Harford, Howard, and Queen Anne’s Counties. The following table presents the number of AIDS cases reported to the CDC for the 10 large metropolitan areas (population greater than 500,000) with the highest rate of cases per 100,000 population. For comparison, the rates for the City of Baltimore, the State of Maryland, and the United States are also presented. In the year 2000, the City of Baltimore had an AIDS case report rate that was over eight times the national rate.

<b>Geographic Area</b>	<b>Number of Cases</b>	<b>Rate per 100,000 Population</b>
Miami, FL (metropolitan area)	1,306	58.0
New York, NY (metropolitan area)	5,274	56.6
Fort Lauderdale, FL (metropolitan area)	861	53.0
West Palm Beach, FL (metropolitan area)	545	48.2
San Juan, PR (metropolitan area)	873	44.4
San Francisco, CA (metropolitan area)	765	44.2
Newark, NJ (metropolitan area)	802	39.4
<b>Baltimore, MD (metropolitan area)</b>	973	38.1
Jersey City, NJ (metropolitan area)	231	37.9
Washington, DC (metropolitan area)	1,549	31.5
<b>Baltimore, MD (city)</b>	792	121.6
Maryland (state)	1,465	27.7
United States	42,156	14.7

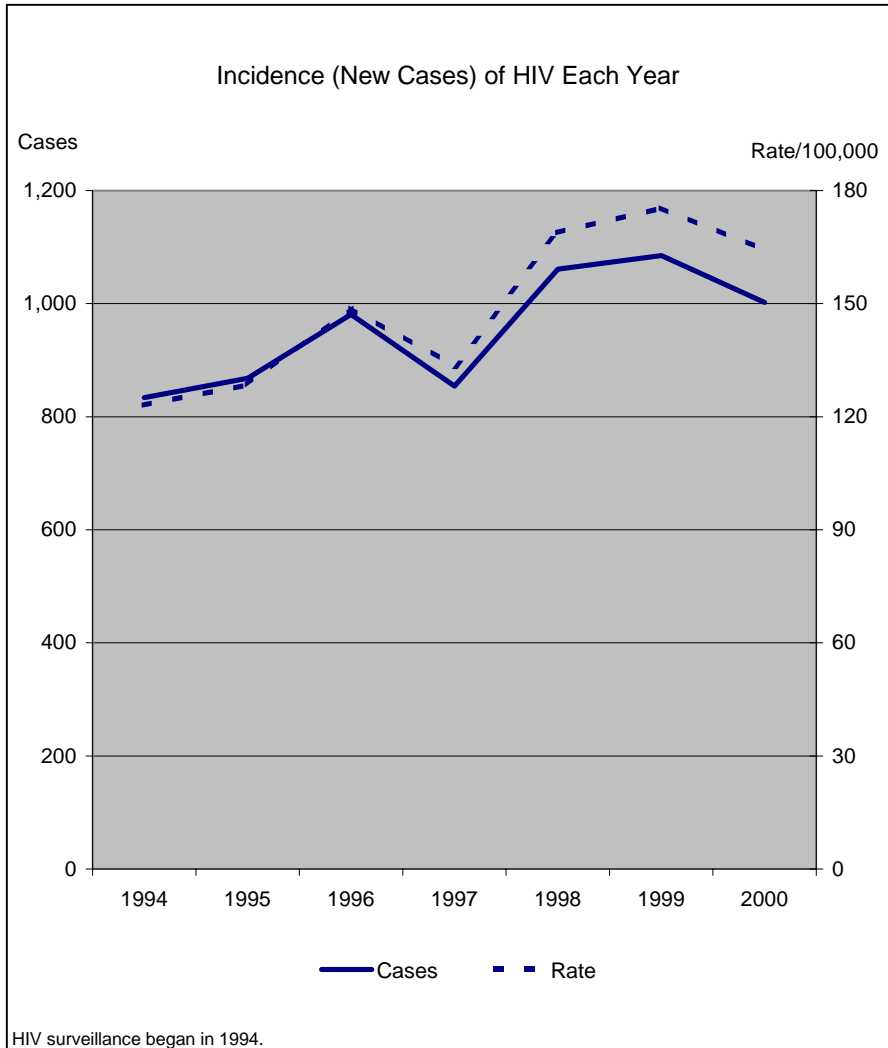
Sources:

Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report, 2000; 12 (No. 2):8, 10-11.

Maryland Department of Health and Mental Hygiene, AIDS Administration.

## NEW INFECTIONS WITH HIV

Cases reports for HIV infection are based on the time of diagnosis for HIV infection. Since most people do not know their time of infection, several years may pass between infection and diagnosis. Among the approximately 1,000 new cases of HIV infection detected in Baltimore in the year 2000, 89% occurred among African Americans, and males accounted for 58%. Heterosexual exposure accounted for a slight majority of these cases, 45% versus 41% among injection drug users, emphasizing an important shift in epidemic. Almost 20% occurred among those under age 30, while almost 70% occurred in those between 30 and 50 years of age. Council districts with the highest rate of AIDS cases also had the highest occurrence of new cases of HIV infection. As shown in the figure since 1994, when HIV surveillance began, there has been a steady rise in the number of cases and in the incidence of new infections. Most of this increase in the number of new cases per year has occurred in Council District 4, while the other council districts have not had a change in number of new cases per year.

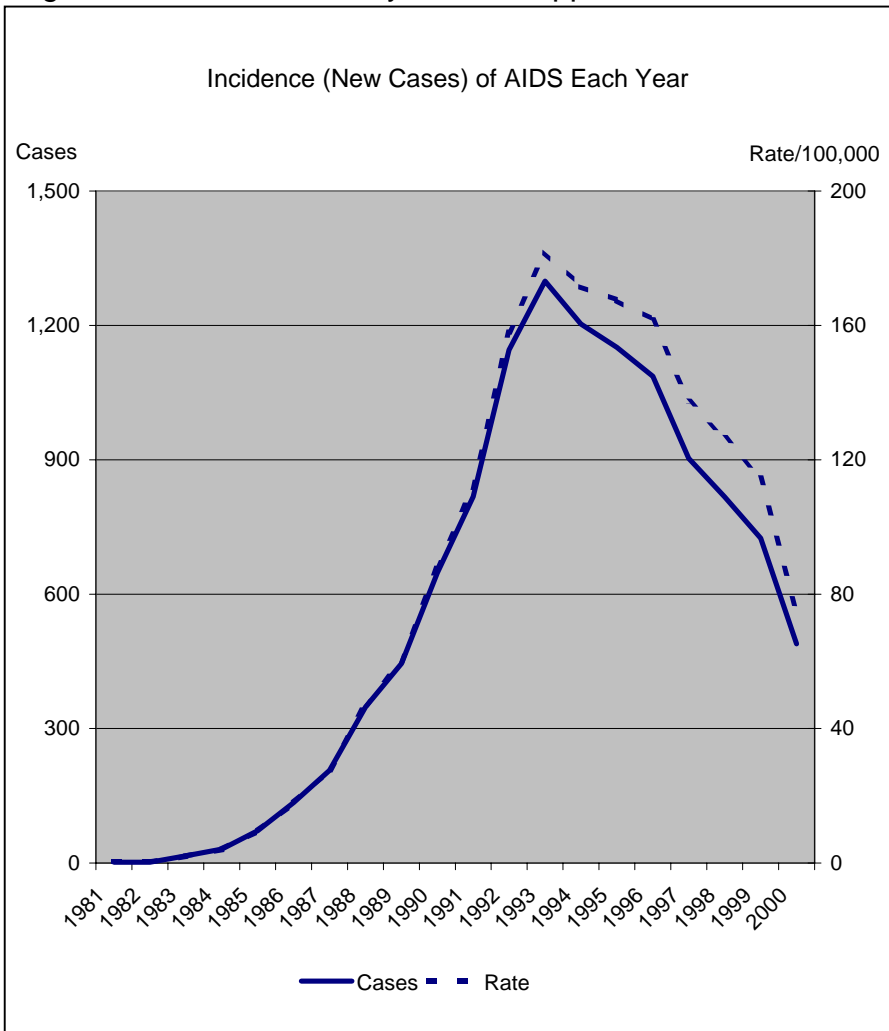


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- The number of new infections of HIV reported has been increasing since 1994, when HIV reporting first began.
- On average, there are approximately 1,000 new cases per year
- Heterosexual exposure accounts for an increasing proportion of cases
- While the majority of new cases were detected among those over 30, a high proportion of these cases represent infections that occurred among people in their early 20's.

## AIDS TRENDS

Acquired immunodeficiency syndrome (AIDS) is defined by a complex of clinical diseases and laboratory markers that indicate compromised immune function. The immune system is the body's defense against infections. When the immune system is damaged by HIV infection the body becomes susceptible to infections that a healthy person would not experience. Human immunodeficiency virus (HIV) causes AIDS. Infected individuals are often not aware that they are infected. Many years may pass before laboratory or clinical signs of immune deficiency become apparent. AIDS statistics thus reflect that portion of



the HIV infected individuals who have harbored the virus long enough to have developed clinical disease or advanced immunodeficiency. On average this represents a period that ranges between 5 and 15 years following infection in an untreated individual. Baltimore has an unusually high incidence (occurrence of new AIDS cases) in part because of the large number of persons with unrecognized HIV infection. Because these individuals do not know that they are HIV infected, they do not benefit from early intervention that could have prevented progression to AIDS and transmission to others.

The pattern of the AIDS epidemic over time is unusual and often

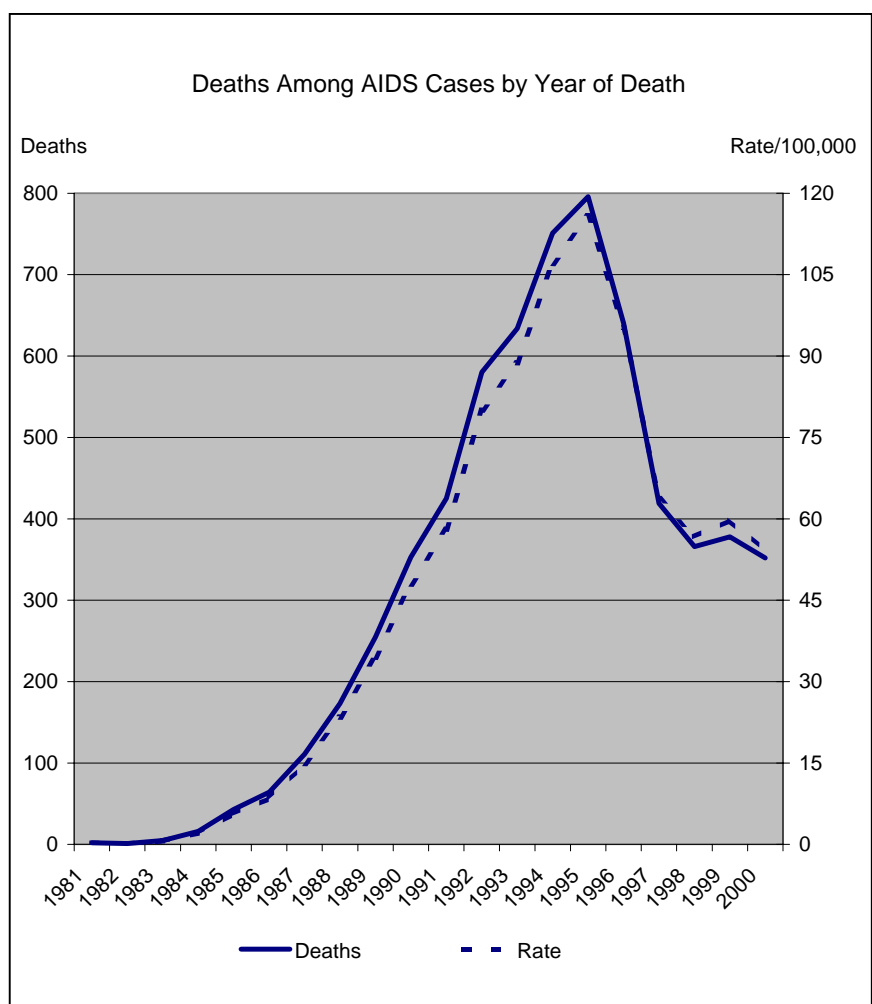
misunderstood. The decline in new cases of AIDS starting in 1995 does not reflect a decline in the epidemic but rather the impact of therapy on progression of disease. Highly active antiretroviral therapy (HAART) prevents AIDS by restoring the strength of the immune system and preserving the immune cells that the AIDS virus destroys. Thus, the pattern of declining new cases of AIDS does not mean that the epidemic is over. (The first figure presented in this report demonstrated the continued increase in the number of living cases of HIV and AIDS.) The decline in new AIDS cases demonstrates the clear benefits of early diagnosis and treatment. Furthermore, there is strong evidence that effective therapy decreases transmission by lowering the level of virus in an individual.

- AIDS incidence peaked in 1993; the year the AIDS definition was expanded to include severe immunosuppression (CD4+ cells less than 200) and other illnesses (such as recurrent pneumonia).
- The new treatments that were introduced in 1995 have greatly reduced the number of people with HIV who become sick and develop AIDS.

## AIDS MORTALITY

Since 1981, 6,490 persons have died from AIDS in Baltimore City, representing 35% of the approximately 18,500 persons ever reported with HIV or AIDS. For these 6,490 AIDS

deaths, the average age at death was 40.3 years. In Maryland, an average 40 year old has a life expectancy of 38.5 more years. After adjusting for age at death, race, and sex and adding up across all deaths, the total number of person-years of life lost to AIDS for Baltimore City is 220,236. That's roughly equivalent to taking four months of life away from every man, woman, and child in Baltimore.



As shown in the figure, AIDS mortality peaked in 1995 and then rapidly declined indicating the impact of powerful antiretroviral therapy on this otherwise fatal disease. The recently emerging plateau at approximately 400 deaths per year noted since 1998 demonstrates that the maximal benefit of

antiretroviral therapy for those accessing care has been achieved and that progression to death continues to occur, especially among those who do not access care or adhere to therapy. Approximately 10% of AIDS deaths occur within the first year following a new diagnosis of AIDS.

- AIDS is the leading cause of death among men between 15 and 44 years of age
- Improvements in therapy since 1995 have dramatically decreased AIDS deaths
- The recent plateau of approximately 400 deaths per year demonstrates the high mortality associated with HIV/AIDS, even in the era of antiretroviral therapy
- The emergence of drug resistance may result in increases in AIDS mortality

## **RELATIONSHIP OF HIV TO CO-MORBIDITIES**

Co-morbidities are other infections and diseases that frequently occur in people with HIV and may be related to HIV infection or may worsen the course of either disease. Co-morbidities play an important role in the HIV and AIDS epidemic. While the epidemic in the United States, and in Baltimore, first appeared among homosexual men, since the late 1980's the epidemic in Baltimore has been driven by injection drug use. Current statistics bear out the importance of this route of infection, since over 50% of cases of infection and AIDS are due to injection drug use while infection among homosexual men has declined to under 20% of the total. Not only is injection drug use a major source of new HIV infections, but also active substance abuse decreases adherence to antiretroviral therapy and inhibits effective prevention activities. To address HIV without a coordinated effort to control injection drug use will only perpetuate these ongoing co-epidemics.

Hepatitis C virus (HCV) infection, which is transmitted almost exclusively through injection drug use, is highly prevalent among injection drug users in Baltimore, many of who are co-infected with HIV and HCV. Hepatitis C infection can lead to cirrhosis, liver failure, liver cancer, and death. In addition, co-infected patients may not be able to tolerate antiretroviral therapy because of the potential for liver toxicity with some of the agents used to treat HIV infection.

Injection drug use and HIV are also tightly linked to a persisting epidemic of sexually transmitted diseases in the City that is reflected in the emergence of a high proportion of new cases of HIV being linked to heterosexual exposure. Trade in sex for drugs or money to buy drugs is a major conduit for syphilis and gonorrhea, both of which increase the risk of transmission of HIV. Addressing these co-morbidities is a major challenge in response to the HIV epidemic.

The populations affected by HIV and AIDS are often the most marginalized populations in the City of Baltimore. For example, as noted above, the areas of the city with the highest rates of HIV/AIDS are also areas of the city with the greatest levels of poverty.

In summary, HIV, injection drug use, hepatitis, sexually transmitted diseases, and poverty are highly inter-related maladies that tear at the fabric of the City of Baltimore. Strategies that address these issues in a coordinated and comprehensive manner have the greatest hope for solving the HIV epidemic.

## **RECOMMENDATIONS**

**The Commission on HIV/AIDS recommends that the Baltimore City Council shall:**

- **Educate the Baltimore community about the State of Emergency that exists within the City by mobilizing the Baltimore City Health Department to both deliver HIV/AIDS statistical information in terms understandable to the community and to monitor the impact of this information.**
- **Expand resources for HIV/AIDS surveillance with a focus on expanding access to HIV testing and using new testing methods in order to reach hard-to-reach communities that may be undercounted.**
- **Apply new technologies to identify who is becoming newly infected, why they are becoming infected, from whom they acquired infection, and whether they are infected with drug resistant virus.**
- **Commission an objective independent assessment of the direct and indirect costs of the HIV/AIDS epidemic on Baltimore City and its citizens and the adequacy of resources to address this State of Emergency in the City.**

# **PREVENTION**

## **INTRODUCTION**

As Baltimore enters the third decade of the AIDS epidemic, it has become increasingly clear that the prevention of HIV infection is critically important. Overwhelming evidence, through historical experience and scores of careful scientific studies, demonstrates that comprehensive, well designed, and well-implemented HIV prevention programs contribute to healthier behaviors through risk reduction, and substantially reduce the number of new HIV infections.

However, preventing HIV has become more difficult in recent years. Although medical advances in the treatment of HIV have added years to the lives of individuals who are HIV positive, a growing number of people are relying too much on treatment advances and ignoring prevention messages targeting high-risk behaviors. Thus, prevention efforts are now even more critical to reduce HIV transmission.

Maryland's epidemic has always differed from the rest of the United States, with injection drug use accounting for a far greater percent of cases. In 1990, injection drug use became the most significant exposure category associated with AIDS.

In 1997, heterosexual exposure overtook men who have sex with men (MSM) as the second most significant exposure category. The increase in heterosexual exposure is directly linked to drug use. Women are increasingly affected by HIV/AIDS, usually as a result of their own drug use or the drug use of their sexual partner.

However, there are a growing number of cases of heterosexual transmission without a direct link to injection drug use. Minorities, particularly African Americans, are disproportionately affected by the epidemic. Denial of risk and lack of knowledge of risk factors combined with the enormous impact of injection drug use in Baltimore poses significant challenges for prevention programs.

The Prevention Section of this report highlights the definition of prevention, the State's HIV prevention planning process, HIV prevention programs in the City, social marketing as one component of prevention, evaluation of prevention programs, prevention research, strengths and barriers or gaps, and recommendations.

## **DEFINITION OF PREVENTION**

This report addresses primary and secondary prevention. Primary prevention focuses on stopping HIV in the individual before infection. Secondary prevention seeks to stop the spread of HIV infection from an individual who is infected to another who is not through behavioral change or risk reduction.

## **PREVENTION PLANNING AND PROGRAMS**

### **State Planning**

There are several mechanisms to ensure participation from affected communities in determining prevention needs and priorities. Beginning in 1994, the Maryland AIDS Administration constituted a statewide community-planning group (CPG) that is responsible for developing the statewide HIV prevention plan. The CPG has the authority to represent the community in concurring (or declining to concur) with the Maryland AIDS Administration's application to the federal government for funding. In addition to the CPG, Regional Work Groups (RWGs) provide an important venue for grassroots involvement and community input into the CPG priorities. Membership in regional work groups is open to all interested community members.

Each RWG develops a set of recommended regional priority populations and interventions based on epidemiological data, needs assessment data, and effective behavioral interventions. The recommendations of each RWG are sent to the CPG for review. The CPG agrees to priorities at an open meeting attended by all CPG members and RWG members who choose to attend, and these priorities become the basis for the Maryland AIDS Administration application to the U.S. Centers for Disease Control and Prevention (CDC). Based on needs assessments, a review of the epidemiological data, and the knowledge and experiences of the RWG members priority prevention populations were selected for years 2001 to 2003, and include injection drug users, heterosexually active women, men who have sex with men, heterosexually active men, and youth.

### **Prevention Programs in Baltimore City**

There are no funds allocated by Baltimore City for HIV/AIDS prevention. HIV prevention programming that the Maryland AIDS Administration and the Baltimore City Health Department (BCHD) conduct in Baltimore City uses funds obtained through a Cooperative Agreement between the Maryland Department of Health and Mental Hygiene (DHMH) and the U.S. Centers for Disease Control and Prevention (CDC), the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA), and from the Maryland State General Fund. Funds from these federal and state government sources currently support 39 prevention projects in Baltimore City. These projects target high-risk groups, including injection drug users and other substance users, sexually active minority youth, men who have sex with men, heterosexually active women and men, and incarcerated persons. These projects are conducted by government agencies, private institutions, AIDS Service Organizations (ASOs), Community Based Organizations (CBOs), and Faith-Based Organizations (FBOs).

The programs currently being implemented in Baltimore City include individual and community level interventions, small group risk reduction counseling and outreach programs, small support groups, community coalition development initiatives, as well as community level needle exchange programs and substance abuse treatment programs. These prevention programs address a range of factors including perceived risk for HIV/AIDS, strategies that increase self-efficacy and self-esteem, condom use, knowledge

of existing HIV program services and resources, and capacity building to enhance organizations. In addition, as more people with HIV infection live longer, prevention programs are being expanded to address the secondary prevention needs of those who are HIV positive by linking HIV treatment and prevention.

Epidemiological studies have recently identified the Northwest Corridor of Baltimore City as among the most at-risk area in Maryland for HIV infection. In 2000, a special initiative began in Baltimore City with an emphasis on expanding existing prevention programs in this area. These programs are targeted at preventing HIV transmission from and among injection drug users, the population with the highest exposure to HIV/AIDS in the state. The agencies that participate in this initiative include the Ecumenical AIDS Resource Services (EARS), Northwest Baltimore Youth Services (NWBYS), Sisters Together and Reaching, Inc. (STAR), Health Care for the Homeless (HCH), and the Baltimore City Needle Exchange Program.

Operating out of two mobile health recreation vehicles, the Baltimore Needle Exchange Program (NEP) provides services at multiple sites in Baltimore City. NEP's services have been expanded from the daytime Monday through Friday, to include Saturdays and four evenings during the week, which are periods of high use. One of NEP's program sites is a community pharmacy. In addition to exchanging used needles for sterile needles on a one-for-one basis, clients receive HIV counseling and testing, information about drug abuse treatment options, harm reduction in the use of needles, and information about STDs, tuberculosis and other communicable diseases which are prevalent in the drug-using community. The referral and placement of interested NEP clients in drug treatment programs are integral parts of the Program. Various drug treatment options and a limited number of NEP-designated treatment slots are available for NEP clients. It is interesting to note that it is estimated there are as many as 60,000 persons with addictions in Baltimore City and that the NEP has reached over 12,000 of them.

Mobile health programs provide HIV/STD and substance abuse diagnostic and treatment services at locations that are convenient to high-risk clients who may not otherwise seek care. These programs are offered in customized vans that are equipped for HIV/STD counseling and specimen collection. Organizations that provide HIV/STD mobile health programs include Sisters Together and Reaching, Inc. (STAR) – NIA van; Health Education Resource Organization (HERO) – BOSA van; Women At Risk – WAR van; and the BCHD – UJIMA van and the Needle Exchange van.

Together with Lieutenant Governor Townsend and Congressman Cummings, the Maryland AIDS Administration began Operation Push in late November 2001. This initiative, also focused in the Northwest Corridor of Baltimore City, is aimed at increasing HIV counseling and testing.

The Community Coalition Development Project (CCD) is a program in the Minority AIDS Initiative that is funded as a result of lobbying action by the Congressional Black Caucus. This project supports the development of community-based coalitions to plan and implement linked networks of providers in communities disproportionately affected by HIV/AIDS, sexually transmitted diseases (STDs), and substance abuse. Using a linked network of services, referral networking and tracking, and provision of support services

and primary prevention, access to services will be increased. The CCD Project also collaborates with Coppin State College, Department of Social Work to conduct capacity building and technical assistance activities for the African American Health Alert (AAHA) Task Force, the Baltimore Prevention Coalition (BPC), the Blue Waters Community Health Coalition (BWCHC), and the People With HIV/AIDS Coalition of Baltimore, Inc. (PWAC).

In addition to HIV prevention activities that are funded in Baltimore by a Maryland AIDS Administration award, resources from other sources have been obtained and are being used by public and private agencies in the city for activities directly or indirectly related to HIV prevention. A number of these initiatives are the result of technical assistance and support from the Maryland AIDS Administration and BCHD staff. These include other federal and state support for city initiatives (e.g. the current Needle Exchange program, a separate Cooperative Agreement for STD prevention and treatment, funds for HIV education programs in public schools, community-based teen pregnancy programs to promote sexual health, substance abuse prevention and treatment, and private non-profit and philanthropic activities that support HIV prevention). Also, government agencies have established the following direct contracts:

- Seven CBOs funded by CDC;
- Three CBOs funded by the Substance Abuse and Mental Health Services Administration (SAMSHA);
- Two CBOs funded by the Health Resources and Services Administration (HRSA);
- One CBO funded by the Office of Women's Health (OWH);
- Two Schools of Medicine, one School of Public Health, one Advanced Public Health Program, and one School of Nursing funded by the National Institutes of Health (NIH).

## **SOCIAL MARKETING**

Social marketing, when implemented utilizing an appropriate (culturally and linguistically congruent) methodology, is an important aspect of HIV prevention and outreach. While there are many appropriate brochures and educational materials utilized by different outreach programs, media materials that are culturally and linguistically appropriate for reaching the targeted audience are a key component to the ultimate success and acceptability of the message.

In Baltimore City, the Maryland AIDS Administration is conducting a focused public information campaign to encourage HIV testing among African-American pregnant women and young men. This campaign, which is entering its third year, utilizes radio and television advertising, bus posters, billboards and direct communication with health care providers, as a component of a targeted strategy designed to eliminate the perinatal transmission of HIV. There has been a significant increase in calls regarding HIV testing and referrals as a result of the public information campaign.

## **EVALUATION OF HIV PREVENTION PROGRAMS**

Federal, state, and local agencies involved in HIV prevention recognize the importance of evaluation for two primary purposes: 1) to determine the extent to which HIV prevention efforts have contributed to a reduction in HIV transmission; and 2) to be accountable to stakeholders by informing them of progress made in HIV prevention. The Maryland AIDS Administration conducts intensive evaluations of prevention programs to determine their efficacy. The focus of the data collection and analysis is to improve prevention programs and outcomes. New HIV prevention data collection and management systems, considered a national best practice, have been developed and implemented to meet federal and state goals.

There are several quality assurance procedures for client and intervention data collection and management systems. Program managers conduct periodic site visits to observe data collection in the field. To allow for the close monitoring of data quality, data are collected in the field and sent to the health department where data entry and verification are centralized. This database is also utilized to prepare reports for legislative bodies, other health agencies, and the CDC.

Evaluation results are used to:

- Compare the demographic and risk profiles of participants with intended target populations;
- Compare the reach and content of prevention programs to the regional priorities set by the CPG and the RWGs;
- Highlight risk factors not currently being addressed by the programs;
- Provide feedback to program facilitators; and
- Identify areas of need when additional funding opportunities arise.

## **PREVENTION RESEARCH**

In Baltimore City, the Johns Hopkins University Schools of Medicine and Public Health; the University of Maryland School of Medicine; and Morgan State University are currently conducting HIV prevention research projects. Additionally, the Maryland AIDS Administration is conducting a behavioral surveillance research project that measures risk behaviors that should be useful for planning prevention programs.

## **VACCINE DEVELOPMENT**

The best prevention approach against HIV is the development of a safe and effective preventative vaccine. Unfortunately, no vaccine has yet been approved although candidate vaccines are being developed and tested to determine their safety and ultimately their ability to protect against infection. According to authorities in the field, it will be at least 5 years before there is any commercially available vaccine. The City of Baltimore is unique for the fact that out of the 10 centers world-wide selected through a highly competitive National Institutes of Health grant review process, the Institute of

Human Virology (IHV) at the University of Maryland and the Center for Vaccine Research at Johns Hopkins University were selected for funding as sites in the HIV Vaccine Trials Network (HVTN). Morgan State University is an important partner and a HVTN affiliate site funded to integrate behavioral health and biomedical research for community preparation in this HIV vaccine initiative. A number of community-based organizations are participating in the Community Advisory Boards of these trials. As such, Baltimore is at the forefront of preventative vaccine research.

A major benefit of this activity is that Johns Hopkins University, the Institute of Human Virology (IHV), and Morgan State University are working together toward the common goal of increasing awareness of HIV risk and risk reduction, while engaging the citizens of the City in opportunities to participate in vaccine trials. The Community Advisory Boards of the HVTN at IHV and Hopkins are an important avenue for developing, reviewing and communicating HIV prevention and vaccine research information. Volunteers in trials receive extensive preventative education and become a resource to the community as they share this information with others. As the HVTN moves toward larger trials, the Baltimore community will benefit from further HIV prevention education as candidate vaccines move into efficacy trials. It is important for the communities of Baltimore to unite in supporting this vital work that will result in a vaccine for the City, the State, and the world at large.

## **STRENGTHS AND BARRIERS OR GAPS**

### **Strengths**

The conglomeration of existing prevention programs in Baltimore City includes community-based organizations, AIDS Service Organizations, faith-based institutions, local and State government agencies, infected and affected individuals, and institutions of higher learning. They represent a sustained network of organizations committed to preventing HIV/AIDS. These organizations collaborate, mentor each other, and provide ongoing capacity building services to new and existing organizations. This collaborative spirit provides a nurturing environment for new and existing organizations to continue the important work of prevention in the communities of Baltimore.

### **Barriers or Gaps**

Some of the barriers to a more comprehensive approach to prevention in Baltimore City include the following:

- Lack of sustained leadership and dedicated financial commitment from City officials to address the issues of HIV and AIDS.
- Lack of Baltimore City elected officials' participation in HIV/AIDS advisory forums.
- Lack of resources to support measuring the effects of social marketing.

- Lack of a centralized repository for information about prevention funding, activities, and providers.
- Lack of developmentally appropriate school health education in grades K-12.
- Lack of sharing and dissemination of results by research institutions with organizations involved in HIV prevention efforts. The shared research results could support program improvement and implementation by these organizations.
- Lack of integration of HIV prevention services with primary health care services.
- Lack of participation by private providers, as required by law, in the program to notify partners of exposure to a sexually transmitted disease. Knowledge of potential exposure leads to early testing, and if applicable, early treatment.
- Lack of continuity of HIV post release care for inmates that are HIV positive. Correctional HIV prevention and care is important to reducing the health and economic impact of HIV infection after offenders are released into the community. The expected number of inmates soon-to-be released to Baltimore in the next 18 months is provided in a table in the appendix.

## **RECOMMENDATIONS**

Within the collaborative spirit of HIV/AIDS prevention, there are opportunities to improve coordination and synergy among prevention partners.

**The Commission on HIV/AIDS recommends that the Baltimore City Council shall:**

- **Provide sufficient line item funding in the Baltimore City budget for HIV prevention activities.**
- **Expand discussion on an ongoing basis, among local elected officials and the community at large on the importance of HIV prevention.**
- **Provide a Baltimore City Council liaison to the Maryland Prevention Community Planning Group (CPG), the Central Maryland Prevention Regional Working Group (RWG), and the Greater Baltimore HIV Health Services Planning Council (Ryan White Title I Program).**
- **Increase resources to provide culturally and linguistically sensitive prevention services for at-risk and HIV-infected persons, and to evaluate the effectiveness of these prevention services.**
- **Provide funding for the integration of HIV prevention education in primary care settings.**

- **Establish and fund comprehensive school health and HIV prevention education in grades K-12 employing programs that are age-appropriate and culturally and linguistically sensitive.**
- **Strengthen and monitor collaboration among Baltimore City agencies and remove policy barriers that impede HIV prevention.**
- **Require the Baltimore City Health Department to develop and implement a plan to address the ongoing need to build infrastructure, capacity, and recruit and retain leadership within the Bureau of HIV and AIDS.**
- **Require the Baltimore City Health Department to fund prevention activities that specifically target HIV negative at-risk populations, in addition to funding activities to reduce secondary prevention.**

# **TREATMENT**

## **INTRODUCTION**

In Baltimore where the living HIV/AIDS cases are largely African-American and poor, disparities in health care and co-morbidities of poverty, substance abuse, and inadequate health care infrastructure contribute to high rates of sickness and death. Delays in diagnosis result in a disproportionate number of cases presenting with advanced HIV disease resulting in personal suffering for those affected, high rates of death, and societal costs linked to increased rates of transmission and higher health care costs.

As noted in the Statistics Section of this report, it is estimated that fully one-third of people infected with HIV in the city are untested, reflecting a breakdown in outreach and education of the public at large about how HIV is transmitted and who is at risk.

Thus while Baltimore is blessed with two of the leading HIV research and care institutions in the world, the University of Maryland and Johns Hopkins University, and with many superior medical practitioners, community-based organizations and others deeply committed to addressing the needs of those infected with HIV there are not enough health care resources available to adequately address this health care crisis and those programs that are in place are not well coordinated.

As noted in the Statistics Section of this report, there have been remarkable improvements in the lives of those infected because of the impact of potent antiretroviral therapy. But this benefit is not uniformly experienced across all racial and ethnic groups again reflecting disparities in health care benefit experienced among the urban, largely minority population.

Nationally, from 1995-1997 the rate of death attributed to AIDS declined by 75% among whites but only 55% among African Americans. Reasons for this disparity are multi-factorial and include delays in diagnosis, health care access issues, and social and economic factors that decrease adherence to therapy. More than 30% of newly diagnosed patients present with clinical evidence of advanced disease (CD4 cell counts less than 200). This is a particular tragedy in Baltimore, a city blessed with an array of high quality health care resources provided by Johns Hopkins Hospital, University of Maryland Medical System and a number of outstanding community hospitals such as Bon Secours, GBMC, Good Samaritan, Harbor, Maryland General, Mercy, Sinai, St Agnes, and St Joseph's.

## **BACKGROUND**

### **Funding of HIV Care**

There is a comprehensive network of primary medical care and support services available to people living with HIV/AIDS in Baltimore City and the surrounding counties. Many services are paid for through the state Medicaid program, the federal Medicare program, by private insurers, and out-of-pocket by the people living with HIV/AIDS. In addition,

Maryland has an AIDS Insurance Assistance Program (MAIAP) that helps people living with HIV/AIDS to maintain their insurance coverage payments when they become too ill to work.

For the many people not covered by these health insurance programs, services are available through the Ryan White CARE (Comprehensive AIDS Resource Emergency) Act Program, which is funded by the federal Health Resources and Services Administration (HRSA), Department of Health and Human Services (HHS). There are four parts, or titles, in the Ryan White Program. Without this essential funding source of last resort, the most vulnerable of the people living with HIV/AIDS (women, children, racial minorities, and dually diagnosed individuals) would go without care.

Ryan White Title I is the largest source of funding for primary health care and supportive services for people without health care coverage. Ryan White Title I directs emergency funding to metropolitan areas hardest hit by the HIV/AIDS epidemic. Baltimore City and six surrounding counties (Harford, Baltimore, Queen Anne, Carroll, Anne Arundel, and Howard Counties) were designated an eligible metropolitan area (EMA) in 1992.

Funds awarded the Baltimore EMA total \$16.6 million and are administered by the Baltimore City Health Department or its designated Administrative Agent. The Associated Black Charities has assumed the responsibility as the Administrative Agent for the Baltimore EMA. The Greater Baltimore Health Services Planning Council determines decisions on allocation levels and service priorities during its Annual Priority Setting meeting. The Mayor of Baltimore appoints the members of the Planning Council (Title I priorities and allocations for FY02 are in the appendix).

A total of 15 primary medical care sites are currently funded to provide HIV/AIDS care, including two dedicated pediatric primary care clinics and one adolescent clinic. Within the Baltimore EMA, medication reimbursement is a designated service category through which seven agencies receive funds. Ten service agencies are supported by Title I to provide substance abuse services specifically for eligible persons living with HIV/AIDS. Many of these programs are co-located with other HIV services. Seven oral health providers received Title I funds in the Baltimore EMA, all of which were co-located with primary medical care and one of which offers mobile dental services.

While care is predominantly focused on keeping individuals healthy, services are still needed for those who are too ill to care for themselves or are reaching the end of life. To support these individuals and families, one home health agency and two hospice providers receive Title I funding.

Support services have been shown to clearly enhance access to and retain clients in care. The term "support services" encompasses a vast array of services, such as case management, client advocacy, transportation, food/nutrition, buddy programs, and others. Within the Baltimore EMA, a variety of support services have been employed to comprehensively meet the needs of clients. Case management has been and continues to be a vital service to people living with HIV/AIDS. There are currently 17 agencies providing Title I supported case management services that range from limited to intensive services. Through case management individuals learn about the care continuum, receive

referrals to supportive services, and receive assistance in navigating the care system. Other services that are accessed include transportation, counseling, client advocacy, case management adherence, legal and housing assistance. Direct emergency financial voucher assistance, another service offered by Title I, helps individuals meet basic living needs that they would otherwise be unable to access or maintain.

Ryan White Title II is the second largest source of funding for primary health care, supportive services and medication assistance for people without health care coverage. Title II funds are awarded on a formula basis to states to improve the quality, availability and organization of health and support services for persons living with HIV/AIDS. Included in the Title II program is funding for the Maryland AIDS Drug Assistance Program (MADAP), a program that pays for HIV medications. MADAP also has a rapid temporary assistance program known as MADAP-90 that is available to individuals while they are awaiting qualification into another program.

Title II funds are administered by the Maryland AIDS Administration and funds are distributed directly to local health departments based on an allocation formula. Priorities are set by the Central Maryland HIV Health Services Consortium. The Director of the Maryland AIDS Administration appoints the members of the Consortium (Title II priorities and allocations for FY02 are in the appendix). The largest Title II expenditures are on pharmaceuticals, medical care, substance abuse treatment, case management, and dental services.

Titles III and IV of the Ryan White CARE Act provide funding for early intervention services for persons living with HIV/AIDS and for projects for women, infants, and children, respectively. Title III grants are awarded by the federal government directly to community-based organizations. The Title IV grant is awarded to a coalition of community-based organizations and the Maryland AIDS Administration. Funding levels for the aggregated Title III programs and the Title IV program are in the appendix.

Additional funding is directed to Baltimore City through grants from the Department of Housing and Urban Development (HUD) for Housing Opportunities for People With a AIDS (HOPWA) as well as substance abuse treatment funds from the Substance Abuse and Mental Health Services Administration Health (SAMHSA). HUD awards a formula based grant to the Baltimore City Office of Homeless Services for rental assistance and supportive services. SAMHSA awards a number of grants to provide HIV/AIDS outreach and prevention services that further enhance the comprehensive network of services provided in Baltimore City.

## **Antiretroviral Therapy**

While significant progress has been made over the past two decades in the treatment of HIV infection and many in the Baltimore community have benefited, delays in seeking treatment, difficulties in complying with often complex daily multi-pill regimens, the negative side-effects of the medications, and the growing problem of drug resistance

threaten the gains that have been made since 1995. As noted above, the death rate from HIV infection remains unacceptably high and is the leading cause of death among African

American men in their most productive years. Coupled with these problems are the impact of co-morbidities such as hepatitis C and substance abuse that further complicate therapy.

Today, eighteen antiretroviral drugs have been approved for the treatment of HIV infection and when used in combination, called highly active antiretroviral therapy (HAART), substantial benefit is achieved, as was noted in the Statistics Section through a decline in AIDS cases and AIDS deaths since 1995 when HAART became widely used. A patient with AIDS in 1985 had less than a one-year to live while today, with the proper use of antiretroviral therapy, some patients will live a normal lifetime.

Despite the unprecedented success of antiretroviral therapy, the use of HAART has significant limitations since over half of patients fail their initial regimen within the first year resulting in the need to adopt new and often more complex therapy regimens.

Disparities in health care among ethnic minorities also contribute to the problem in Baltimore, as shown by a 1999 study from Johns Hopkins University, that among patients under 40 the rate of failure to suppress virus was twice as high among African Americans compared to whites. These high failure rates reflect the major limitation of antiretroviral therapy: the need for near perfect adherence in order to achieve therapeutic success.

Poor adherence leads to drug resistance, which results in treatment failure and then illness and death. Programs that incorporate strong case management approaches, directly observed therapy and other approaches to improve adherence to medications have been established in Baltimore, but these demonstration projects do not provide a large enough group of patients to ensure full coverage. Further, injection drug users are poorly compliant to antiretroviral medications when they are actively using drugs pointing to the need to coordinate substance abuse treatment with HIV therapy.

Treatment is complicated by side effects of the medications, which can range from mild nausea and diarrhea to high fever, rash, vomiting, and headaches. These side effects can lead to inconsistent taking of medications that then causes the virus to no longer respond to the medication. In this case, patients will progress to AIDS unless a new regimen of medications is begun.

The urban poor face the social, cultural, medical, and economic challenges of poverty, low educational levels, and fear of stigma that contribute to the high rates of treatment failure. These issues and inequalities also affect factors such as access to care, delivery of care, and relationships with care providers, all of which have an important bearing on adherence and thus successful therapy. Even without the difficult social and economic issues that many HIV infected patients must endure, not many people can take 95% or more of their medications every day of their life. Thus there is a need to expand programs that augment the network of support to achieve high compliance.

With the emergence of drug resistance and lack of control of the virus by medication, there is an increased risk that such individuals, if they participate in high-risk sex or substance

abuse, are more likely to infect others with drug-resistant HIV. A recent study in Baltimore showed that 7.7% (6 of 78) of newly infected individuals were infected with drug-resistant virus, a finding consistent with the 3.5% to 14% reported in other U.S. cities. Newly infected individuals who acquired drug-resistant HIV are less likely to be as effectively treated as those whose virus is sensitive to the antiretroviral medications.

In Baltimore, and throughout the nation, the widespread use of antiretroviral therapy in a setting of poor adherence education and interrupted medical management has the potential to expand the occurrence of drug resistance. As increasing numbers and proportions of African-American urban poor become infected with, or develop on treatment, drug resistant virus, the disparities in response to care may become biologically entrenched. As a consequence, the future options for treating HIV in this population may become sharply diminished, and the remarkable advancements of the 1990's may be limited unless additional resources are brought to address the HIV crisis in Baltimore.

## **ISSUES FACING THE CITY**

### **Undiagnosed HIV Infection**

It is estimated that one-third of HIV infected people in Baltimore City do not know they are infected. The existence of large numbers of HIV infected persons who are unaware of their HIV status contributes to the increase in new cases of infection. Because these silently infected persons do not know they are infected, they are more likely to engage in high-risk behaviors without taking precautions.

With many more sexual contacts, particularly within communities of high HIV prevalence, they are more likely to encounter partners who are infected with drug-resistant HIV as well. With continued high-risk behaviors, these individuals will unknowingly transmit HIV to uninfected partners. These factors combine to further swell the pool of persons in a given locale who are infected. To reduce or eliminate these unwitting transmissions, it is critical to focus more resources on regular HIV screening, particularly in areas in which there is a known or suspected high prevalence of unidentified HIV cases.

### **Stigma of Infection**

There are many barriers to knowing whether one is infected with HIV. These include fear of knowing that one is infected because of the stigma associated with infection, a lack of understanding of how one acquires infection, and an educational lapse that results in widespread ignorance about the benefits of therapy and tolerability of newer antiretroviral medications. As detailed in the Prevention Section of this report there is a major challenge to provide adequate prevention education to the citizens of Baltimore and there are insufficient resources to address this need.

## **Baltimore Citizens who have been diagnosed with HIV infection but remain out of Care**

It is estimated that one-half of the people in Baltimore City who know they are HIV infected are not actively engaged in the care of a primary health provider. Many members of high-risk groups are distrustful of traditional medical systems, or have difficulties accessing medical care in large centralized systems. Compared to whites, African Americans are typically diagnosed later in the course of HIV disease, which means that they are less able to take advantage of antiretroviral therapy, prophylactic treatments, or timely secondary prevention counseling and education.

## **The Growing Epidemic of Multi-drug Resistance HIV**

African Americans have higher rates of non-adherence to HAART, resulting from documented socioeconomic and care access disparities, lower confidence in antiretroviral therapy, greater distrust of the medical system, and lower provider expectations of adherence. High-risk behavior (sex with an HIV infected partner, unprotected sex, sharing of needles, etc.) further compounds the problem of treatment failure: Patients develop resistance to antiretroviral drugs, and as their viral loads increase, they not only become more difficult to treat, but more likely to infect others with drug resistant HIV.

## **Adherence**

Studies have found that improving adherence requires simplifying the treatment regimen and tailoring it to patient lifestyles. Social support and coping styles significantly impact adherence and likely account for the observed radical difference in adherence between HIV infected patients. Interventions to improve adherence should focus on making medication dosages easier to remember, ensuring a continued supply of medications, and avoiding medications with side effects.

There is a need to bridge social, cultural, medical and economic barriers that prevent practitioners and clients from effectively understanding how each views the treatment of HIV. As discussed in the Prevention Section there is a need to involve community-based organizations in a partnership that supports the mutual goals of enhancing quality care and strong antiretroviral drug adherence. To address these issues additional resources are needed along with innovative programs that include settings where clients can be observed when taking therapy to insure that the medication is taken correctly.

## **Co-morbidities: Substance Abuse, Hepatitis C Virus infection, and Mental Illness**

While HIV infection has had a staggering effect on this City, it is important not to forget other factors, known as co-morbidities, which can have a significant impact on HIV disease and/or its treatment. Some of these major factors/co-morbidities include substance abuse, hepatitis C, and mental illness.

Without paying attention to these co-morbidities and making sure that there is better coordination among the agencies and groups within agencies that address these co-morbidities, the current pattern of fragmentation of services will continue to adversely impact those in need. To effectively prevent and treat HIV infection, these co-morbidities must also be addressed along with HIV in a coordinated fashion.

### **Substance Abuse**

Substance abuse, including but not limited to heroin, cocaine, and alcohol, is an important factor in the transmission of HIV either directly (i.e., through needle sharing) or indirectly (i.e., through high-risk behaviors facilitated by the altered state of mind induced by these agents or through the need to trade sex for drugs or for money to buy drugs). Substance abuse also contributes to transmission when an individual is unaware of his/her HIV status and has unprotected sex with others. This can affect those who are not substance abusers in the setting of a monogamous relationship in which the uninfected partner, unaware of his/her partner's substance abuse problem, does not perceive sex without condoms to be unsafe.

Once an individual is infected, substance abuse can contribute to the neglect or avoidance of one's health care. While "high" or in withdrawal, attendance to basic health needs is not a major priority. Even if the individual seeks health care, active substance abuse almost always interferes with the treatment plan.

Substance abuse and its addictive behaviors also have an impact on more basic health care issues, such as appropriate nutrition. Without appropriate nutrition, health and possibly antiretroviral treatment efficacy is impaired. It is clear that without addressing the substance abuse issue in Baltimore, successful control of the HIV epidemic and its significant direct and indirect costs will be impossible.

### **Hepatitis C Virus Infection**

Hepatitis C is usually transmitted through exposure to blood or blood products. In Baltimore, the vast majority of cases are acquired through injection drug use. It is estimated that over 90% of injection drug users in Baltimore are infected with hepatitis C (HCV) after two years of drug use. Infection with HIV and HCV can lead to more rapid progression of hepatitis (liver) disease.

As HCV progresses, the infected individual can develop cirrhosis of the liver. This leads to end stage liver disease, a condition for which there is no treatment short of liver transplantation. Although treatment for HCV infection in non-HIV infected patients is available, it is only effective in 30-50% of those treated and is associated with significant side effects that like HIV therapy may lead to premature discontinuation of medications. Therapy for HCV, as with HIV, is expensive and requires frequent clinic visits and laboratory monitoring.

Patients who are co-infected with HIV have added burdens since HIV worsens HCV infection. In addition, the medications for HIV will often add to the damage of the liver caused by HCV infection. Finally the therapy for HCV infection is poorly tolerated and less

effective in the setting of HIV infection. As noted in the Prevention Section of the report, coordination of efforts to prevent infection of both viruses is an important goal but will require additional resources and cooperation among the groups addressing each infection.

### **Mental Illness**

As with substance abuse, mental illness may also have an impact on the acquisition and effective treatment of HIV infection. Unrecognized and/or untreated mental health disorders can lead to high-risk behaviors, which lead to the acquisition or transmission of HIV. In addition, they can lead to non-adherence with medical care appointments, medication regimens and appropriate nutrition.

Even with treatment they can still contribute to difficulties with medication adherence. Serious depression or other mental health disorders can be exacerbated by certain antiretroviral drugs and the drugs used to treat hepatitis C, and sometimes preclude the use of these medications. Estimates of the prevalence of mental health disorders in HIV infected individuals can be as high as 80-100%. Therefore, treatment of mental health disorders is essential for the successful treatment of HIV infection and to prevent further spread of the disease. However, there is fragmentation and a lack of adequate coordination among the agencies responsible for these co-morbidities and there is a need for additional resources to provide adequate care for this difficult to treat high-risk population.

### **Correctional Inmates**

Citizens with HIV infection often come into contact with the criminal justice system and are assigned to correctional facilities with the potential for adverse health care consequences. Access to care in the correctional setting is limited and continuity in care during incarceration is poorly coordinated. In addition, inmates who transition out of prison require substantial efforts to ensure that their medications are not disrupted and that post incarceration care is provided. Coordination and funding are needed to ensure continuity of HIV care for inmates that are HIV positive by providing quality specialty HIV treatment and aftercare programs so that they can continue to receive their medications and prevention education. With the large number of inmates expected to be released to Baltimore in the next 18 months, as summarized in the appendix, there is a strong need to address this issue.

### **Long Term Cost of HIV Epidemic on the City**

Many studies have attempted to estimate the costs of various diseases to society. They are all limited by the difficulties of estimating the indirect costs of an illness to the society. HIV infection is no exception. Various studies have looked at the cost of antiretroviral therapy compared with the savings in reduced hospitalizations. They have shown a cost benefit to antiretroviral therapy.

However, these studies did not consider the issues of non-adherence and resistance, both of which can lead to increased costs, as was discussed previously. Although the direct

costs of antiretroviral therapy and hospitalizations for co-morbidities and opportunistic infections have been defined, they represent the “tip of the iceberg.” It is the indirect costs that represent the bulk of the long-term costs to society. These are very difficult to measure and there is little data available to make reasonable estimates. In the absence of an accurate figure, it is still very clear that the available resources are woefully inadequate. At a minimum, there is an urgent need to increase medical resources in Baltimore City so that all HIV-infected patients have access to expert care.

## **RECOMMENDATIONS**

**The Commission on HIV/AIDS recommends that the Baltimore City Council shall:**

- **Develop strategies to reduce the fragmentation of health care services and Baltimore’s ability to optimize its public health response to the HIV/AIDS epidemic.**
- **Require the Baltimore City Health Department and encourage Baltimore City’s medical providers and institutions to become more effective in identifying HIV-infected individuals, enrolling them into care, and integrating prevention education as part of their ongoing care.**
- **Require the Baltimore City Health Department and encourage Baltimore City’s medical providers and institutions to expand access to health screening services that will promote early diagnosis and entry into care for HIV infection.**
- **Examine the potential benefits of using alternative and innovative health care delivery systems outside traditional medical settings, to enhance medication adherence as an option for patients with HIV infection.**
- **Encourage the Baltimore City Health Department and Baltimore City’s medical providers and institutions to continue to address the prevention and treatment of illnesses associated with HIV infection (substance abuse, hepatitis C, mental illness, syphilis, and others) and to further integrate their care with HIV treatment.**
- **Seek additional funding from federal, state, and private sources to address the gaps in HIV care and coordinate services to optimize HIV care and management.**
- **Provide a Baltimore City Council liaison to the Greater Baltimore HIV Health Services Planning Council (Ryan White Title I Program) and the Central Maryland HIV Health Services Consortium (Ryan White Title II Program).**

## **APPENDIX**

### **CENSUS DATA**

For the purposes of understanding the impact of HIV and AIDS in the City of Baltimore data from the Census provides benchmarks for the number of persons residing in different locales that can be used for calculating the rate of disease and infection in the population. Accurate measures of the population census are important as well in allocating Federal and State dollars for prevention and treatment. The United States Census Bureau conducts a detailed count of all persons living at all addresses (households) in the United States every ten years.

This is conducted first by a questionnaire mailed to all known addresses. Non-respondents are contacted by mail and then in-person. Multiple attempts are made to find at least basic information from all addresses. A supplemental survey is carried out on one night to count all individuals not living in households, such as in hospitals, prisons, bus stations, shelters, campgrounds, parks, abandoned buildings, and on the street. The population numbers used in this report are from the 2000 Census. For trend analyses, the 1980 and 1990 Censuses and the annual inter-censal population estimates prepared by the Maryland Office of Planning were also used.

The Census is not a perfect count of individuals in the United States. People are missed, data is lost, and some people actively avoid being counted. Undercounts are believed to be higher in urban areas, among racial and ethnic minorities, among non-native English speakers, and among illegal immigrants. Proposals to statistically adjust the Census to correct for the undercount have been rejected by the federal government.

For the purposes of this report, a Census undercount would have no effect on the presented HIV and AIDS counts, but would mean that HIV and AIDS rates presented in the report are greater than they should be. Therefore, the rates in the report overstate the true rate of reported cases. However, since case reporting is not 100% complete and additional cases would increase the reported rate the overall effect of the Census undercount on the agreement between the reported rate and the true rate is probably very small.

### **MAPPING DATA TO CITY COUNCIL DISTRICTS**

HIV statistics are collected at the level of ZIP code of residence at the time of diagnosis. AIDS statistics and Census population figures are also available at the ZIP code level. The Baltimore City Office of Planning provided a detailed street map of the six City Council districts.

A map of the 30 ZIP codes in the City was laid over the Council districts and the ZIP codes were proportionately assigned to Council districts. ZIP codes that were all or mostly within a Council district had 100% of their HIV and AIDS cases and population assigned to that

district. ZIP codes that were approximately half in a Council district had 50% of their cases and population assigned to the district.

ZIP codes that were only partially in a Council district were not assigned to that district. Using this method, 22 of the 30 ZIP codes were wholly assigned to individual districts and 8 ZIP codes were split between pairs of districts. A table of the ZIP codes and the level of overlap with each Council district is provided.

	All	Most	Half	Partial
District 1	21222 21237	21206 21224 21231	21202 21214 21230	21201 21205 21213
District 2		21205 21213	21201 21202 21211 21218	21210 21217 21224 21231
District 3	21234 21236 21239	21212	21214 21218	21206 21213
District 4		21216 21217	21211 21215 21229	21201 21223
District 5	21207 21208 21209	21210 21228	21215	21211 21212 21216 21229
District 6	21225 21226 21227	21223	21201 21229 21230	21217 21228

## METHODS OF DATA COLLECTION

Timely, accurate data on certain reportable diseases including HIV and AIDS (other reportable conditions include communicable diseases such as tuberculosis and sexually transmitted diseases such as syphilis) are required under Maryland State law to facilitate public health and prevention efforts. For HIV infection and AIDS the local health officer, in Baltimore this is the Commissioner of Health, is responsible for this data collection. The HIV Disease Surveillance Program of the Baltimore City Health Department is fully funded by the Maryland Department of Health and Mental Hygiene, AIDS Administration. HIV and AIDS surveillance activities in Baltimore and throughout the State are either coordinated by, or directly performed by the AIDS Administration's Center for Surveillance using a combination of State general funds and competitively awarded funds from the federal Centers for Disease Control and Prevention.

Complete and timely reporting of AIDS cases can only be maintained by a continuous, active surveillance system that fully integrates HIV and AIDS reporting. In the Fall of 2000,

in order to augment HIV and AIDS reporting, the City and State health departments agreed to re-structure the City's surveillance program and that the State would provide additional technical support and assistance. This has led to a dramatic improvement in the completeness of AIDS case reporting in the City. This is illustrated by data where in the 12 months ending in September 2000, the City suffered a 17% decline in reported cases from the prior year, bringing the City down to 44% of all State cases that year. During the next 12 months, case reporting increased 63%, returning the City to 55% of all State cases in the year a pattern consistent with prior reporting. This improvement demonstrates the beneficial impact of the partnership between the City Health Department and the State AIDS Administration where timely corrective actions, resulted in the City surveillance data once again becoming complete.

All clinical laboratories licensed by the State of Maryland to perform HIV and CD4 tests, including out of state laboratories, are required to report to either the State or local health department HIV tests with a positive result and CD4 tests with a result less than 200 cells per microliter on all confidential, clinical samples from Maryland residents tested at Maryland facilities. Exemptions exist for State approved anonymous testing sites, organ, blood, and tissue donations, and certain State approved research studies. These laboratory test results are reported using a 14-digit unique patient identifier number that consists of the last four digits of the Social Security number, 8 digits for the date of birth, and 1 digit each for race/ethnicity and gender codes. This coded identifier has been found to be highly unique (99.987% unique when applied to 15,405 AIDS cases). Newly received laboratory reports are matched to previously reported HIV and AIDS cases using the coded identifier. Reports that do not match are investigated to verify their status as new cases of HIV or AIDS.

All physicians licensed to practice in the State of Maryland are required to report to the local health officer any person in their care with AIDS, that is, HIV positive individuals with severe immunosuppression (CD4 counts less than 200 cells per microliter) or with certain diseases, such as pneumocystis pneumonia, that are considered to be characteristic of advanced HIV disease and AIDS. These reports are made by name and new reports are investigated to verify their status as new cases of AIDS.

Many cases of AIDS and all cases of HIV infection are initially reported without an exposure category. Follow-up investigations are performed by the health department to identify transmission risks and to classify the new cases into exposure categories. These investigations take time, so complete risk information is often not available for one or two years after the report.

Physician reporting, by itself, is inadequate to identify all cases of AIDS. Laboratory reporting, in addition to providing all HIV reporting, has proven to be a valuable source of AIDS case reports. The City and State health departments also perform extensive supplemental surveillance (such as contacting providers, reviewing hospital discharges, and reviewing death certificates) to further identify AIDS cases.

In order to optimize privacy while ensuring accuracy, the Maryland State AIDS Administration employs a coded identifier instead of name reporting. Names-based reporting for HIV has hurt HIV surveillance activities in some locales because of fears by

infected individuals that their HIV status might be revealed if their name is linked to their result. The coded identifier was adopted by the State legislature to address confidentiality concerns of the HIV affected population so as not to scare people away from HIV testing. An extensive evaluation of the reporting system was published in the Journal of AIDS (Solomon L, Flynn C, Eldred L, Caldeira E, Wasserman MP, Benjamin G. Evaluation of a statewide non-name-based HIV surveillance system. Journal of AIDS 1999; 22:272-279) that documented the satisfactory performance of the system. In addition, the Centers for Disease Control and Prevention has twice released estimates based on national data of how many HIV cases should have been reported if Maryland had been using name-based HIV reporting. In the 1999 CDC data release there was a 99.7% agreement between CDC's estimate and Maryland's count. In the 2001 data release, the CDC provided an estimated range of HIV cases and Maryland's count was well within the estimated range. By all measures, the coded identifier HIV reporting system is performing as well as a name-based system. However, whether employing named reporting or coded identifier reporting, there is general agreement that there is a significant undercounting of true HIV and AIDS such that potentially as much as up to 20% of cases may be missed by current methods with obvious public health and individual health impacts.

There are four ways of looking at HIV and AIDS data: by time of report, cumulatively, incidence, and prevalence. The time of report tells you how many cases were discovered and reported during a time period. Cases reported during a year might have actually been cases for years, but had not been reported to the health department. This number is the least likely to be revised as new information comes in, but is also the most subject to the performance of the reporting agency. The cumulative number tells you how many cases have ever been reported. This gives you the largest number of cases, but, with the epidemic now entering its third decade, more current information will be more useful. Incidence is the number of new cases occurring during a time period. This number provides the best information about what is currently occurring, but is the most subject to revisions as additional information comes in. Prevalence is the number of people living with the disease at any given time. This provides invaluable and stable information for planning services and prevention activities. Incidence and prevalence are the most useful HIV and AIDS data for tracking the epidemic.

## **INTERNATIONAL COMPARISONS**

HIV is a global pandemic with 10 new infections occurring every minute. The hardest hit region of the world is sub-Saharan Africa, with over 24.5 million people with HIV and AIDS prevalence. Rates of HIV/AIDS in Baltimore are high (four times higher than the national average), but are still much lower than the rates in Africa. The rate of HIV and AIDS in 1999 among adults 15-49 in Baltimore was 2.65%, which, while high for U.S. standards, is one-third the rate for all of sub-Saharan Africa combined (8.57%), and far less than that seen in countries such as Kenya (13.95%) and South Africa (19.94%). Since HIV is generally concentrated in urban areas, the rates in major cities such as Nairobi and Johannesburg are probably even higher.

<b>Geographic Area</b>	<b>Percent of Adults (15-49) living with HIV/AIDS, end 1999</b>
Sub-Saharan Africa	8.57
Botswana	35.80
Burundi	11.32
Central African Republic	13.84
Ivory Coast	10.76
Djibouti	11.75
Ethiopia	10.63
Kenya	13.95
Lesotho	23.57
Malawi	15.96
Mozambique	13.22
Namibia	19.54
Rwanda	11.21
South Africa	19.94
Swaziland	25.25
Zambia	19.95
Zimbabwe	25.06
Baltimore City	2.65
United States	0.61

Sources:

Joint United Nations Program on HIV/AIDS (UNAIDS). Report on the Global HIV/AIDS Epidemic, June 2000.

Maryland Department of Health and Mental Hygiene, AIDS Administration.

## **CORRECTIONAL INMATES**

Number of inmates serving 18 months or less (as of May 2000):

Druid Heights (21217)	1,494
Sandtown/Winchester (21216)	919
(21217)	1,494
Greater East Baltimore (21213)	1,185
East Baltimore/Midway/Barclay (21218)	1,114
Targeted Communities (Targeted ZIP Codes)	4,711
Baltimore City (All ZIP Codes)	8,840

**Source: Maryland Department of Public Safety and Correctional Services**

## **ADDITIONAL HIV/AIDS STATISTICS**

The following additional tables and figures of HIV and AIDS statistics are provided to supplement the text, tables, and figures in the body of the report.

### **Prevalence HIV and AIDS**

- Table of Prevalence (Living cases) of HIV and AIDS on December 31, 2000
- Figure of Prevalence (Living cases) of HIV and AIDS separately on December 31 of each year (1981-2000)
- Figure of Prevalence (Living cases) of HIV and AIDS combined and rate per 100,000 population on December 31 of each year (1981-2000)

### **Incidence of AIDS**

- Table of Incidence (new cases) of AIDS during 2000
- Figure of Incidence (new cases) of AIDS and rate per 100,000 population each year (1981-2000)

### **Incidence of HIV**

- Table of HIV Incidence (new cases) during 2000
- Figure of HIV Incidence (new cases) and rate per 100,000 population each year 1994-2000

### **AIDS Mortality**

- Table of Total Deaths among AIDS cases through December 31, 2000
- Figure of Deaths among AIDS cases and rate per 100,000 population by year of death (1981-2000)
- Figure of Percent of AIDS cases dying within one year of diagnosis by five year periods (1981-2000)

## Baltimore City Council - Commission on HIV/AIDS

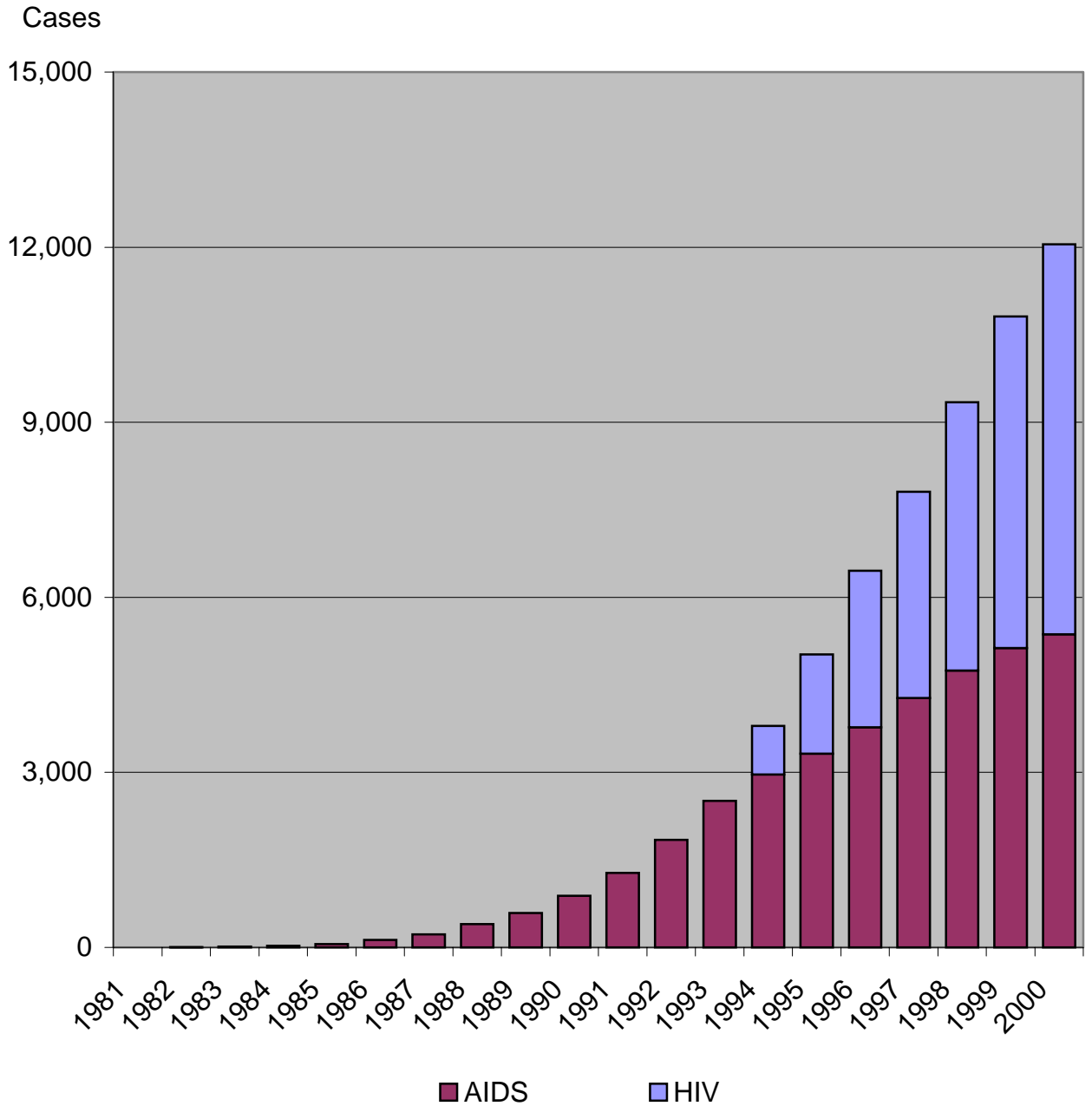
### Prevalence (Living Cases) of HIV and AIDS on December 31, 2000\*

	Population	HIV and AIDS Cases	Percent Distribution	Rate per 100,000 pop.
<b>Total</b>	651,154	12,047	100.0%	1,850.10
<b>Age on 12/31/2000</b>				
<13	117,516	163	1.4%	138.70
13-19	65,691	71	0.6%	108.08
20-29	95,384	768	6.4%	805.17
30-39	98,081	3,848	31.9%	3,923.29
40-49	95,376	5,066	42.1%	5,311.61
50-59	68,145	1,685	14.0%	2,472.67
60+	110,961	446	3.7%	401.94
Unknown		-		
<b>Race/Ethnicity</b>				
White	201,566	1,122	10.0%	556.64
Black	417,009	9,948	89.0%	2,385.56
Hispanic	11,061	53	0.5%	479.16
Other	21,518	55	0.5%	255.60
Unknown		869		
<b>Gender</b>				
Male	303,687	7,584	63.1%	2,497.31
Female	347,467	4,434	36.9%	1,276.09
Unknown		29		
<b>Exposure</b>				
MSM/IDU		276	3.8%	
MSM		1,096	15.0%	
IDU		4,130	56.4%	
Heterosexual		1,598	21.8%	
Other		223	3.0%	
Unknown		4,724		
<b>Council District</b>				
1	135,582	1,781	15.5%	1,313.60
2	112,102	3,003	26.1%	2,678.81
3	95,111	1,042	9.0%	1,095.56
4	139,597	2,987	25.9%	2,139.73
5	70,612	883	7.7%	1,250.50
6	98,150	1,818	15.8%	1,852.27
Unknown		533		

\* Number of cases of HIV and of AIDS alive on December 31, 2000, as reported through September 30, 2001.

# Baltimore City Council - Commission on HIV/AIDS

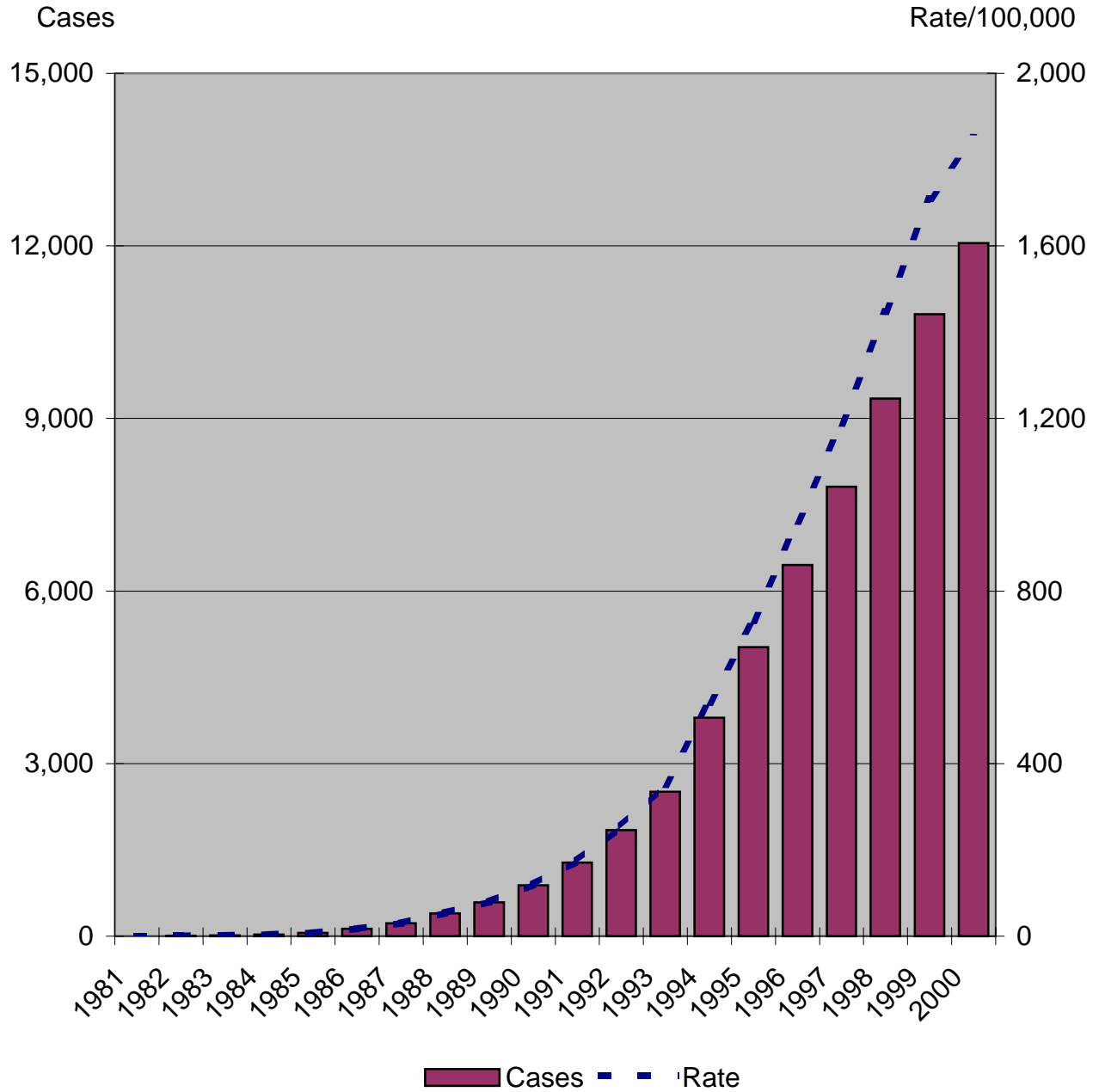
Prevalence (Living Cases) of HIV and AIDS on December 31st of Each Year



HIV surveillance began in 1994.

# Baltimore City Council - Commission on HIV/AIDS

## Prevalence (Living Cases) of HIV and AIDS on December 31st of Each Year



HIV surveillance began in 1994.

# Baltimore City Council - Commission on HIV/AIDS

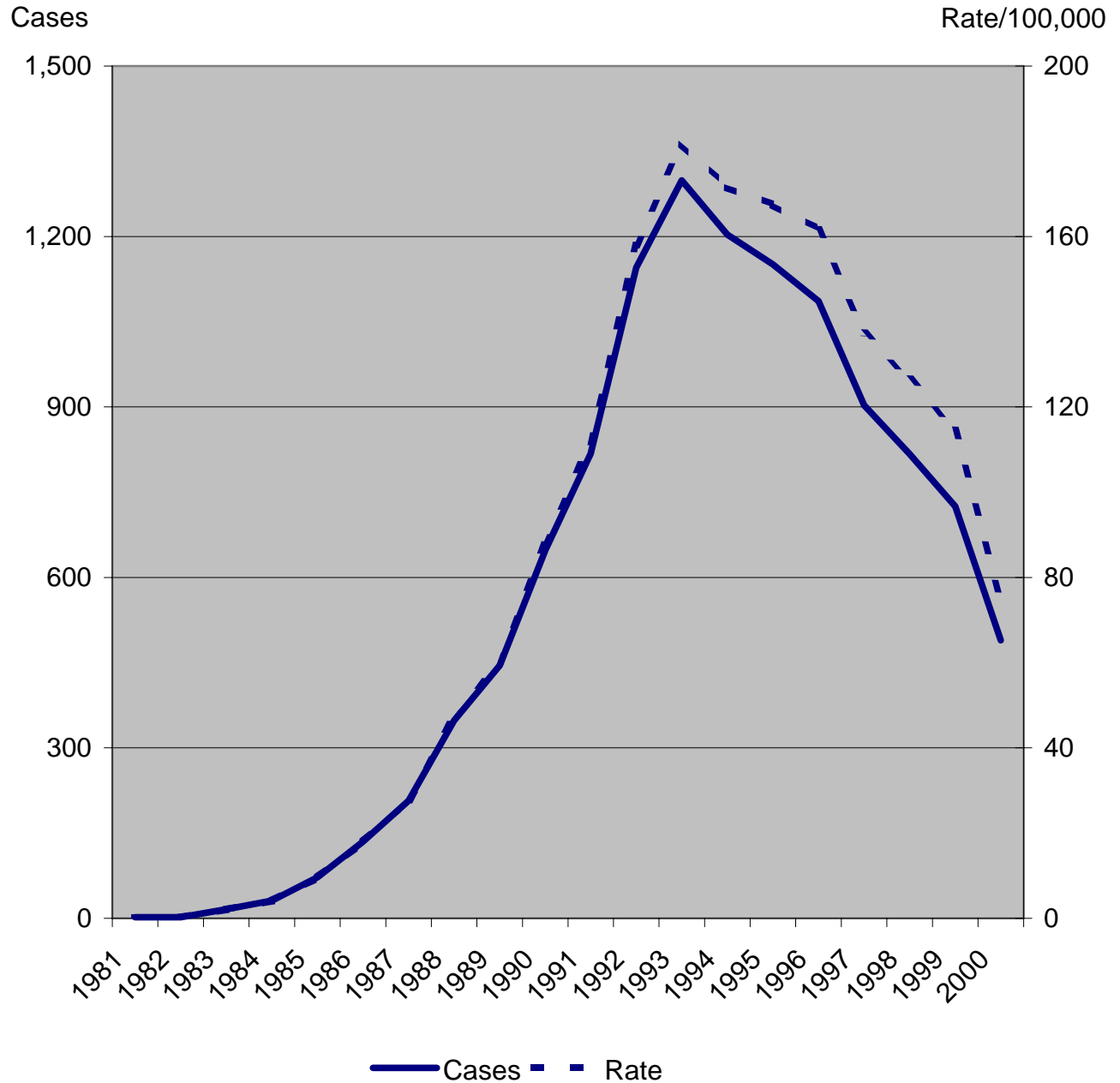
## Incidence (New Cases) of AIDS during 2000\*

	Population	AIDS Cases	Percent Distribution	Rate per 100,000 pop.
<b>Total</b>	651,154	587	100.0%	90.15
<b>Age at Diagnosis</b>				
<13	117,516	2	0.3%	1.70
13-19	65,691	5	0.9%	7.61
20-29	95,384	51	8.7%	53.47
30-39	98,081	200	34.1%	203.91
40-49	95,376	233	39.7%	244.30
50-59	68,145	70	11.9%	102.72
60+	110,961	26	4.4%	23.43
Unknown		-		
<b>Race/Ethnicity</b>				
White	201,566	42	7.2%	20.84
Black	417,009	538	91.7%	129.01
Hispanic	11,061	3	0.5%	27.12
Other	21,518	4	0.7%	18.59
Unknown		-		
<b>Gender</b>				
Male	303,687	379	64.6%	124.80
Female	347,467	208	35.4%	59.86
Unknown		-		
<b>Exposure</b>				
MSM/IDU		16	3.3%	
MSM		62	12.7%	
IDU		313	63.9%	
Heterosexual		95	19.4%	
Other		4	0.8%	
Unknown		97		
<b>Council District</b>				
1	135,582	77	13.4%	56.79
2	112,102	136	23.7%	121.32
3	95,111	57	9.9%	59.93
4	139,597	158	27.5%	113.18
5	70,612	45	7.8%	63.73
6	98,150	102	17.7%	103.92
Unknown		12		

\* Number of new cases of AIDS diagnosed January 1, 2000 through December 31, 2000, as reported through September 30, 2001.

# Baltimore City Council - Commission on HIV/AIDS

## Incidence (New Cases) of AIDS Each Year



## Baltimore City Council - Commission on HIV/AIDS

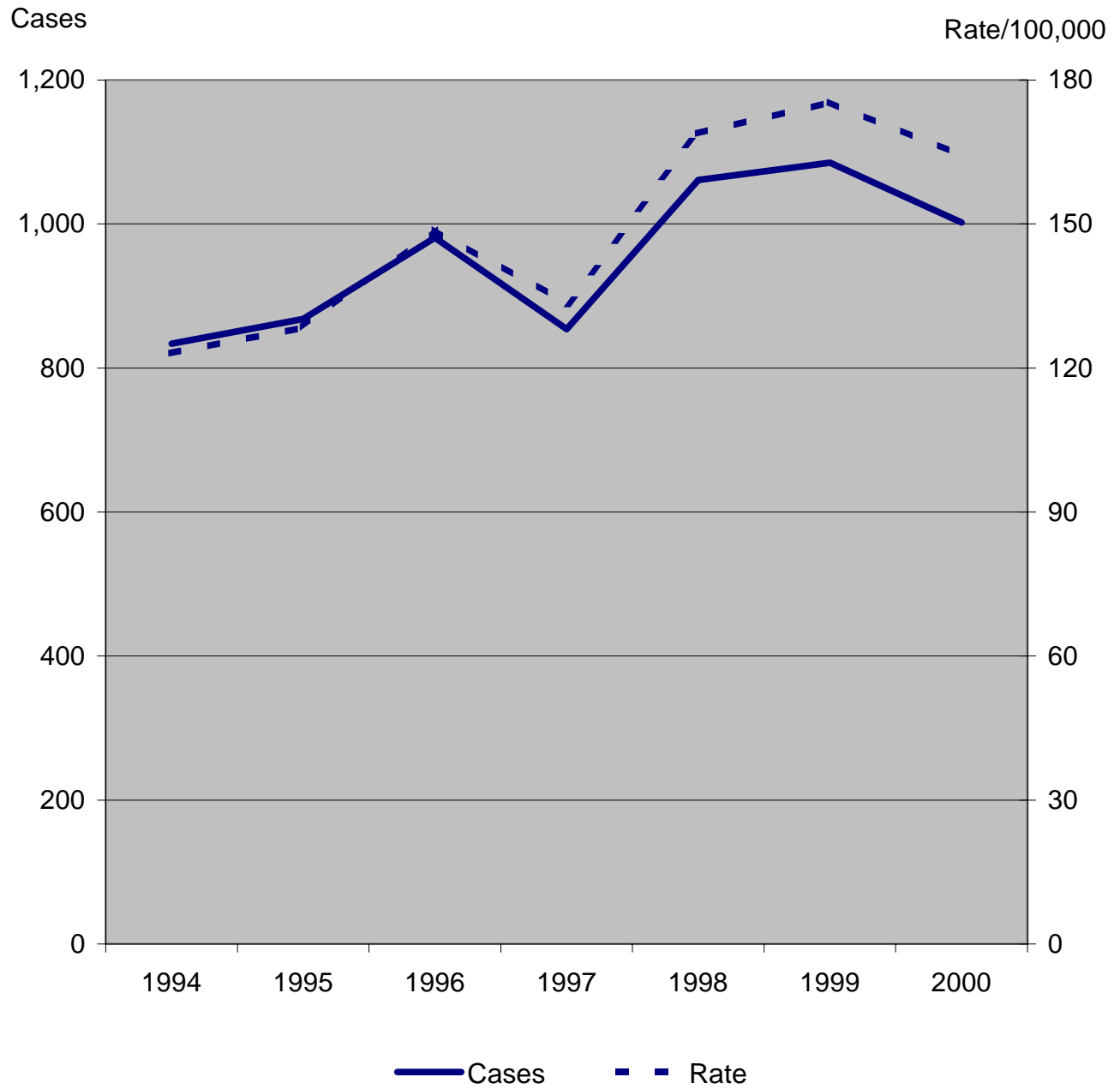
### Incidence (New Cases) of HIV during 2000\*

	Population	HIV Cases	Percent Distribution	Rate per 100,000 pop.
<b>Total</b>	651,154	1,002	100.0%	153.88
<b>Age at Diagnosis</b>				
<13	117,516	14	1.4%	11.91
13-19	65,691	25	2.5%	38.06
20-29	95,384	143	14.3%	149.92
30-39	98,081	375	37.4%	382.34
40-49	95,376	327	32.6%	342.85
50-59	68,145	86	8.6%	126.20
60+	110,961	32	3.2%	28.84
Unknown		-		
<b>Race/Ethnicity</b>				
White	201,566	75	9.6%	37.21
Black	417,009	701	89.4%	168.10
Hispanic	11,061	2	0.3%	18.08
Other	21,518	6	0.8%	27.88
Unknown		218		
<b>Gender</b>				
Male	303,687	582	58.3%	191.64
Female	347,467	416	41.7%	119.72
Unknown		4		
<b>Exposure</b>				
MSM/IDU		6	2.2%	
MSM		18	6.7%	
IDU		110	40.9%	
Heterosexual		120	44.6%	
Other		15	5.6%	
Unknown		733		
<b>Council District</b>				
1	135,582	138	14.9%	101.78
2	112,102	223	24.1%	198.93
3	95,111	79	8.5%	83.06
4	139,597	244	26.3%	174.79
5	70,612	64	6.9%	90.64
6	98,150	178	19.2%	181.36
Unknown		76		

\* Number of new cases of HIV diagnosed January 1, 2000 through December 31, 2000, as reported through September 30, 2001.

# Baltimore City Council - Commission on HIV/AIDS

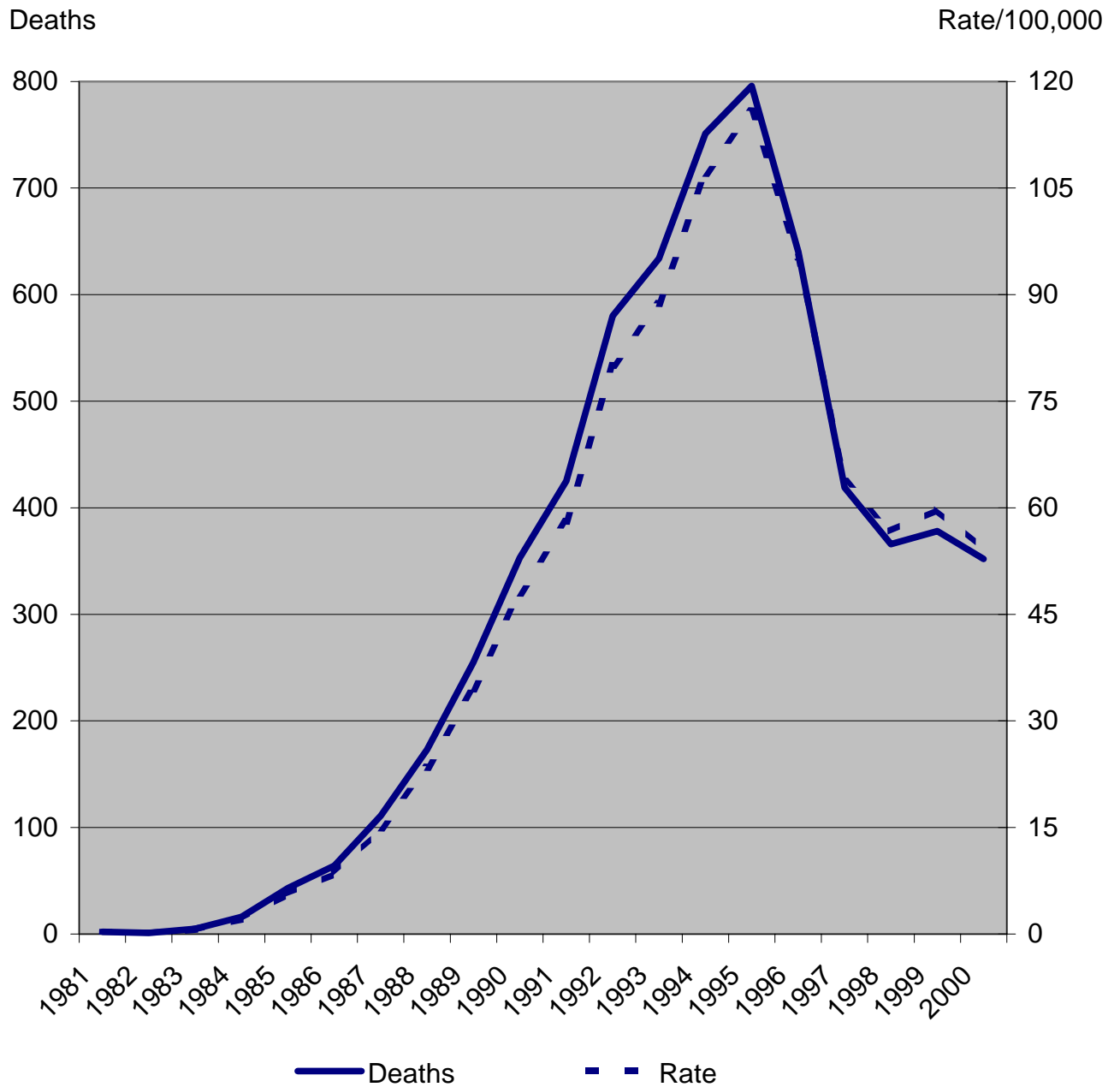
## Incidence (New Cases) of HIV Each Year



HIV surveillance began in 1994.

# Baltimore City Council - Commission on HIV/AIDS

## Deaths Among AIDS Cases by Year of Death



# Baltimore City Council - Commission on HIV/AIDS

## Total Deaths among AIDS Cases through December 31, 2000\*

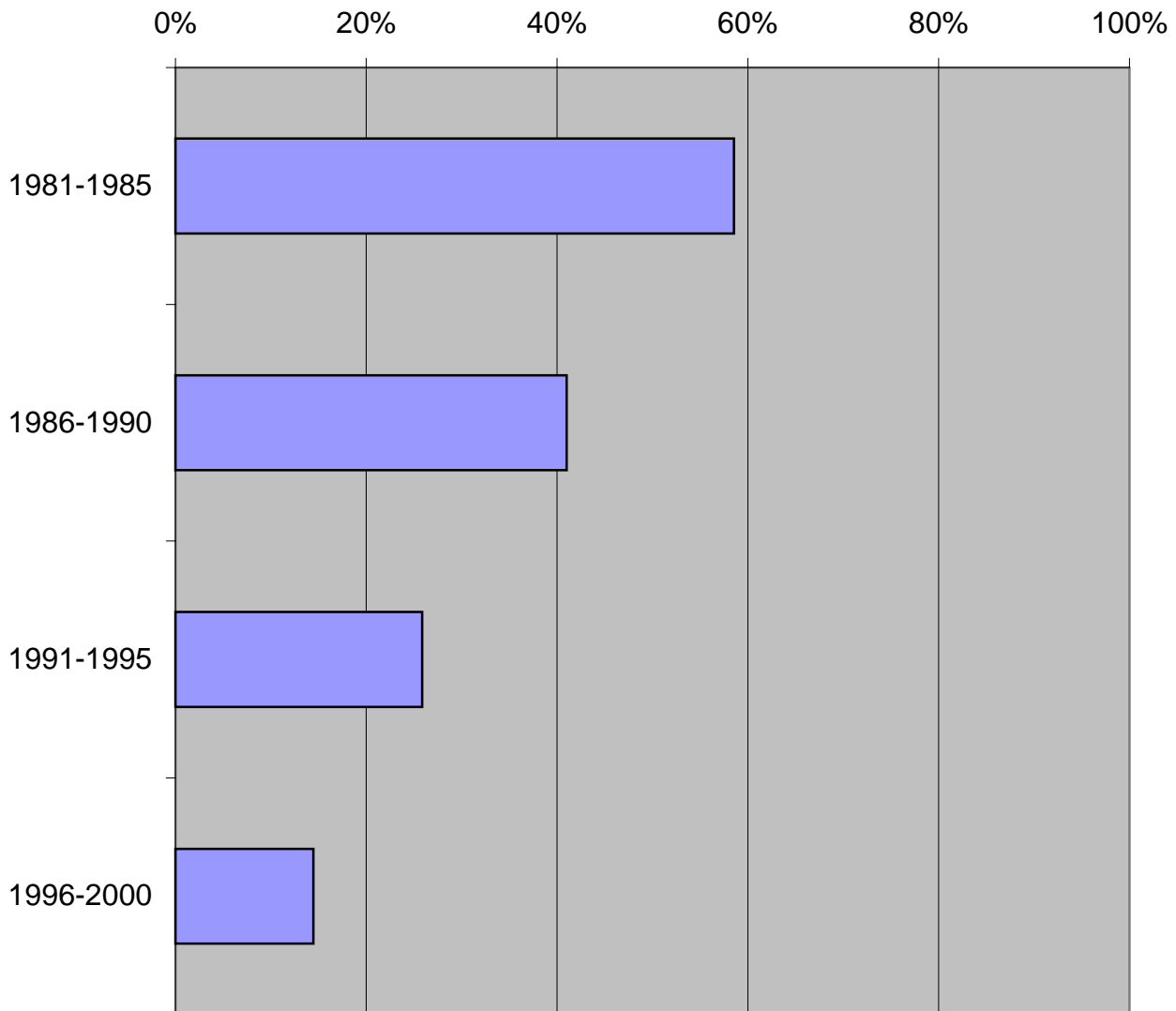
	Population	AIDS Deaths	Percent Distribution	Rate per 100,000 pop.**
<b>Total</b>	651,154	6,490	100.0%	996.69
<b>Age at Death</b>				
<13	117,516	80	1.2%	68.08
13-19	65,691	8	0.1%	12.18
20-29	95,384	568	8.8%	595.49
30-39	98,081	2,748	42.3%	2,801.77
40-49	95,376	2,190	33.7%	2,296.18
50-59	68,145	664	10.2%	974.39
60+	110,961	232	3.6%	209.08
Unknown		2		
<b>Race/Ethnicity</b>				
White	201,566	807	12.4%	400.37
Black	417,009	5,630	86.7%	1,350.09
Hispanic	11,061	37	0.6%	334.51
Other	21,518	16	0.2%	74.36
Unknown		-		
<b>Gender</b>				
Male	303,687	4,896	75.4%	1,612.19
Female	347,467	1,594	24.6%	458.75
Unknown		-		
<b>Exposure</b>				
MSM/IDU		367	5.8%	
MSM		1,599	25.2%	
IDU		3,532	55.6%	
Heterosexual		710	11.2%	
Other		140	2.2%	
Unknown		142		
<b>Council District</b>				
1	135,582	817	12.7%	602.59
2	112,102	1,558	24.2%	1,389.81
3	95,111	653	10.1%	686.57
4	139,597	1,884	29.2%	1,349.60
5	70,612	527	8.2%	746.33
6	98,150	1,012	15.7%	1,031.07
Unknown		39		

\* Number of AIDS cases dying of any cause as of December 31, 2000, and reported by September 30, 2001.

\*\* The death rate is the total deaths over the 20 years of the epidemic divided by the current population.

# Baltimore City Council - Commission on HIV/AIDS

## Percent of AIDS Cases Dying Within One Year of Diagnosis



**TITLE I: SUMMARY OF PRIORITY SERVICES TO BE FUNDED IN FY 2002 - BALTIMORE CITY**

Greater Baltimore HIV Health Services Planning Council  
 Priority Setting and allocation FY 2002 (allocation based on actual dollars)  
 Friday, August 3 and Monday, August 6, 2001

SERVICE CATEGORIES	FY 01 Ranking	FY 01 \$	FY02 %	FY02 Alloc
1 Ambulatory/Primary Medical Care	1	\$3,987,570	23.49%	3,598,813
2 Substance Abuse Treatment (SA Tx)	3	\$1,078,715	7.04%	1,078,715
2a SA Tx – Alternative therapy	NR		0.20%	30,357
3 Case Management	2	\$457,074	3.29%	503,468
4 Outreach/Health Ed, Risk Reduction	4	\$425,315	2.63%	403,588
5 Dental	5	\$766,163	4.84%	741,163
6 Housing Assistance	7	\$612,493	4.00%	612,493
7 PMC-Co-Morbidity	1a	\$311,216	1.76%	270,042
8 Direct Emergency Financial Vouchers	10	\$641,041	4.04%	618,538
9 Services to Surrounding Counties	9	\$2,003,804	13.08%	2,003,804
10 Client Advocacy	8	\$382,393	1.91%	292,562
11 Drug Reimbursement	12	\$227,615	1.57%	240,000
12 Mental Health	11	\$598,398	3.63%	556,701
13 Viral Load Testing	1d	\$284,951	2.19%	335,495
14 Transportation	14	\$162,974	1.11%	170,806
15 PC Support	19	\$520,920	3.40%	520,920
16 Day & Respite	6	\$291,551	1.90%	291,551
17 Food/Nutrition	17	\$327,694	2.14%	327,694
18 Counseling	16	\$414,793	2.50%	383,404
19 Program Support-Community Education	13	\$120,275	0.79%	120,275
20 Program Support-Capacity Building	15a	\$108,539	0.79%	121,053
21 Program Support-Outcomes/Evaluation	24	\$0	0.00%	0
22 Buddy	22	\$0	0.00%	0
23 Client Level Data Collection System	18	\$0	0.00%	0
24 Legal	20	\$85,991	0.89%	135,991

25 Hospice*	23	\$142,476	1.16%	178,066
26 Home Health*	21	\$42,262	0.28%	42,262
27 CM-Adherence	2a	\$323,440	1.38%	210,982
PMC-Alternative Therapy (Chiropractor, Acupuncture)		\$0	0.00%	0
28 Grantee Administrative Cost	25	\$766,043	5.00%	766,041
QIP	NR	\$133,316	5.00%	766,041
Total		\$12,939,007	100.00	15,320,825
CBC*		\$1,377,542		1,377,500
Admin cost for CBC				68,875
				FY2001
CBC Capacity Building*		55,105		55,105
CBC Outreach*		705,155		705,155
CBC Co-Morbidity*		295,286		295,286
CBC – Enriched Life Sills*		253,079		253,079
TOTAL		1,308,625		1,308,625

\* given by BCHD 6/6/01 (RB)

## TITLE II: CENTRAL MARYLAND FUNDING REPORT APRIL 2001 – MARCH 2002

The AIDS Administration distributes funds directly to the local health departments according to a formula based on the following weighted variables: living AIDS cases, HIV cases, poverty, and gonorrhea.

A portion of Title II funds will continue to be allocated directly to programs for special initiatives. These include: the pre-Release program at the Department Of Corrections (DOC); the University of Maryland at Baltimore (UMB) Plus Program; and the Women's Infant's Children and Adolescent (WICA).

Allocations	SFY 2001	FY 2002
Baltimore City	\$2,560,978	\$2,267,696
Anne Arundel	\$184,686	\$190,945
Baltimore	\$367,103	\$426,789
Carroll	\$40,448	\$34,224
Harford	\$92,200	\$79,611
Howard	\$87,597	\$66,800
<u>Total</u>	<u>\$3,333,007</u>	<u>\$3,066,065</u>

### Service Priorities

Priority Allocation	Service Category	FY2002
1	Case Management	\$681,972
2	Direct Emergency Financial Assistance	\$44,358
3	Ambulatory Outpatient Care	\$221,157
4	Client Advocacy	\$206,852
5	Substance Abuse Treatment	\$302,319
6	Food Bank	\$9,300
7	Transportation	\$24,005
8	Dental Care	\$349,275
9	Housing Assistance/Housing-Related Services	\$52,279
10	Counseling	\$8,800
11	Home Health Care/Nutritional Counseling	\$0
12	Mental Health/Outreach	\$407,195/\$139,610
13	Buddy Companion	\$30,731
14	Day/Respite Care	\$0
15	Health Education	\$0

Other Funded Services Not Prioritized: Medications \$396,054

### TITLE III: GENERAL FUNDING INFORMATION

Service Categories	Amount of Title III Funds For 2000	Title III Funds Allocated For 2001*
Health Care Services:		
Primary Care	\$619,960	\$651,148
Dental Care	30,000	30,000
Mental Health Care	0	0
Substance Abuse Treatment	0	0
Nutritional Care	18,719	13,124
Staff Training	500	1,390
Other Services		
Medications	5,000	5,000
Laboratory Services	16,678	16,981
HIV Testing/Counseling	0	0
Case Management	17,612	17,500
Outreach	0	0
Referrals	19,198	19,050
Administration	55,808	59,170
Other Program/Travel, Equipment	5,500	5,612
<b>TOTAL</b>	<b>\$788,975</b>	<b>\$818,975</b>

\*Also received \$20,000 in one time funding for Dental supplies and appliances.

**TITLE IV: PROGRAM RESOURCE TABLE – FOR PROJECT YEAR  
AUGUST 1, 2001 TO JULY 31, 2002**

Service Categories	Title IV Funds to be Allocated	% Title IV Funds to be Allocated
<b>DIRECT SERVICE-RELATED ACTIVITIES</b>		
Primary Medical Care	\$238,863	27.0%
Oral/Dental Health		
Mental Health Care/Substance Abuse Treatment/Counseling	\$17,797	2.0%
Education about &/or Linkages to research	\$20,104	2.3%
Emergency medications/lab expenses		
Case Management	\$132,281	14.9%
Outreach (includes prevention education)	\$100,083	11.3%
HIV Counseling/Testing		
Child Developmental Assessment	\$43,690	4.9%
Client Support (transportation, client advocacy, childcare etc.)	\$116,780	13.2%
<b>PROGRAM SUPPORT EXPENSES</b>		
Data/Evaluation/Non-Clinical CQI/Audit	\$37,795	4.3%
Project Planning/Grant Preparation	\$41,386	4.7%
Non-Medical Provider education		
Computer/software/MIS expenses		
Client Educational/Prevention Materials	\$3,501	0.4%
Administrative Expenses (overhead, indirect costs, etc.)	\$132,620	15.0%
<b>TOTAL</b>	<b>\$884,900</b>	<b>100%</b>

## LITERATURE REVIEW

An annotated literature review of scientific reports concerning HIV/AIDS in Baltimore City published in peer reviewed medical publications.

- Study by “the Tuberculosis (TB) Control Program of Baltimore City Health Department (BCHD)” shows “that an interstate outbreak of TB” (Baltimore/New York City) exist “within a social network that includes transgender persons”. TB cases were identified among young black males in Baltimore City who also had HIV infection.  
Source: HIV-related tuberculosis in a transgender network—Baltimore, Maryland, and New York City area, 1998-2000. *MMWR Morb Mortal Wkly Rep* (MMWR. Morbidity and mortality weekly report.) 2000 Apr 21; 49(15): 317-20.
- Results from study of “2,452 individuals with a history of injection drug use and especially among IDUs with HIV infection in Baltimore enrolled in a longitudinal cohort study show that homelessness is a significant problem among IDUs”, especially those with HIV/AIDS.  
Source: Song, J.Y.; Safaeian, M.; Strathdee, S.A.; Vlahov, D.; Celentano, D.D. (2000). The prevalence of homelessness among injection drug users with and without HIV infection. *J. Urban Health: bulletin of the New York Academy of Medicine.*) 2000 Dec; 77(4): 678-87.
- “Parental depression and medical illness (such as infection with HIV/AIDS) were found to be significantly associated with internalizing depressive and anxiety-related symptoms in children of injection drug users (IDUs)”.  
Source: Pilowsky, D.J.; Knowlton, A.R.; Latkin, C.A.; Hoover, D.R.; Chung, S.E.; Celentano, D.D. (2001). Children of injection drug users: impact of parental HIV status, AIDS, and depression. *J. Urban Health: bulletin of the New York Academy of Medicine.*) 2001 Jun; 78(2): 327-39.
- This study found that “among 30 HIV/AIDS service agencies in Baltimore, all of the networks except the one based on joint programs were relatively well connected, with most organizations either directly or indirectly linked. And that highly structured coordination involving substantial investment of resources and ongoing interagency activities” were less common. “This study also suggests that the providers in Baltimore tend to work directly with others as client needs arise rather than negotiate through “clearinghouse” types of organizations”. The authors recommended ‘designing intervention to promote collaboration that are feasible within the context of existing interorganizational relationships’.  
Source: Kwait, J.; Valente, T.W.; Celentano, D.D. (2001). Interorganizational relationships among HIV/AIDS service organizations in Baltimore: a network analysis. *Journal of Urban Health: bulletin of the New York Academy of Medicine.*) 2001 Sept; Vol. 78(3): 468-87.
- This study examined the circumstances surrounding initiation of injection drug use among 229 Baltimore young, recently initiated injection drug users enrolled through

community-based recruitment. The study found that “the percentage of women infected with HIV was slightly greater than that of men, 17% versus 11%”, among those initiated by friends or relatives. “Persons who self-initiated had a lower HIV prevalence and fewer HIV-related risk behaviors.” The results of HIV risk profile analysis “indicated that (1) young women and men had similar patterns of injection initiation; (2) most women were initiated by female friends; (3) women initiated by men had a marginally greater mean score on the HIV risk profile.”

Source: Doherty, M.C.; Garfein, R.S.; Monterroso, E.; Latkin, C.; Vlahov, D. (2000). Gender differences in the initiation of injection drug use among young adults. *Journal of Urban Health: bulletin of the New York Academy of Medicine.*) 2000 Sep; Vol. 77(3): 396-414.

- This study “examines (among other things) the extent to which women (92% were African-American) living with HIV experience adverse social and physical consequences when others learn they are infected”. The study found that “negative consequences associated with others knowing they were HIV-positive were reported by 44%”. These negative consequences were (1) Loss of friends (24%). (2) being insulted or sworn at (23%) (3) being rejected by family (21%). (4) Those who reported being physically or sexually assaulted were (4%). (5) 16% reported having no one they could count on for money or place to stay. (6) Violence was widespread, 62% of the women having experienced physical or sexual violence, including 27% who experienced sexual abuse or rape. (7) being beaten up (43%), and (8) weapon-related violence (26%). The authors recommend that “partner notification policies and support programs must be responsive to the potential negative consequences associated with others learning that a woman is HIV positive”

Source: Gielen, A.C.; Fogarty, L.; O’campo, P.; Anderson, J.; Keller, J.; Faden, R. (2000). Women living with HIV: disclosure, violence, and social support. *Journal of Urban Health: bulletin of the New York Academy of Medicine.*) 2000 Sep; Vol 77(3): 480-91.

- “Studies of sexually transmitted diseases (STDs) and sexual behaviors suggest a resurgent HIV epidemic among men who have sex with men (MSM). CDC analyzed data from the Young Men’s Survey (YMS) found a high prevalence of HIV and associated risks among MSM aged 15-22 years in seven U.S. cities”, including Baltimore City.

Source: HIV incidence among young men who have sex with men—seven U.S cities, 1994-2000. *MMWR Morb Mortal Wkly Rep (MMWR. Morbidity and mortality weekly report.)* 2001 Jun1; 50(21): 440-4.

- “This article shows that the way injection drug users use NEPs (Needle-exchange programs) may influence their effectiveness.” The authors found that “higher NEP use was associated with shorter syringe circulation times and less syringe relay, returning syringes to the NEP originally acquired by someone else.” The authors concluded, “that exclusive use of the NEP (no relay) provides greater HIV protection than NEP use involving syringe relay”.

Source: Valente, T.W.; Foreman, R.K.; Junge, B.; Vlahov, D. (2001). Needle-

Exchange participation, effectiveness, and policy: syringe relay, gender, and the paradox of public health. *Journal of Urban Health: bulletin of the New York Academy of Medicine.*) 2001 Jun; Vol. 78(2): 340-9.

- “Injection drug use directly or indirectly accounts for nearly half the annual human immunodeficiency virus (HIV) infections in the United States. The incident of HIV (remains) high among IDUs in Baltimore over the past decade.” Results of the study of injection drug users (subjects were primarily African American (91%)) in Baltimore show that “ incidence of HIV was 3.14 per 100 person years and did not significantly differ by sex. Younger age independently predicted HIV seroconversion for both men and women. Among men, factors that independently predicted HIV seroconversion were the following: less than a high school education, recent needle sharing with multiple partners, daily injection, and shooting-gallery attendance. The incidence of HIV was double for men recently engaging in homosexual activity and cocaine injection. Among women, the incidence of HIV was more than double for those recently reporting sexually transmitted diseases”. The authors concluded that “predominant risks (for HIV infection) among men included needle sharing and homosexual activity; among women, factors consistent with high-risk heterosexual activity were more significant than drug-related risks”.

Source: Strathdee, S.A.; Galai, N.; Safaiean, M.; Celentano, D.D.; Vlahov, D.; Johnson, L.; Nelson, K.E. (2001). Sex differences in risk factors for HIV seroconversion among injection drug users: a 10-year perspective. *Archives of Internal Medicine*, 2001 May 28; 161(10): 1281-8.

- People with sexual transmitted disease (STD) infection are “more likely to be infected with HIV”.

Source: Rompalo, A.M.; Lawlor, J.; Seaman, P.; Quinn, T.C.; Zenilman, J.M.; Hook, E.W., 3rd. (2001). Modification of syphilitic genital ulcer manifestations by coexistent HIV infection. *Sexually Transmitted Diseases*, 2001 Aug; (2898): 448-54.

- From 1987 through 1989, overall mortality among Baltimore residents aged 25-44 years increased from 380.7 deaths per 100,00 residents to 452.6 deaths per 100,000, reflecting the substantial impact of HIV infection and AIDS.

Source: Increased HIV/AIDS mortality among residents aged 25-44 year— Baltimore, Maryland, 1987-1989. *Morb Mortal Wkly Rep (MMWR. Morbidity and mortality weekly report.)* 1992 Sep 25; 41(38): 708-9, 715.

- Survey by Maryland Psychiatric Society indicated that the number of HIV-infected (psychiatric) patients is greatly underestimated.

Source: Lyketsos, C.G. et al. (1993). HIV infection in Maryland public psychiatric facilities: results of an informal survey. *Md. Med J (Maryland medical journal (Baltimore, Md.: 1985))* 1993 Jun; 42(6): 571-3.

- IV drug users with diabetes had significantly lower HIV seroprevalence (9.8%) than non-diabetic IV drug user (24.3%) because Diabetic IV drug users tend not to share injection equipment.

Source: Nelson, K.E. et al. Human immunodeficiency virus infection in diabetic intravenous drug users. JAMA (the journal of the American Medical Association, 1991 Oct 23-30; 266(16): 2259-61.

- Those not in treatment were more likely to be male, young and black.  
Source: Alcabes, P.; Vlahov, D; Anthony, J.C. (1992). Correlates of human immunodeficiency virus infection in intravenous drug users: are treatment-program samples misleading? British Journal of Addiction, 1992 Jan; 87(1): 47-54.
- The most sensitive risk behaviors associated with HIV seroconversion have been continued injection of illicit drugs and the frequency of drug use.  
Source: Nelson, K.E et al. (1994). Preparations for AIDS vaccine trials. Incident human immunodeficiency virus (HIV) infections in a cohort of injection drug users in Baltimore, Maryland. AIDS Research and Human Retroviruses. 1994; 10 Suppl 2: S201-5.
- Blacks comprise 55% of all AIDS cases (in Baltimore) among women.  
Source: Orr, S.T. et al (1994). Depressive symptoms and factors for HIV acquisition among black women attending urban health centers in Baltimore. AIDS Educ Prev; 1994 Jun; 6(3): 230-6.
- Black women have 9 times the risk of white women of mortality from AIDS.  
Source: Orr, S.T. et al (1994). Depressive symptoms and factors for HIV acquisition among black women attending urban health centers in Baltimore. AIDS Educ Prev; 1994 Jun; 6(3): 230-6.
- Important study showing racial differences in Baltimore patients for access to AZT therapy.  
Source: Easterbrook PJ, Keruly JC, Creagh-Kirk T, Richman D, Chaisson RE, Moore RD, and the ZDV Epidemiology Study Group. Racial and ethnic differences in outcome in zidovudine-treated patients with advanced HIV disease. JAMA 1991;266:2713-2718.
- Study showing persistence of race difference in Baltimore patients regarding access to AZT therapy.  
Source: Moore RD, Stanton D, Gopalan R, Chiasson RE. Racial differences in drug therapy for HIV disease in an urban community. N Engl J Med 1994;330:763-768.
- Study showing the substantially reduced functional status of Baltimore patients with HIV infection.  
Source: Stanton DL, Wu AW, Moore RD, Rucker SC, Piazza ME, Abrams JE, Chaisson RE. Functional status of persons with HIV infection in an ambulatory setting. J Acquir Immune Defic Syndr 1994;7:1950-1956.
- This report identifies the HIV related complications that cause hospitalizations in Baltimore patients.

Source: Fortgang I, Moore RD. Hospital admissions of HIV-infected patients from 1988-1992. *J Acquir Immune Defic Syndr* 1995;8:365-372.

- Important report in the *New England Journal* on the relationship of drug use, sex and race on progression rates of HIV. Race and gender were not barriers to care in Baltimore. An important component of this report is elimination of the race barrier to care noted earlier.  
Source: Chaisson RE, Keruly JC, Moore RD. Race, sex, drug use and progression of HIV disease. *N Engl J Med* 1995;333:751-756.
- Study of the HIV-associated complications in Baltimore patients – most common were PCP, *M. avium*, cryptococcal meningitis, wasting and *Candida* infections.  
Source: Moore RD, Chaisson RE. Natural history of opportunistic disease in an HIV-infected urban clinical cohort. *Ann Intern Med* 1996;124:633-642.
- This study shows methods to provide an incentive to HIV-infected patients to follow through on medical care.  
Source: Chaisson RE, Keruly JC, McAvinue S, Gallant JE, Moore RD. The effects of an incentive and education program on return rates for PPD test reading in patients with HIV infection. *J Acquir Immune Defic Syndr* 1996;11:455-459.
- This is one of the first studies of cost of HIV care that is based on Baltimore data. More recent reports show nearly identical results - \$10,000 to \$12,000/yr until late stage disease when the costs double.  
Source: Moore RD, Fortgang IS, Keruly JC, Chaisson RE. Adverse events from drug therapy in HIV disease. *Am J Med* 1996;101:34-40.
- Cost data for Baltimore patients with HIV and AIDS. These are national models.  
Source: Moore RD, Keruly JC, Chaisson RE. Costs to Medicaid of advancing immunosuppression in an urban HIV-infected patient in Maryland. *J Acquir Immune Defic Syndr* 1997;14:223-231.
- Cost effective analysis for one component of HIV care. This strategy was judged cost-effective and is now routine care.  
Source: Moore RD, Chaisson RE. Cost-effectiveness of prophylaxis for *Mycobacterium avium* complex disease. *Am J Med* 1997;102:50-55.
- Another cost analysis of HIV care in Baltimore patients (This drug was judged not cost-effective and is subsequently not used.)  
Source: Moore RD, Chaisson RE. Cost-utility analysis of prophylactic treatment with oral ganciclovir for cytomegalovirus retinitis. *J Acquir Immune Defic Syndr* 1997;16:15-21.
- Study of factors that affect adherence to HIV meds in Baltimore patients. Poor adherence correlates with active drug abuse and poor clinic attendance.  
Source: Mehta S, Moore RD, Graham NMH. Potential factors affecting adherence with HIV therapy. *AIDS* 1997;11:1665-1670.

- Analysis of adherence to meds for HIV in Baltimore patients. Results show Baltimore patients are similar to other urban populations.  
Source: Eldred LJ, Wu AW, Chaisson RE, Moore RD. Adherence to antiretroviral and Pneumocystis prophylaxis in HIV disease. *J Acquir Immune Defic Syndr* 1998;18:117-125.
- This report shows the unreliable history of adherence to HIV meds among Baltimore patients with injection drug use.  
Source: Celentano DD, Vlahov D, Cohn S, Shadle V, Obasanjo O, Moore RD. Self-reported antiretroviral therapy for HIV infection among injection drug users. *JAMA* 1998;280:544-546.
- Another detailed economic report on the cost of HIV care in Baltimore patients.  
Source: Moore RD. Understanding the clinical and economic outcomes of HIV therapy: the Johns Hopkins HIV Clinical Practice Cohort. *J Acquir Immune Defic Syndr* 1998;17 (suppl 1):S38-S41.
- Cost analysis in the era of HAART therapy in Baltimore. The costs are the same but the distribution is different with much more for meds and much less for hospitalization.  
Source: Gebo KA, Chaisson RE, Folkemer JG, Bartlett JG, Moore RD. Costs of HIV medical care in the era of highly active retroviral therapy. *AIDS* 1999;13:963-969.
- Study quoted in this report showing high rates of failure with HIV treatment in Baltimore. But 1) these patients fail virologically but show substantial clinical benefit and 2) the data are similar in other urban areas.  
Source: Lucas GM, Chaisson RE, Moore RD. Highly active antiretroviral therapy in a large urban clinic: risk factors for virological failure and adverse drug reactions. *Ann Intern Med* 1999;131:81-87.
- This study shows the great benefit of HAART in Baltimore patients with major reductions in hospitalizations and HIV related complications.  
Source: Moore RD, Chaisson RE. Natural history of HIV infection in the era of combination antiretroviral therapy. *AIDS* 1999;13:1933-1942.
- Another cost analysis of HIV care in Baltimore. Again – meds account for most of the costs in the early stage disease and costs increase substantially for HIV complications when the CD4 count is below 50/mm<sup>3</sup>.  
Source: Moore RD. Cost-effectiveness of combination HIV therapy: 3 years later. *PharmacoEconomics* 2000;17:325-330.
- This report shows that HIV treatment in Baltimore is cost-effective compared to other commonly advocated treatments such as mammograms, dialysis or coronary bypass.  
Source: Moore RD. Healthcare economics in HIV. *Current Infectious Dis Rep* 2000 2(4):371-375.

- This study shows the feasibility of delaying treatment of HIV based on the Baltimore experience.  
Source: Chaisson RE, Keruly JC, Moore RD. Effect of CD4 count and viral load on response to highly active antiretroviral therapy. *JAMA* 2000;284:3128-29.
- This study shows the challenges of providing medical care in active drug abusers.  
Source: McCaul ME, Svikis DS, Moore RD. Predictors of outpatient treatment retention: patient vs. substance use characteristics. *Drug and Alcohol Dependence* 2001;62:9-17.
- An analysis shows the impact of HIV care on medical resource use in Baltimore.  
Source: Moore RD. Health care resource utilization in the Johns Hopkins HIV Clinic Cohort. *Infectious Diseases in Clinical Practice* 2001;10 (3 suppl):S1-S3.
- Another report on the problems associated with HIV care in Baltimore patients with drug abuse.  
Source: Poundstone K, Chaisson RE, Moore RD. Differences in HIV progression by sex and injection drug use in the era of highly active antiretroviral therapy. *AIDS* 2001;15:1115-1123.
- Ratio of hospitalization for AIDS patients in Baltimore went down and now has plateaued with concerns that it will increase.  
Source: Gebo KA, Diener-West M, Moore RD. Hospitalization rates in an urban cohort since the introduction of highly active antiretroviral therapy. *J Acquir Immune Defic Syndr* 2001;27:143-152.
- Alcohol abuse is another factor that deters care of Baltimore patients with HIV infection.  
Source: Lucas GM, Gebo KA, Chaisson RE, Moore RD. Longitudinal assessment of the effects of drug and alcohol abuse on HIV treatment outcomes in an urban clinic. *AIDS* 2002;16:767-774.
- This report summarizes cost analyses of HIV and AIDS care for Health Choice, which supports medical costs for over 50% of AIDS patients in Baltimore. The cost is about \$2,150/month plus the costs of mental health and protease inhibitors. The cost of HIV without AIDS is about \$1,050/month. These costs have not varied beyond 5% since the program was started in July 1997.  
Source: Bartlett JG, Moore RD. HIV managed care in the Maryland Health Choice Program. *Infect Dis in Clin Prac* 2001;10:S25-28.
- This study is a review of HIV and HCV in Baltimore patients. Baltimore has one of the world's highest rates of co-infection meaning both HIV and HCV. This combination causes a more rapid progression of HCV, but there is no change in the progression of HIV.  
Source: Sulkowski MS, Thomas DL. Hepatitis C in the HIV-infected patient. *Ann Intern Med* 2002 (in press).

- The authors summarize the Baltimore experience with HCV as a complication of HIV. The results show HCV alone is usually not serious, but HIV makes the liver disease progress faster.  
Source: Sulkowski MS, Mast EE, Seeff LB, and Thomas DL. Hepatitis C virus infection as an opportunistic infection in HIV-infected persons. Clin Infect Dis 2000;30:S77-84.
- This is a frequently quoted report about the potential problems of treating HIV in Baltimore patients with HCV infection.  
Source: Sulkowski MS, Thomas DL, Chaisson RE, Moore RD. Hepatotoxicity associated with antiretroviral therapy in HIV-infected adults: role of protease inhibitors and hepatitis C virus infection. JAMA 2000;283:74-80.