Access to Sterile Syringes and Public Health Costs in New Jersey:

Suggestions for Public Policy

Prepared for:

The New Jersey Drug Policy Project-Drug Policy Alliance
119 South Warren Street
Trenton, NJ 08608

Prepared by:

New Jersey Economics
12B, The Ellipse, Suite 297
4201 Church Road
Mt. Laurel, NJ 08054

Donald M. Scarry, J.D., Ph.D.,
Principal Economist

November 2003

© New Jersey Economics, 2003
Table of Contents

Letter of Transmittal ..................................................................................................................

Executive Summary .................................................................................................................. i

Section 1: Troubling Dimensions ............................................................................................. 1

  Basic Numbers ..................................................................................................................... 2
  Demographics ....................................................................................................................... 3
  Exposure Factors .................................................................................................................. 4
  Gender, HIV/AIDS and Injection Drug Use ........................................................................ 6
  Summary .............................................................................................................................. 7

Section 2: HIV/AIDS in New Jersey .......................................................................................... 9

  Where Does HIV/AIDS Occur? ......................................................................................... 9
  Measured by Burden .......................................................................................................... 10
  Poverty and HIV/AIDS ...................................................................................................... 11
  HIV/AIDS in Minority Communities ................................................................................. 13
  Summary ............................................................................................................................ 13

Section 3: Injection Drug Use and Hepatitis C ......................................................................... 16

  What Is Hepatitis C and How Is It Transmitted? .............................................................. 16
  General Background ......................................................................................................... 17
  Coinfection – HIV and HCV ............................................................................................. 18
  Hepatitis C in New Jersey .................................................................................................. 18
  Hepatitis C Cost Issues ...................................................................................................... 18
  Summary ............................................................................................................................ 20

Section 4: Lifetime Treatment Costs of HIV/AIDS .................................................................. 23

  Purpose ............................................................................................................................... 23
  Basics of HIV/AIDS ........................................................................................................... 24
  Reaching Present Values .................................................................................................... 25
  Cost Estimates ..................................................................................................................... 26
  Government’s Financial Burden ......................................................................................... 27
  Present Value of Future Costs ......................................................................................... 28
  Summary ............................................................................................................................ 29

Section Five: Alternative Strategies and Public Policy ............................................................... 31

  Basics ................................................................................................................................. 32
  Exchanges .......................................................................................................................... 33
  Pharmacy Sales .................................................................................................................. 34
  Strategies for Increasing Access ....................................................................................... 35
  Passive and Active Approaches ......................................................................................... 37
  Summary ............................................................................................................................ 38
Section Six: Costs and Benefits of Increased Syringe Access ............................... 41

Syringe Access............................................................................................ 41
Cost Savings ............................................................................................... 41
Cost Savings in New Jersey........................................................................ 44
Pharmacy Sales .......................................................................................... 45
Number and Cost of Sterile Syringes .......................................................... 46
Summary .................................................................................................... 49
Re: Access to Sterile Syringes and Public Health Costs in New Jersey

New Jersey Economics is pleased to submit our report, *Access to Sterile Syringes and Public Health Costs in New Jersey*. It highlights the connections between New Jersey's restrictive distribution scheme for sterile syringes and the incidence of HIV/AIDS and Hepatitis C among injection drug users. The recommendation we offer in this report is simple and straightforward: *Any steps New Jersey can take to increase access to sterile syringes should be immediately incorporated into a strong, aggressive public health strategy to combat injection drug use.*

This is New Jersey Economics' second study of public health costs and access to sterile syringes. Our first study, *Needle Exchange Programs, Preliminary Cost-Benefit Analysis*, prepared for the Research and Policy Reform Center, Inc. was completed in October 1998 and laid the foundations for this project.

- Of the many common themes in these studies, the most important is that there are significant unintended consequences from New Jersey's restrictive regulations on sale and possession of syringes and that these regulations impose substantial costs on New Jersey in terms of public health and public health costs.

It is clear that increasing access to sterile syringes can never be a substitute for a complete strategy for dealing with injection drug use, HIV infection, Hepatitis C, AIDS or any of the other problems injection drug use produces. However, increasing access to sterile syringes will be a positive step to improved public health and reduced public health costs.

- Increasing access to sterile syringes must be part of a comprehensive, community-based public health program that targets injection drug use at its roots.

New Jersey's well intended restrictions on access to sterile syringes were enacted based on an untested premise that they would effectively discourage injection drug use. With the wisdom that only hindsight produces, these regulations have been ineffective in achieving that goal. Their ineffectiveness is not the result of flaws in application but rather in our common failure to understand that injection drug use arises from a much more complex web of socioeconomic phenomena than mere access to sterile syringes.
November, 2003

Ms. Roseanne Scotti, Director
New Jersey Drug Policy Alliance

Page 2

**Unnecessary Restrictions on Sale and Possession of Syringes.**

In New Jersey distributing sterile syringes without a prescription is illegal under laws regulating pharmacies and possession of sterile syringes is equally illegal under drug paraphernalia laws. Injection drug users have no legal access to sterile syringes. As a result, they often share syringes, frequently contaminated ones. Sharing contaminated syringes is a significant exposure factor for HIV/AIDS, Hepatitis C and other blood borne diseases and infections.

- As a matter of public health and as a significant step toward controlling public health costs, New Jersey's unnecessarily restrictive policies regarding sale and possession of syringes must be changed in light of their unintended consequences.

**Injection Drug Use and HIV/AIDS in New Jersey.**

Why is access to sterile syringes especially important in New Jersey? Because in New Jersey injection drug use has, since HIV/AIDS and other diseases and infections arose in the public's conscience been the predominant route of exposure to HIV/AIDS and Hepatitis C in New Jersey.

- In New Jersey, unlike many states, homosexual sex has never been the leading route of exposure to HIV/AIDS.

- Setting a goal of using a sterile syringe for every injection would lead to a significant improvement in public health and a significant net reduction in public health costs in New Jersey.

Because of increasing awareness of the connections between contaminated syringes and exposure to HIV/AIDS or Hepatitis C, some states relaxed restrictions on the sale and possession of syringes with beneficial public health and public health cost effects and without increased drug use. New Jersey should study their policies and experiences and attempt to avoid a major public health crisis and a major financial crisis.

**What Does HIV/AIDS Cost New Jersey?**

- 2,030 new cases of HIV/AIDS were recorded in New Jersey in 2002. If lifetime treatment costs average $227,000 per patient, New Jersey's financial obligation for HIV/AIDS treatment increased by $460.8 million in one year. Coinfection with Hepatitis C increases these costs.

- Almost 60,000 cases of HIV/AIDS have been reported in New Jersey and 30,000 New Jerseyans are living with HIV/AIDS.
Expenditures for treatment are made over a period of time. Expressing treatment costs in present values helps in understanding the current magnitude of this number. The present value of just the increase in HIV/AIDS treatment costs is $304.5 million.

The cost of HIV/AIDS treatment will continue to increase almost daily. Explosive changes in physicians' understanding of HIV/AIDS Hepatitis C and potent new treatment regimens have been very successful in slowing the progression of the syndrome from initial infection to AIDS, but such progress is not without cost.

- Each new drug, each improved treatment regimen which gives infected persons additional years of life while increasing treatment costs. Estimates of lifetime treatment costs have to be revised continually to keep pace with medical and treatment advances.

Neither of New Jersey Economics' studies is medical or epidemiological; they simply present an economic view of this problem. In both studies we adopt very conservative estimates of lifetime treatment costs, calculated on the rate of progression from HIV infection to AIDS established in the past. This approach was chosen because it allows us to deal with treatment costs for groups and provides reliable, conservative results for policy makers.

The estimate of lifetime treatment cost we use is roughly $227,000 for each patient who becomes infected, about $150,000 in present values. This is well within the range of others' estimates, if on the low side. Even this conservative estimate results in very large aggregate costs in New Jersey.

Two further points are important. While New Jersey will not necessarily bear all treatment costs, it will shoulder a large share of them. Many injection drug users do not have private insurance or Medicare and may not qualify for Medicaid. Second, the massive commitment that has to be made to treatment will command a large share of medical resources available in the State, increasing problems of access to medical care for everyone, increasing the burdens on our medical care delivery system and stressing medical resources even further.

- A significant fraction of HIV/AIDS treatment costs are not only a current financial obligation but will unnecessarily burden future generations. This burden can be significantly reduced by providing increased access to sterile syringes for New Jerseyans today.

**Conclusion and Recommendation.**

It is clear that increasing access to sterile syringes will reduce the incidence of HIV/AIDS and Hepatitis C. Increased access to sterile syringes will also deliver two distinct kinds of savings.

- There will be substantial savings in terms of needless infection, improved levels of public health and needless human misery and destruction that are the companions of drug use.
Savings in terms of public health costs will also be substantial. If new HIV infection rates continue in the direction they have taken in the past few years, New Jersey should expect public health costs to increase by $400 million annually. Even a State as wealthy, productive and dynamic as New Jersey cannot afford these increases.

The recommendation we offer is simple: *Any steps New Jersey can take today to increase access to sterile syringes should immediately be incorporated into a strong, aggressive overall public health strategy to combat injection drug use.*

Sincerely,

Donald M. Scarry, J.D., Ph.D.,
for
New Jersey Economics

DMS/pi
Executive Summary

Section 1: Troubling Dimensions. New Jersey has the dubious distinction of having the 3rd highest number of HIV cases per 100,000 population. In addition, New Jersey had the second largest cumulative number of cases of HIV in children and the highest proportion of women living with AIDS compared to all other states.

Injection Drug Use Is a Significant Risk Factor. In New Jersey, unlike many states, injection drug use is a predominant risk factor for HIV/AIDS and Hepatitis C. Nationally, about 25% of HIV infections are attributable to injection drug use; in New Jersey almost 50% are associated with it. The important role of injection drug use as a route of exposure to HIV/AIDS and Hepatitis C in New Jersey is not a recent phenomenon. In its first Surveillance Report on HIV/AIDS, in 1996, the New Jersey Department of Health noted that 50 percent of cumulative AIDS cases in New Jersey were associated with injection drug use.

Minorities Are Significantly Affected. Blacks/African Americans account for 55 percent of HIV infections and 14 percent of New Jersey’s population. Whites account for 27 percent of infections, and Hispanics, 17 percent. Women are more impacted by HIV/AIDS in New Jersey than in the United States. Nationally women account for 21 percent of AIDS cases, while in New Jersey they comprise 32 percent.

HIV/AIDS is Higher in New Jersey. There were almost 30,000 New Jerseyans, adults and adolescents, living with HIV infection or AIDS in June 30, 2002. Only four states,
each having significantly larger populations, have more. New York leads with 77,000 persons living with HIV/AIDS; Florida follows with 62,000. California is next, with 45,500, and Texas is fourth with 35,600.

<table>
<thead>
<tr>
<th>State</th>
<th>2001 Pop.</th>
<th>% Of US</th>
<th>HIV/AIDS</th>
<th>% Of Nation</th>
<th>Cases/Pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>34,600,463</td>
<td>12.1%</td>
<td>45,248</td>
<td>8.975%</td>
<td>0.742</td>
</tr>
<tr>
<td>Texas</td>
<td>21,370,983</td>
<td>7.5%</td>
<td>35,582</td>
<td>7.030%</td>
<td>0.941</td>
</tr>
<tr>
<td>New York</td>
<td>19,084,350</td>
<td>6.7%</td>
<td>77,195</td>
<td>15.251%</td>
<td>2.285</td>
</tr>
<tr>
<td>Florida</td>
<td>16,373,330</td>
<td>5.7%</td>
<td>61,678</td>
<td>12.207%</td>
<td>2.131</td>
</tr>
<tr>
<td>New Jersey</td>
<td>8,511,116</td>
<td>3.0%</td>
<td>29,139</td>
<td>5.757%</td>
<td>1.930</td>
</tr>
</tbody>
</table>

Another Significant Risk Factor. A second significant risk factor is heterosexual sex with an infected partner. This has not been as significant for men as for women. Of the cases reported through June 2002, 7 percent of men contracted AIDS through heterosexual sex compared to 39 percent of women. However, this risk factor is becoming increasingly important for men. For AIDS cases reported in FY 2002, the fraction of males with AIDS exposed through heterosexual sex doubled over its long-term rate, increasing from 7 percent to 15 percent.

Pediatric AIDS. While AIDS in children decreased dramatically between 1992 and 2002, AIDS in children under 13 years of age in New Jersey is still a considerable problem. New Jersey ranks third in the number of children living with AIDS, following only Florida and New York, states with significantly larger populations.

Section 2: HIV Infection in New Jersey. Four counties – Essex, Hudson, Passaic and Union, all in northeastern New Jersey account for almost six out of every ten New Jerseyans living with HIV/AIDS. Essex County had 8,600 residents living with HIV/AIDS, the largest concentration in New Jersey, 30 percent of the total. Hudson follows with 4,000, 14 percent of the total. Passaic and Union each had roughly the same numbers, about 2,370 in Passaic and 2,240 in Union, about 8 each. There is one other important HIV/AIDS and Hepatitis C cluster in New Jersey: more than 5 percent of New Jerseyans living with HIV/AIDS are incarcerated.
Poverty and HIV/AIDS. A strong association, \textit{not causation}, exists between HIV/AIDS and poverty. In 2002, the New Jersey Department of Labor reported that 8.5 percent of New Jerseyans lived below the poverty line. The counties with the most severe HIV/AIDS problems tend to have large shares of the poor.

- Essex, with just under 16 percent of its residents in poverty, had an HIV/AIDS level three times higher than population alone could explain
- Hudson, almost the same fraction of its residents in poverty, had an HIV/AIDS level twice what population would suggest.
- Passaic, with over 12 percent of its residents in poverty, had an HIV/AIDS level 40 percent higher than its population would suggest.

There is a clear association between HIV/AIDS and certain economic and demographic characteristics, a strong association between poverty and HIV/AIDS and a strong association between minorities in poverty and HIV/AIDS.

Section 3. Injection Drug Use and Hepatitis C (HVC) Most of today’s HVC infections could be avoided if each drug user had a sterile syringe for each injection. New Jersey could avoid $15 million to $18 million in unnecessary annual medical costs.

Hepatitis C Cost Issues. Four million people in the United States have HCV antibodies, and 2.7 million of those have active HCV. HCV cost the United States $15 billion in 2001 and that is projected to increase to $26 billion by 2021. The cost of direct treatment for HVC ranges from $2,300 to $3,864, and the costs of all associated medical care range from $9,200 to $17,612. The average course of treatment costs about $8,500.

New Jersey’s medical costs will grow by $10.2 million each year to treat the 1,200 new HCV infections reported. This does not include the incarcerated population. The health care provider for New Jersey’s prisons estimates that if 25 percent of inmates were tested and treated, medical costs could increase by $4.5 million; if 75 percent were tested and treated, additional medical costs could approach $8 million in 2003.

Section 4: Treatment Costs – HIV/AIDS. The history and definition of AIDS has been one of movement toward greater elasticity. Physicians, whose focus is always the indi-
vidual, frequently revise the concept of AIDS to include additional syndromes as they became recognized manifestations of advanced HIV disease. One of the better, current definitions of AIDS is that it is a term used to designate the late stage of HIV infection in which immunodeficiency has become profound.

This report adopts a less flexible definition of AIDS, keyed to T-cell counts. This definition is consistent with other studies of HIV/AIDS that have focused on economics. It also offers crisp time frames needed to track costs for groups of patients and to calculate present values. Under this definition the progression from the onset of infection to the onset of AIDS is roughly 10 years, with the complete progression of the syndrome averaging 12 years.

<table>
<thead>
<tr>
<th>Table 4.1: HIV Stages and AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition and Estimated Duration</td>
</tr>
<tr>
<td>Range of CD4+ Cells per mm³</td>
</tr>
<tr>
<td>&gt; 500</td>
</tr>
<tr>
<td>201 to 500</td>
</tr>
<tr>
<td>51 to 200 (New AIDS Level)</td>
</tr>
<tr>
<td>50 or below</td>
</tr>
</tbody>
</table>

This view of the syndrome typically includes four stages of development. In Stage 1, the first five and a half years from initial infection, monthly treatment costs were about $805, a conservative figure based on treatment conditions four to five years ago. Over the next four years, during Stage 2, monthly treatment costs rise to $1260. At the beginning of the ninth year, entering Stage 3, costs approach $1830 per month. Somewhere at the beginning of the tenth year, when AIDS developed, monthly treatment costs rise to about $3,800 for the remainder of the patient's life. These cost estimates have been updated.

Cost Estimates. One of the first studies of lifetime treatment costs of HIV/AIDS, carried out in 1992, developed and applied the four-stage structure adopted for this report. Lifetime treatment costs were estimated at $119,000. Five years later, a Johns Hopkins cost review provided a second estimate of lifetime treatment costs of $149,000; while these studies varied in certain respects, the estimates converged reasonably. A third and roughly contemporaneous study estimated lifetime cost at $154,400. The most recent attempt to estimate lifetime treatment costs included increased monthly drug costs. That
study estimated lifetime costs at $227,000 based on the elements included in the following table. This is reduced to about $150,000 when presented in present value discounted at 5 percent.

<table>
<thead>
<tr>
<th></th>
<th>AIDS</th>
<th>Stage 3</th>
<th>Stage 2</th>
<th>Stage 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient Care</td>
<td>$1,890</td>
<td>$456</td>
<td>$119</td>
<td>$54</td>
</tr>
<tr>
<td>Outpatient Service</td>
<td>$380</td>
<td>$344</td>
<td>$191</td>
<td>$151</td>
</tr>
<tr>
<td>Home Health Care</td>
<td>$174</td>
<td>$480</td>
<td>$21</td>
<td>$10</td>
</tr>
<tr>
<td>1992 Drug Costs</td>
<td>$256</td>
<td>$110</td>
<td>$99</td>
<td>$67</td>
</tr>
<tr>
<td>Long-term Care</td>
<td>$55</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Monthly Cost</td>
<td>$2,764</td>
<td>$990</td>
<td>$430</td>
<td>$282</td>
</tr>
<tr>
<td>Months/stage</td>
<td>25</td>
<td>12.4</td>
<td>44</td>
<td>67.3</td>
</tr>
<tr>
<td>Lifetime Cost/Stage</td>
<td>$69,100</td>
<td>$12,276</td>
<td>$18,920</td>
<td>$18,978</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$1,033</td>
<td>$833</td>
<td>$833</td>
<td>$523</td>
</tr>
<tr>
<td>Months/stage</td>
<td>25</td>
<td>12.4</td>
<td>44</td>
<td>67.3</td>
</tr>
<tr>
<td>Additional Cost per Stage</td>
<td>$25,825</td>
<td>$10,329</td>
<td>$36,197</td>
<td>$35,197</td>
</tr>
<tr>
<td>Revised Lifetime Estimate</td>
<td>$94,925</td>
<td>$22,605</td>
<td>$55,572</td>
<td>$54,175</td>
</tr>
</tbody>
</table>

**Government’s Financial Burden.** Even if a person has medical insurance at the onset of infection, it quickly runs out. A study of insurance coverage of people diagnosed with AIDS found that at the outset 54 percent had insurance, but during the study almost half of those reported a change in insurance status, typically moving from private to some form of public insurance. The transition from private insurance to public occurred rapidly. This will surely be more pronounced for many injection drug users.

Medicaid provides about 70 percent of public funding for AIDS. About 50 percent of people with AIDS are SSI-eligible. The Veterans Administration provides about 5 percent of AIDS care, with some of its clients also receiving services funded by Medicaid. Medicare and Ryan White programs account for much of the remaining public funding. Infected persons without insurance are more likely to be male, members of racial or ethnic minorities, adolescents, and injection drug users.
Section 5: Alternative Strategies. HIV/AIDS and hepatitis C from injecting drugs with contaminated syringes are avoidable and therefore unnecessary. Considerable benefits in increased public health and decreased public health costs will come from increased access to and availability of sterile syringes. Three simple policy guidelines are suggested.

- **First**, injection drug use need not lead to HIV/AIDS or Hepatitis C. HIV and Hepatitis C can be avoided through increased access to and use of sterile syringes.
- **Second**, HIV/AIDS and Hepatitis C command considerably scarce medical resources. New Jersey will not be able to address infant and childcare, medical attention for the aged and disabled or other pressing medical needs if HIV/AIDS and Hepatitis C cases continue to grow.
- **Third**, the scarcest resource in New Jersey is public budget dollars. HIV/AIDS and Hepatitis C add considerably and unnecessarily add to state government’s financial obligations.

Pharmacy Sales. Changing pharmacy regulations and modifying drug paraphernalia laws to increase access to sterile syringes will be an exceedingly important part of an overall strategy for combating HIV/AIDS and Hepatitis C. Research on pharmacy sales shows that drug users take advantage of this syringe access option and increased access is effective in reducing HIV/AIDS and Hepatitis C. In 2003, only five states required a prescription to purchase syringes in pharmacies, Pennsylvania, California, Delaware, Massachusetts and New Jersey.

Syringe Exchanges. The US Department of Health and Human Services reviewed the effectiveness of needle and syringe exchanges and offers the following observations.

1. Syringe exchanges reach and serve the most disenfranchised population at highest risk for HIV/AIDS and Hepatitis C.
2. Scientific evidence provides a basis on which municipalities that are heavily affected by injection drug use should consider syringe exchange programs.
3. “...[T]he Department's senior scientists...concur with the conclusion of the Institute of Medicine that the pattern of evidence is sufficiently strong to support...
scientifically clear conclusions regarding the utility of syringe exchange programs, in communities that choose to adopt them, as part of a comprehensive HIV prevention strategy.”

Achieving Enhanced Syringe Access. Enhanced access to sterile syringes can be achieved three ways. First, remove unnecessary barriers to sale and possession of syringes; this is called the Oregon Model. The Rhode Island Model includes some limitations on pharmacy sales but removes restrictions on possession. The Connecticut Model, the “Ten and under” approach, provides unrestricted sale and possession of a number of syringes.


In 1997, the American Bar Associations issued the following statement:

“Critics . . . contended that giving needles to IUD’s (injection drug users), especially with government money, sent a message that drug use was acceptable. Research has established that needle exchange programs can help control HIV and do not encourage drug use, but it has also become clear that needle exchange is not a panacea for the problem of syringe assess: other ways for IUD’s to obtain syringes, particularly non-prescription pharmacy sales, are also needed to make it possible for IUD’s to inject only with sterile needles.”

The American Bar Association is not alone in its stance on syringe access. The American Medical Association’s House of Delegates went on record in 1997 with the following policy, “. . . the AMA strongly encourages state medical associations to initiate state legislation modifying drug paraphernalia laws so that injection drug users can purchase and possess needles and syringes without a prescription.” The American Pharmaceutical Association adopted a 1999 policy stating, “The APhA encourages state legislatures and boards of pharmacy to revise laws and regulations to permit the unrestricted sale or dis-
tribution of sterile syringes and needles by or with the knowledge of a pharmacist in an effort to decrease the transmission of blood-borne diseases.”

**Section 6. Cost/Benefit Analysis.** It is likely that 100 percent or some very large fraction of treatment costs for HIV/AIDS and Hepatitis C related to injection drug use could be avoided if injection drug users had access to a sterile syringe every time.

Using the estimate of lifetime treatment cost for HIV/AIDS adopted for this report and referencing the cost and experience of several existing exchanges, we suggest that one syringe exchange, costing $170,000 and avoiding only two HIV infections per year, would return $1.75 for each dollar invested. If New Jersey’s needle exchanges achieved success of some Australian exchanges, they might return as much as $16.00 in public health cost savings for every $1 dollar invested.

Removing unnecessary barriers to syringe access might very well become the most efficient and effective investment New Jersey could make.
1. Troubling Dimensions

This section has a simple purpose: to offer some current facts on the incidence, prevalence of, and risk factors associated with HIV/AIDS in New Jersey. The following section examines the incidence of HIV/AIDS by counties. Together sections 1 and 2 help the reader understand the magnitude and seriousness of HIV/AIDS in New Jersey.

New Jersey has the dubious distinction of having the 5th highest number of HIV/AIDS cases and of having the 3rd largest number of HIV/AIDS cases per 100,000 population for cases reported in 2002. In addition, New Jersey had the second largest cumulative number of cases of HIV in children under 13, and the highest proportion of women living with AIDS at the end of 2001.

The most significant difference between New Jersey and other states is the significance of injection drug use as a risk factor for HIV and Hepatitis C. Nationally, male homosexual sex has been the leading risk factor for HIV/AIDS since reporting began; in New Jersey the leading route of exposure has always been injection drug use. Nationally, just a bit more than 25 percent of HIV infections are attributable to injection drug use; in New Jersey 50 percent of infections stem from injection drug use.

HIV/AIDS affects Blacks/African Americans more than any other racial or ethnic group. In New Jersey, Blacks/African Americans account for 55 percent of HIV infections, al-
though only 14 percent of the population. Whites account for 27 percent of infections, and Hispanics, 17 percent.\textsuperscript{6}

New Jersey women are more impacted by HIV/AIDS than women in the United States because of two risk factors: injection drug use and heterosexual sex with an infected partner or an injection drug user. Nationally women account for 21 percent of AIDS cases, while in New Jersey they comprise 32 percent of AIDS cases.\textsuperscript{7}

**Basic Numbers**

There were almost 30,000 New Jerseyans living with HIV infection or AIDS as of June 30, 2002.\textsuperscript{8} Four states have more; all have larger populations. New York leads the nation with 77,000; Florida is second with 62,000. California is next, with 45,500, and Texas follows with 35,600. In absolute numbers, New Jersey’s 30,000 leaves it fifth.

California had 34.6 million residents in Census 2000, 12 percent of the nation - four Californians for every New Jerseyan. Yet, California has only half again the number of cases of HIV/AIDS as New Jersey. When we take size into account, only New York and Florida have more burdensome numbers of HIV/AIDS cases than New Jersey. New Jersey is fifth in the nation in HIV/AIDS in absolute numbers, third when we make a simple population adjustment.

New York’s HIV/AIDS level is 2.3 times larger than would be expected if population were the relevant base. In Florida, it is 2.1 times larger. In New Jersey, HIV/AIDS levels approach twice what population alone could explain. Why New York, Florida and New Jersey have higher AIDS levels is essentially a mystery, but a mystery that may have its
roots in racial and ethnic composition, income disparities, urban center issues and other socio-economic factors that are associated with injection drug use.

### Table 1: HIV/AIDS Count and Population Levels, 2000 - 2001

<table>
<thead>
<tr>
<th>State</th>
<th>2001 Pop.</th>
<th>% Of US</th>
<th>HIV/AIDS</th>
<th>% Of Nation</th>
<th>Cases/Pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>34,600,463</td>
<td>12.1%</td>
<td>45,248</td>
<td>8.975%</td>
<td>0.742</td>
</tr>
<tr>
<td>Texas</td>
<td>21,370,983</td>
<td>7.5%</td>
<td>35,582</td>
<td>7.030%</td>
<td>0.941</td>
</tr>
<tr>
<td>New York</td>
<td>19,084,350</td>
<td>6.7%</td>
<td>77,195</td>
<td>15.251%</td>
<td>2.285</td>
</tr>
<tr>
<td>Florida</td>
<td>16,373,330</td>
<td>5.7%</td>
<td>61,678</td>
<td>12.207%</td>
<td>2.131</td>
</tr>
<tr>
<td>New Jersey</td>
<td>8,511,116</td>
<td>3.0%</td>
<td>29,139</td>
<td>5.757%</td>
<td>1.930</td>
</tr>
</tbody>
</table>

### Demographics

HIV/AIDS and Hepatitis C affect all races and all age groups; they do not spare women either. HIV/AIDS and Hepatitis C affects Blacks/African Americans more than any other racial or ethnic group, men more than women, those in their 30s and 40s more than other age groups. These are simple statistical descriptions; the real causes and deep-seated generative processes are more complex than simple statistics can show.

**Race Is No Barrier:** In New Jersey, as of June 30, 2002, Blacks/African Americans were the single most burdened racial or ethnic group. Almost six of every ten adults with HIV/AIDS in New Jersey are Blacks/African Americans. More than seven out of every ten children infected are Black or African American.9

Whites, including Portuguese and Spanish, are the second most impacted group, but a distant second. Twenty-two percent of those living with HIV/AIDS are Whites. More than one out of every ten children infected are White. Hispanics are hard hit as well. One-fifth
of all adults and adolescents living with HIV/AIDS are Hispanic; 15 percent of infected children are Hispanic.\textsuperscript{10}

\textbf{Gender Is No Barrier:} New Jersey has the highest proportion of women infected with HIV in the nation.\textsuperscript{11} Nationally, women make up about 20 percent of AIDS cases: in New Jersey they account for 28 percent.\textsuperscript{12} More than four in ten Black/African American adults who are infected are women; more than three in ten Hispanics who are infected are women, and the infection rate for White women falls just short of that - 28 percent.

\textbf{Age Is No Barrier:} HIV/AIDS and Hepatitis C occur in all age groups; of all New Jerseyans living with HIV/AIDS, 73 percent are between 30 and 50. The second most significant age group is those between 50 and 60. The balance, all other age groups, makes up only 7 percent of those living with HIV/AIDS.

\textbf{Exposure Factors}

Nationally, since HIV/AIDS reporting began,\textsuperscript{13} the most common exposure factor for AIDS has been male homosexual sex, associated with 370,000 cases of AIDS in a cumulative total of 816,000,\textsuperscript{14} 45 percent. The same risk factor accounts for more than 36 percent of all HIV infection,\textsuperscript{15} and a similar factor, “men who have sex with men and inject drugs” is associated with another 6 percent of AIDS and 4 percent of HIV infections.

But in New Jersey; injection drug use is the dominant mode of transmission for HIV/AIDS. In New Jersey, male homosexual sex is associated with only 20 percent of adult AIDS; the related risk factor “men having sex with men and injecting drugs” is as-
sociated with 4 percent of AIDS infections. Compare these to 45 percent and 36 percent nationally.\textsuperscript{16}

At the end of 2002, 46 percent of the cumulative adult/adolescent AIDS cases in New Jersey related to injection drug use, and 34 percent of those living with HIV/AIDS were exposed through injection drug use, almost the reverse of the national pattern.\textsuperscript{17} The significance of injection drug use as a risk factor for HIV/AIDS and Hepatitis C in New Jersey is not new. In its first \textit{Surveillance Report on HIV/AIDS} in 1996, the NJ Department of Health reported that 50 percent of the cumulative total of AIDS cases was associated with injection drug use. For all cases reported through June 2002, injection drug use remains the single most significant exposure factor. Forty-eight percent of the 43,000 cumulative cases of AIDS are related to injection drug use. Injection drug use is a significant exposure factor for both men and women. Forty-six percent of men with AIDS were exposed through injection drug use; 47 percent of women were exposed through this route.\textsuperscript{18}

A second factor, heterosexual sex with an infected injection drug user has not been as significant for men as for women. For all cases reported through June 2002, 7 percent of men have been exposed to AIDS through heterosexual sex compared to 39 percent of women. However, this risk factor is becoming increasingly important for men. For AIDS cases reported in FY 2002, the fraction of males with AIDS exposed through heterosexual sex doubled over its long-term rate increasing, from 7 percent to 15 percent.

While the changes are not as dramatic, the same phenomenon has affected women. Between January and December 2002, 36 percent of women with AIDS were exposed

\textit{Section 1: Troubling Dimension}
through heterosexual sex, an increase of two percentage points over the long-term trend. An additional 28 percent of women were exposed through injection drug use. Injection drug use and heterosexual sex with an infected partner loom larger for women in New Jersey than in the nation.

While AIDS in children has decreased dramatically between 1992 and 2002, in New Jersey, AIDS in children under 13 years of age is still a considerable problem. New Jersey ranks third in the number of children under 13 living with AIDS, following only Florida and New York, states with significantly larger populations.

**Gender, HIV/AIDS and Injection Drug Use**

Nationally, the incidence of AIDS in women is 9.1 per 100,000; in New Jersey it is 16.2 per 100,000, 78 percent higher. New York, with an AIDS rate in women of 30.3, leads the nation. Maryland and Delaware follow closely with rates of 26.5 and 24.1. Florida is next with a rate of 21.0 and New Jersey is fifth.

**Injection Drug Use:** For women, direct injection drug use has been associated with 55,600 cumulative cases of AIDS in the United States, 40 percent of the total. In New Jersey, direct injection drug use has been associated with 47 percent of AIDS infection in women, more than 3,500 such cases.

**Heterosexual Sex:** Heterosexual sex with an injection drug user is another significant risk factor for HIV/AIDS. Nationally, this has been responsible for 41 percent of AIDS in women and 39 percent of HIV infection. Heterosexual sex is a less significant risk factor.
for men, associated with only 5 percent of AIDS and 7 percent of HIV infection. For cases reported in New Jersey in 2002, heterosexual sex was associated with 36 percent of AIDS in women and 13 percent of AIDS in men.\(^{25}\)

**Summary**

1. In terms of raw numbers, New Jersey ranks fifth in the nation in cumulative HIV/AIDS cases. This alone makes HIV/AIDS treatment costs and health care policy regarding HIV/AIDS and Hepatitis Ca significant issue.

2. When New Jersey’s population is taken into account, the significance of HIV/AIDS increases. After population adjustments, New Jersey’s cumulative HIV/AIDS burden increases to the third largest in the nation.

3. Nationally, and in many states, male homosexual sex and “men having sex with men and injection drug use” are the leading risk factors for HIV/AIDS. This is not the case in New Jersey, nor has it been so since the beginning of data collection.

4. In New Jersey, injection drug use is the leading risk factor for HIV/AIDS in the general population; it is also the leading risk factor for men and a very significant risk for women.

5. The two leading risk factors for women in New Jersey are: heterosexual sex, accounting for 36 percent of 2002’s cases, and injection drug use, accounting for another 28 percent.
Section 1: Troubling Dimension


4 See Table 1, below. Table 1 is based on a number of sources: US Bureau of the Census, Census 2000, State Population; CDC, Division of HIV/AIDS Prevention, Surveillance Supplemental Report, Volume 9, No. 2, Table 1- Persons living with AIDS at the end of 2001, by sex and state of residence, United States, 2001 as well as calculations made by New Jersey Economics. Only California, Florida and New York, with significantly larger populations, exceed New Jersey in the number of women living with AIDS in 2001.


11 See Note 4.

12 See Note 2.


14 Centers for Disease Control and Prevention (CDC), Division of HIV/AIDS Prevention, Surveillance Report V. 13, #2 (2001). States began reporting at various times; this is the cumulative total regardless of reporting dates.

15 CDC statistics distinguish persons with HIV from those who have developed AIDS. See footnote 1, Table 6 of the Surveillance Report.


21 CDC, Division of HIV/AIDS Prevention, Surveillance Report, V. 14, Figure 1.

22 CDC, Division of HIV/AIDS Prevention, Surveillance Report, Table 2. Persons living with AIDS at the end of 2001, by age group and state of residence, United States.

23 CDC, Division of HIV/AIDS Prevention, Surveillance Report, V. 13, #2, Figure 2.


2. HIV/AIDS in New Jersey

This section continues the report’s overview of HIV/AIDS in New Jersey by focusing on counties with significant HIV/AIDS burdens: Essex, Hudson, Union and Passaic in that order. It also identifies an additional, significant group of persons living with HIV/AIDS - prisoners. Incarcerated persons account for 5 percent of all those living with HIV/AIDS in New Jersey.

The association between injection drug use and HIV is well established, but there is more to understand. There are also associations, although not a causal relationship, between the fraction of population living at incomes below the poverty level and the incidence of HIV/AIDS. There is also a strong association, again not a causal relationship, between the presence of minorities in the poorer county’s population and the incidence of HIV/AIDS.

Where Does HIV/AIDS Occur?

The Department of Health’s New Jersey HIV/AIDS Surveillance Report has continuously identified four counties – Essex, Hudson, Passaic and Union that account for almost six out of every ten New Jerseyans living with HIV/AIDS.

Essex County has 8,600 residents living with HIV/AIDS, the largest concentration of infected persons in New Jersey, 30 percent of the state total. Hudson County follows with 4,000 residents living with HIV/AIDS, 14 percent of the total. Passaic and Union Counties each have roughly the same numbers, about 2,370 in Passaic and 2,240 in Union, about 8 percent each.
These are New Jersey’s most significant centers of HIV/AIDS, but they are also densely populated, fully developed areas with significant populations. Is there a way we can examine the HIV/AIDS burden in other counties and make valid comparisons?

**Measured by “Burden”**

If HIV/AIDS were distributed randomly or occurred in some given percentage of people, its distribution would be functionally related to population. While population might be useful in describing the incidence of other infections or diseases, it does not tell much about HIV/AIDS because risk factors are behaviors and not characteristics of persons. In addition, raw numbers of HIV/AIDS do not paint a complete picture since population varies between counties. One county may have a larger number of persons living with HIV/AIDS than another simply because it is larger; raw numbers rarely tell full stories.

Section 1 took the relative size of states into account to describe the significance of HIV/AIDS in New Jersey. In this section we use an equally simple measure. When the number of persons living with HIV/AIDS in a county is in excess of that county’s share of the state’s population, we refer to that county as “burdened” with HIV/AIDS. (See Table 2.1 for details on “burdens” and “overburdens.”) Using the concept of “burden,” another county should be added to those with significant HIV/AIDS problems: Atlantic. There are 1,348 Atlantic County residents living with HIV/AIDS. Atlantic’s burden is high, 51 percent greater than population suggests.

Column 6 in Table 2.1 shows each county’s HIV/AIDS “burden index.” For example, in 2001, Essex County’s population was 794,000, 9 percent of the state. However, 29 per-
cent of New Jerseyans living with HIV/AIDS resided in Essex, more than three times what we would expect if population were the relevant base. Essex’s “burden index” is 3.063, the highest in the state. Table 2.1 highlights another important HIV/AIDS cluster: 5.3 percent of New Jerseyans living with HIV/AIDS are incarcerated. In order of their burden indices, the most significant centers for HIV/AIDS are: Essex and Hudson Counties, incarcerated persons, Atlantic County then Passaic and Union Counties.

The medical and physiological causes of HIV/AIDS are beyond the scope of this report, as are the elements of sociology that deal with behavioral choices and risk, but the demographics of counties overburdened with HIV/AIDS is clear. HIV/AIDS infection disproportionately affects poor and minority populations, and there is an association between HIV/AIDS, especially those associated with injection drug use and poverty and minority status.

**Poverty and HIV/AIDS Incidence**

A strong association exists between HIV/AIDS burdens and poverty. An association does not explain what causes a phenomenon; it simply measures how often the two things occur together. New Jersey Department of Labor data, published in 2002, establishes that 8.5 percent of New Jerseyans lived below the poverty line. How do counties burdened with HIV/AIDS compare to statewide poverty rates?
<table>
<thead>
<tr>
<th>County</th>
<th>Population</th>
<th>Distribution</th>
<th>Living w. HIV/AIDS</th>
<th>Distribution</th>
<th>Burden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8414350</td>
<td>100.0%</td>
<td>29767</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Essex</td>
<td>793633</td>
<td>9.4%</td>
<td>8601</td>
<td>28.9%</td>
<td>3.063</td>
</tr>
<tr>
<td>Hudson</td>
<td>608975</td>
<td>7.2%</td>
<td>4026</td>
<td>13.5%</td>
<td>1.869</td>
</tr>
<tr>
<td>Atlantic</td>
<td>252552</td>
<td>3.0%</td>
<td>1348</td>
<td>4.5%</td>
<td>1.509</td>
</tr>
<tr>
<td>Passaic</td>
<td>489049</td>
<td>5.8%</td>
<td>2369</td>
<td>8.0%</td>
<td>1.369</td>
</tr>
<tr>
<td>Union</td>
<td>522541</td>
<td>6.2%</td>
<td>2239</td>
<td>7.5%</td>
<td>1.211</td>
</tr>
<tr>
<td>Mercer</td>
<td>350761</td>
<td>4.2%</td>
<td>1012</td>
<td>3.4%</td>
<td>0.816</td>
</tr>
<tr>
<td>Cumberland</td>
<td>146438</td>
<td>1.7%</td>
<td>399</td>
<td>1.3%</td>
<td>0.770</td>
</tr>
<tr>
<td>Camden</td>
<td>508932</td>
<td>6.0%</td>
<td>1246</td>
<td>4.2%</td>
<td>0.692</td>
</tr>
<tr>
<td>Monmouth</td>
<td>615301</td>
<td>7.3%</td>
<td>1446</td>
<td>4.9%</td>
<td>0.664</td>
</tr>
<tr>
<td>Salem</td>
<td>64285</td>
<td>0.8%</td>
<td>143</td>
<td>0.5%</td>
<td>0.629</td>
</tr>
<tr>
<td>Middlesex</td>
<td>750162</td>
<td>8.9%</td>
<td>1626</td>
<td>5.5%</td>
<td>0.613</td>
</tr>
<tr>
<td>Cape May</td>
<td>102326</td>
<td>1.2%</td>
<td>181</td>
<td>0.6%</td>
<td>0.500</td>
</tr>
<tr>
<td>Bergen</td>
<td>884118</td>
<td>10.5%</td>
<td>1203</td>
<td>4.0%</td>
<td>0.385</td>
</tr>
<tr>
<td>Somerset</td>
<td>297490</td>
<td>3.5%</td>
<td>386</td>
<td>1.3%</td>
<td>0.367</td>
</tr>
<tr>
<td>Morris</td>
<td>470212</td>
<td>5.6%</td>
<td>567</td>
<td>1.9%</td>
<td>0.341</td>
</tr>
<tr>
<td>Burlington</td>
<td>423394</td>
<td>5.0%</td>
<td>430</td>
<td>1.4%</td>
<td>0.287</td>
</tr>
<tr>
<td>Ocean</td>
<td>510916</td>
<td>6.1%</td>
<td>464</td>
<td>1.6%</td>
<td>0.257</td>
</tr>
<tr>
<td>Gloucester</td>
<td>254673</td>
<td>3.0%</td>
<td>227</td>
<td>0.8%</td>
<td>0.252</td>
</tr>
<tr>
<td>Warren</td>
<td>102437</td>
<td>1.2%</td>
<td>86</td>
<td>0.3%</td>
<td>0.237</td>
</tr>
<tr>
<td>Hunterdon</td>
<td>121989</td>
<td>1.4%</td>
<td>86</td>
<td>0.3%</td>
<td>0.199</td>
</tr>
<tr>
<td>Sussex</td>
<td>144166</td>
<td>1.7%</td>
<td>99</td>
<td>0.3%</td>
<td>0.194</td>
</tr>
<tr>
<td>Incarcerated</td>
<td>1572</td>
<td>5.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>11</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There were five counties that had significantly greater proportions of residents living in poverty. They are:

- Essex, with 15.6 percent having incomes below the poverty level, almost twice the state level, had an HIV/AIDS burden index of 3.06, highest in the state.
- Hudson, with 15.5 percent below poverty, also far exceeding the state, had a burden index of 1.89, second highest.
- Atlantic with 10.5 percent of residents living in poverty with the third highest burden index, at 1.51.
• Passaic, with more than 12 percent in poverty, about half again as high as the state, had a burden index of 1.37, fourth highest.

HIV/AIDS in Minority Communities

HIV/AIDS disproportionately affects minorities. Essex leads the State in its HIV/AIDS burden (3.06), leads in the percentage of population living in poverty (15.6 percent) and leads in the percentage of minority residents - almost 54 percent, more than twice the state average.

Hudson, second in terms of HIV/AIDS burden (1.87), second in the proportion of population living in poverty (15.5 percent) is second in the percentage of minority residents (41 percent).

Atlantic, third in terms of HIV/AIDS burden (1.51), fourth in the proportion of population living in poverty (10.5 percent) is third in the percentage of minority residents (30 percent).

Passaic, fourth in HIV/AIDS burden (1.37), fourth in poverty status in New Jersey (12.3 percent) is third in the presence of minority population at 35 percent, one-third higher than the statewide average.

Summary

When we look within New Jersey, we see a clear association between HIV/AIDS infection and economic and demographic characteristics of New Jersey’s counties.
1. First, there is a strong association between poverty and HIV/AIDS.
2. Second, there is also a strong association between minorities in poverty and HIV/AIDS.
3. HIV/AIDS disproportionately impacts the poorest among us, minorities more than others and may well use our least served, most alienated areas of social distress as a potent growth media.
The term burden is used to denote the general numbers and impact of HIV/AIDS, when not denoted by incidence and prevalence statistics.


Burden is a measure created here, similar to measures like incidence and prevalence, to compare the presence of HIV/AIDS adjusted for other issues.

3. Injection Drug Use and Hepatitis C

The Centers for Disease Control points out that “[m]ost of today’s HCV infections are due to injection drug use….” and would be avoided if each injection drug user used a sterile syringe with each injection. New Jersey could save $15 million to $18 million in new annual medical costs if sterile syringes were readily available.

There is no vaccination against HCV; it can only be treated. The cost of treatment ranges from $2,300 to $3,864, and the costs of all medical care associated with therapy range from $9,200 to $17,612. The average course of combination therapy treatment costs at about $8,500 per person.

If this average applies in New Jersey, medical costs should be expected to increase by $10.2 million each year to cover 1,200 new HCV infections. This does not include the incarcerated population.

Correctional Medical Services of St. Louis, the health care provider for New Jersey’s prisons, estimated that if just 25 percent of inmates were tested and treated, additional medical costs borne directly by the state could increase by $4.5 million; if 75 percent of prison inmates were tested and treated, additional medical costs could approach $8 million in 2003.

What Is Hepatitis C and How Is It Transmitted?

Hepatitis C is a disease of the liver caused by the Hepatitis C virus (HCV). It can lead to chronic liver infection, disease and even death in some cases. HCV-associated end-stage liver disease is the most frequent indication for liver transplants. Exposure to HCV can arise through a number of ordinary actions, few of which can be avoided: blood transfusions, especially blood from a donor who later tested positive for Hepatitis C, a solid organ transplant or receiving clotting factors, being on long-term kidney dialysis and, of course, certain liver diseases. Many of these have become less important as exposure routes for HCV because of improvements in screening, testing and managing...
the blood supply. However, there is one exposure route that remains significant: injection drug use with contaminated syringes, “even if you experimented a few times many years ago.” Most of today’s HCV infections are due to injection drug use. There is no vaccine to prevent HCV.

HCV, a blood borne disease, is transmitted when blood or bodily fluids from an infected person enter the body of another. Contaminated syringes used to inject drugs are a very significant route of exposure. This exposure factor is virtually identical to those associated with HIV/AIDS. It is also important to note that symptoms of HCV are mild to non-existent, creating the possibility of infected individuals not using any measures to reduce the possibility of transmitting their infection to others.

**General Background**

HCV infection is the most common chronic blood borne infection in the United States. During the 1980s, an average of 230,000 new infections occurred in the United States each year. Improvements in screening, testing and managing the blood supply have caused an 80 percent decline in new infections over the years; however there are about 3.9 million Americans infected, 2.7 million with chronic HCV infection. Many of those chronically infected might not be aware of their condition, inadvertently serving as a source of infection for others. There were approximately 144,000 HCV-infected people in New Jersey in 1999; 450 of them die each year.

Each year, across the nation, 8,000 to 10,000 people die from the complications of liver disease caused by HCV. Chronic liver disease is currently the 10th leading cause of death, and liver failure due to HCV is the leading reason for liver transplants. Annual health costs and lost wages associated with all hepatitis-related liver disease are about
$600 million for Hepatitis C and $700 million for Hepatitis B. The costs to individuals and society of illness related to Hepatitis A are also substantial.

**Coinfection – HIV and HCV**

HIV and HCV infection are transmitted in similar ways, and about one-quarter of HIV infected persons also have HCV. The majority of coinfected people are injection drug users. Fifty to 80 percent of injection drug users are infected with HCV and 50 to 90 percent of injection drug users with HIV also have HCV infection. HCV is transmitted by large or repeated direct percutaneous (through the skin) exposure to contaminated blood; this creates high probabilities of coinfection with HIV and HCV.

While people with HIV are living longer; if they are coinfected the complications from HCV (cirrhosis, liver cancer, and end-stage liver disease) have more time to develop. Liver disease from HCV is now the leading non-AIDS cause of death in the U.S. in coinfected individuals. The effect of HIV on HCV is not well understood. Coinfection with HIV and HCV results in higher levels of HCV in the blood, more rapid progression to HCV-related liver disease, and increased risk for cirrhosis and liver cancer. HCV is an opportunistic infection in people with HIV infection, although it is not considered an AIDS-defining illness.

**Hepatitis C in New Jersey**

Hepatitis C became a reportable disease in New Jersey in 1998 (N.J.S.A. 26:2T-1 et. seq.); only 58 cases were reported that year because the law became effective in November, a start up issue. In 1999, for the full year, 462 cases were reported; in 2000, 655 cases. In 2001, the Department of Health’s year-to-date total of cases reported was
1226; the fourth most frequently reported disease. Data for 2002 is sketchier. As of June 5, 2002, there were 481 cases of HCV reported for 2002. If the first five months of 2002 are reflective of the last seven months, the reported number of cases of HCV for 2002 could reach 1,154, about the number reported on a year-to-date basis in the previous year.

Reported HCV cases are available by county through 2000. The reported total across all counties were 611; the total for the state was 655. The difference is not explained. The average for each county is 29 reported cases in 2000. The counties with greater than average HCV are: Bergen (136), Hudson (42), Hunterdon (37), Mercer (35), Middlesex (73), Monmouth (58), Ocean (71), and Passaic (33).

One significant center of HCV infection is New Jersey’s 28,600 prisoners. Correctional Medical Services of St. Louis, the health care provider for New Jersey’s prisons, estimated that if just 25 percent of inmates, 6,500 prisoners by CMS’s count, were tested and treated, added medical costs would be $4.5 million. If 75 percent were tested and treated, additional medical costs could approach $8 million in 2003. New Jersey currently spends $100 million on inmate medical costs; adding universal inmate testing and therapy for HCV would increase those costs by at least 8 percent. The article continues,

In July [2002], New Jersey was treating only one inmate, although 1,170 already had tested positive for the virus. . . New Jersey screens only inmates who ask to be tested. . . . As of Dec. 4 [2002], new documents show, 1,407 inmates were known to be infected -- a 20 percent increase in five months. Corrections Commissioner Devon Brown said he expects the numbers to climb as inmates and medical staff learn more about the disease and more prisoners ask to be tested.
**Hepatitis C Cost Issues**

About four million people in the United States have HCV antibodies, and 2.7 million of those have active HCV. HCV cost the United States healthcare system $15 billion in 2001 and costs are projected to increase to $26 billion by 2021.

The cost of direct treatment ranges from $2,300 to $3,864, but all medical care associated with the therapy ranges from $9,200 to $17,612. Milliman and Robertson, an actuarial firm, estimated the average course of combination therapy treatment costs at roughly $8,500 per person. If Milliman and Robertson’s average is realistic, each additional 1,200 HCV infections, about the annual increase in Hepatitis C in New Jersey, would impose $10.2 million in medical costs.

**Summary**

There is no vaccination against HCV; it can only be treated. The cost of interferon treatment, the newest and most effective treatment, ranges from $2,300 to $3,864, but the costs of all medical care associated with this therapy range from $9,200 to $17,612. Actuaries estimated the average course of combination therapy treatment costs at about $8,500 per person.

If this average treatment cost applies to New Jersey, health care costs could increase by $10.2 million each year to cover the 1,200 new HCV infections reported annually. This estimate does not include the incarcerated population.

Correctional Medical Services of St. Louis, the health care provider for New Jersey’s prisons, estimated that if just 25 percent of inmates were tested and treated, additional medical costs borne directly by the state could increase by $4.5 million; if 75 percent of prison inmates were tested and treated, additional medical costs could approach $8 million in 2003.
There is no estimate of the number of injection drug users included in the 1,200 new infections reported each year, although the Centers for Disease Control points out that “[m]ost of today’s HCV infections are due to injection drug use.”

HCV infections could be avoided if each injection drug user used a sterile syringe with each injection.
2 Ibid.
3 Ibid.
4 Morbidity and Mortality Weekly Reporter, October 16, 1998 / 47(RR19); 1-39 and what MMWR refers to as unpublished CDC data.
5 Ibid.
7 In 1993, just as improved blood screening and treatment was becoming effective, total expenditures for treating all HCV conditions was estimated to be $1.2 billion. National Institute on Drug Abuse, The Economic Costs of Alcohol and Drug Abuse in the United States – 1992, Table 4.
8 Ibid.
9 CDC Fact Sheet, Hepatitis C Virus and HIV Coinfection, September 2002.
11 CDC, IDU/HIV Prevention, Hepatitis C Virus and HIV Coinfection, September 2002.
12 Ibid.
13 All the data on the number of cases is from NJ Department of Health, Health and Senior Services, New Jersey Reportable Disease Statistics Statewide Totals, as of June 5, 2002.
14 NJ Department of Health & Senior Services, Communicable Disease Statistics, 2000, updated through June 5, 2002. Final count. This difference is not explained. The average county has a mean 29 cases, with a range of 135. The difference might be persons with HCV in county jails, not state prisons which are discussed below. This is a substantial difference. The statewide total may include incarcerated persons.
15 This number looks suspiciously high and may reflect more aggressive diagnosis of HCV in Bergen County.
18 Ibid.
20 Ibid.
22 Pacholick, Public Risk, op cit.
4. Lifetime Treatment Costs of HIV/AIDS

This section describes the various stages of HIV/AIDS, based on T-cell counts rather than the more sophisticated, individualized approach taken by medical professionals. Adopting this somewhat less flexible, simpler approach, may move us away from the very flexible approach required when treating one individual, but it has a significant benefit for this report. It offers a way to estimate HIV/AIDS costs for large cohorts of persons and allows calculations of present value of costs.

The estimate of the lifetime treatment costs for HIV-infected persons we adopt compares favorably to other estimates made on different bases. No estimate of treatment cost can withstand the advance of science. Some advances will increase the cost of treatment, others can decrease it, e.g., by substituting outpatient therapy for expensive hospitalization.

Purpose

This section’s goal is to give policy makers an idea of what it costs to provide lifetime treatment to a person who contracts HIV as the infection progresses to its end stage, AIDS. Because this report is directed to policy makers rather than physicians or academicians, it is important that we also provide an estimate of lifetime treatment costs in present values, i.e., stating future costs in present terms. Legislators faced with the complex decisions required in the public health arena have to compare spending today’s money to avoid future costs.

With recently acquired knowledge of HIV/AIDS and rapid advances in modern treat-
ments, the time between initial HIV infection and the development of end stage AIDS has become somewhat variable, a function of when, where and how the patient is diagnosed and treated and how his or her body responds to treatment. There is no standard course of progression from HIV to AIDS when treating real people.

However, in this report we adopt a less flexible definition of HIV/AIDS, marking the stages by T-cell counts, ignoring certain opportunistic infections and other indicators of progression of the syndrome. This definition is not intended to pass for a current scientific description of the stages of HIV/AIDS; it is intended to describe stages of progression and treatment costs for groups of patients as they progress from HIV to AIDS. What’s given up in precision regarding an individual is gained back by our ability to discuss large groups and to discount treatment costs.

**Basics of HIV/AIDS**

The term AIDS and the progression from initial HIV infection to the end stage of the syndrome has changed as the medical community began to understand the syndrome more clearly, and as new treatments changed the time frame for onset of AIDS. With increasing understanding, the CDC and most physicians have adopted an elastic definition, revising it to accommodate additional syndromes as they became recognized manifestations of advanced HIV disease.¹ Cohen presents one variation of this flexible approach. He asserts that AIDS is a term to designate the late stage of HIV disease, a stage in which immunodeficiency has become profound. In his Clinical Overview of HIV Disease, cited below, Cohen comments on the T-cell approach to diagnosing AIDS:
The 1987 CDC definition of AIDS continues to be useful as a definition of an endpoint in clinical research on progression of HIV disease and as criteria for case reporting that helps quantify the growth of the epidemic of HIV disease. Whether an individual patient meets the criteria for CDC-defined AIDS, however, is irrelevant to medical management of HIV disease. . . . The concept of AIDS as end-stage immunodeficiency is somewhat muddled by the recent advances in antiretroviral therapy, which, . . . may produce improvement in immunologic function, in AIDS-defining criteria, such as a CD4+ count below 200 cells/mm3, and an incidence of opportunistic conditions, yet mask remaining immune system deficits2.

One of the early ways of defining HIV and its various stages was by "T-cell" counts.3 Column 1 in Table 4.1 presents the T-cell ranges used to define the stages of infection and the duration of that stage. The median time between initial infection and the onset of AIDS, about 10 years,4 was initially established in studies of homosexual men, of infected blood-transfusion recipients, of injection drug users and adult hemophiliacs.5 The time span from initial infection to end stage AIDS has been expanding rapidly. New drugs, drug regimens, and therapies have extended the duration of each stage of HIV as we define it here, slowing progress from initial infection to end stage AIDS.

Reaching Present Values

In Stage 1, defined as the first five and a half years after initial HIV infection,6 monthly treatment costs were about $805 in the late 1990s. Over the next four years, Stage 2, monthly treatment costs rose to $1260. Just after the beginning of the ninth year, Stage 3, costs began to approach $1830 per month. Somewhere at the beginning of the tenth year, when AIDS develops, monthly treatment costs rise to about $3,800 for two years after which, the patient may die. In the real world, each patient presents a different set of physical, psychological and social circumstances, experiences different reactions to HIV infection through the course of treatment, has different resources or insurances and en-
counters a medical establishment with different capacities, skills and its own human and financial resources. Despite this, an economic analysis of HIV/AIDS in a policy context requires a stable duration to estimate of the costs of the disease as a baseline for evaluating public health strategy. This is why we have chosen to base our estimate of lifetime treatment cost of HIV/AIDS on medical studies that applied very clear definitions of each stage of HIV/AIDS.

<table>
<thead>
<tr>
<th>Table 4.1: HIV Stages and AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition and Estimated Duration⁷</td>
</tr>
<tr>
<td>----------------------------------</td>
</tr>
<tr>
<td>Range of CD4+ Cells per mm³</td>
</tr>
<tr>
<td>&gt; 500</td>
</tr>
<tr>
<td>201 to 500</td>
</tr>
<tr>
<td>51 to 200 (New AIDS Level)</td>
</tr>
<tr>
<td>50 or below</td>
</tr>
</tbody>
</table>

**Cost Estimates**

The economics of the introduction of protease inhibitors as a treatment for HIV/AIDS can illustrate the difficult economic issues encountered while estimating the costs of treatment. Bartlett and Moore⁸ investigated the cost effectiveness of protease inhibitors, noting:

Protease inhibitors have revolutionized therapeutic strategies in managing HIV infection. Many feel, however, that their high cost threatens to bankrupt the system. The new regimens that are now widely advocated normally cost between $9,000-12,000 per year. The potential impact of this price tag on provider organizations is awesome: the projected cost for AIDS Drug Assistance Programs . . . is $436 million per year. These projections introduce the dual challenge of finding sources of funds and justifying this expense at this time of cost reduction throughout the system.⁹

In 1992, Hellinger conducted one of the initial studies of lifetime cost of HIV/AIDS.¹⁰ Using the four-stage structure in Table 4.1, he estimated lifetime treatment costs at
$119,274.11. In 1997, Moore$^{12}$ examined monthly payments for Medicaid patients at John Hopkins between 1993 and 1995. Average lifetime costs were estimated to be $149,000. While these studies varied in approach, the researchers’ estimates converged reasonably well.

**Government’s Financial Burden**

HIV/AIDS treatment costs are very substantial, even for governments. Even if the infected person has medical insurance, it typically runs out quickly. A study of insurance coverage of people diagnosed with AIDS found that at the outset of infection 54 percent had public insurance but, during the study, 23 percent reported a change in insurance status, and 27 percent reported a change in employment status. A transition from private to various forms of public insurance was the most frequent occurrence.$^{13}$

Medicaid provides about 70 percent of public funding for AIDS care. People on Medicaid include mothers and children covered because of Aid for Families with Dependent Children (AFDC or TANF) eligibility, which includes a substantial number of people with HIV,$^{14}$ as well. About 50 percent of AIDS patients are SSI-eligible. The Veterans Administration provides about 5 percent of AIDS care, with some of its clients also receiving services funded by Medicaid.$^{15}$ Medicare and Ryan White programs account for much of the remaining public funding.

HIV/AIDS patients without insurance were more likely to be male, racial or ethnic minorities, adolescents, and injection drug users. The absence of health insurance interferes with obtaining primary care services and early treatment for HIV disease.$^{16}$
Present Value of Future Costs

Harburchak updated and expanded on Hellinger’s work adding the increases in treatment costs mandated by expansion of treatment guidelines. He states that expanded guidelines have dramatically altered the intensity and cost of outpatient management. Clinicians, encouraged by promising studies, have been motivated to identify and treat infected individuals early and suppress viral load in hope of preserving cellular immunity and at least delay AIDS and death. More than that, because of expanded therapy guidelines, quality of life might also be enhanced, the need for prophylactic drugs averted, and hospitalizations delayed or prevented. These therapies carry a high cost however.

Harburchak adjusts Hellinger's work to account for additional monthly drug costs. He arrives at a lifetime cost estimate of $227,000, the estimate adopted by this report. This is the sum of his “Revised Lifetime Estimate[s]” for every stage of the disease as defined by simple T-cell counts.

<table>
<thead>
<tr>
<th>Table 4.2: Revised Lifetime Costs HIV/AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient Care</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Outpatient Service</td>
</tr>
<tr>
<td>Home Health Care</td>
</tr>
<tr>
<td>1992 Drug Costs</td>
</tr>
<tr>
<td>Long-term Care</td>
</tr>
<tr>
<td>Monthly Cost</td>
</tr>
<tr>
<td>Months/stage</td>
</tr>
<tr>
<td>Lifetime Cost/Stage</td>
</tr>
<tr>
<td>1996 Additional Drug Cost</td>
</tr>
<tr>
<td>Months/stage</td>
</tr>
<tr>
<td>Additional Cost per Stage</td>
</tr>
<tr>
<td>Revised Lifetime Estimate</td>
</tr>
</tbody>
</table>

Present Value: Over the duration of the syndrome, each infected person requires $227,000 in treatment costs in current dollars, i.e., at the time the expense is incurred. This is $147,000 in present value, after the process of bringing all expenditures into present dollars. For the first five and a half years, monthly treatment cost is $805; over...
the next four years monthly treatment costs rise to $1260. Just after the beginning of the
ninth year costs rise to $1830 per month. Somewhere at the beginning of the tenth year,
AIDS develops and monthly treatment costs rise to roughly $3,800 per month for two
years after which the patient may die.

The public expense involved in treating HIV infections emphasizes the importance of
HIV prevention. The savings that would result from the implementation of proven preven-
tion interventions, such as increased access to sterile syringes, would be enormous, and
considering that most interventions are relatively inexpensive, extremely cost-effective.

**Summary**

Based on our relatively simple definition of HIV/AIDS and our less flexible staging, we
estimate the cost of lifetime treatment for HIV-infected persons to be $227,000.21 In pre-
sent values, will those drugs and treatments would cost today, the lifetime cost is just
over $147,000 in present value.

This estimate shows clearly that effective, inexpensive interventions, such as increased
access to sterile syringes, can prevent new HIV and Hepatitis C infections in injection
drug users and save taxpayers hundreds of millions of dollars annually.
1 See P.T. Cohen, MD, PhD, Washington University, Saint Louis Clinical Overview of HIV Disease, HIV. In Site Knowledge Base Chapter, June 1998. This article discusses the current elasticity of the definition of AIDS.
2 Ibid., emphasis added.
4 National Institutes of Health, Institute of Allergy and Infectious Disease, “The Relationship Between Human Immunodeficiency Disease and the Acquired Immunodeficiency Syndrome” Update 2002.
5 See note 3. These studies were footnoted in the cited reference.
6 Stages of progression from HIV to AIDS are frequently measured by T-cell counts. While this is a better, more individualized approach it offers no basis for comparing groups, discounting cost, etc.
7 The stage duration estimates are taken from Haburchak, David, MD "The Economics of AIDS in America," The AIDS Reader, Medscape Internet Site. These estimates were repeated by the National Institutes of Health’s publication cited in note 6. The Table was constructed by New Jersey Economics.
9 Ibid.
10 Hellinger, "AIDS Cost and Service Utilization Survey," as reported in Haburchak.
11 The data were from self-reporting and covered only direct patient changes. There are always difficulties with self-reported data and "patient charges" are not always equal to "costs."
12 The Hopkins HIV Report, 1997, Moore, Richard D., “Update on the Cost of HIV/AIDS Care and the Cost-Effectiveness of New HIV Therapy.” These estimates are based on monitoring Johns Hopkins patients, 60% of whom are on Medicare.
17 Haburchak, op. cit.
18 Haburchak, op. cit.
19 Table prepared by New Jersey Economics from Hellinger and Haburchak.
20 This figure represent each month’s expense discounted at 5% over the relevant number of months, as expressed in Figure 4.1.
5. Alternative Strategies and Public Policy

This section sketches public policies to address the fiscal impacts of HIV/AIDS and Hepatitis C: syringe exchanges and increased access to sterile syringes through over-the-counter pharmacy sales.

First, we offer a brief review of the mechanics of exposure to HIV through injection drug use and information on the most risky behaviors that expose an injection drug user to infection. This information is to help the reader understand the mechanics of HIV/AIDS and Hepatitis C in injection drug users.

Following is a discussion of syringe exchanges and over-the-counter pharmacy sale of syringes as parts of a complete public health policy. A consensus has been forming on their usefulness, effectiveness and power in halting the spread of HIV infection, AIDS and Hepatitis C. Increased syringe access as part of an overall strategy has been endorsed by The American Bar Association, the American Medical Association, the American Pharmaceutical Association, the Association of Boards of Pharmacy, the National Alliance of State and Territorial AIDS Directors and the National Association of State and Territorial Health Officials.¹

HIV/AIDS and Hepatitis C infections from injecting drugs with contaminated syringes are unnecessary and completely avoidable. This section is designed to assist policy makers understand this connection and the considerable benefits that increased availability of sterile syringes could offer, as well as to suggest cost effective strategies to enhance public health and quality of life for New Jerseyans while generating fiscal relief for state government. These policies can be based on three simple ideas.

- First, injection drug use need not lead to HIV/AIDS and/or Hepatitis C as it does today. HIV infection and Hepatitis C from injection drug use can be reduced or avoided by increasing the use of sterile syringes.
• **Second**, HIV/AIDS and Hepatitis C commands scarce medical resources that could be put to other uses. New Jersey cannot adequately address infant and childcare, medical attention for the aged and disabled or other pressing medical needs if HIV/AIDS cases continue to grow.

• **Third**, the scarcest resource in New Jersey is public budget dollars. HIV/AIDS and Hepatitis C adds to state government’s financial burdens; HIV/AIDS that can be avoided adds unnecessary burdens.

**Basics**

Why is syringe sharing a serious risk factor in HIV and Hepatitis C? Typically, before injecting, users determine the syringe is in a vein by pulling back on the syringe’s plunger; if blood enters the syringe, the syringe is in a vein. After injecting, syringes are flushed with water used to prepare drugs for injection. If one user of the syringe has HIV or Hepatitis C, the syringe and preparation equipment can be contaminated with the virus. Given the efficiency with which HIV and Hepatitis C can be transmitted through contaminated syringes, ensuring that those who continue to inject drugs use sterile syringes each time is important.

How frequently will a drug user inject drugs? The Centers of Disease Control report users can inject drugs about 1,000 times a year, noting that, “[e]ven in a moderate-size city, this adds up to millions of injections, requiring millions of syringes every year. Most injection drug users are unable to obtain a sufficient number of sterile syringes to effectively reduce their risks of acquiring and transmitting blood-borne viral infections.”

What are other risks? Bruneau, Lachance and others examined connections between sterile syringes and HIV seroconversion in Canada after Montreal’s syringe exchange program was expanded to include new distribution sites and increased the number of sterile syringes available. This study offers a statistical identification of risks.
### Table 5.1: Bruneau and Lachance Risk Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Hazard Ratio</th>
<th>95 percent CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug Injected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cocaine IV (3-6 months)</td>
<td>2.20</td>
<td>0.5-9.9</td>
</tr>
<tr>
<td>Heroin IV (3-6 months)</td>
<td>0.33</td>
<td>0.2-0.7</td>
</tr>
<tr>
<td>Injections last month (ref 0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-30</td>
<td>2.18</td>
<td>0.9-5.5</td>
</tr>
<tr>
<td>30-100</td>
<td>2.22</td>
<td>0.8-6.1</td>
</tr>
<tr>
<td>&gt;100</td>
<td>3.81</td>
<td>1.4-10.4</td>
</tr>
<tr>
<td>Booting 3-6 months</td>
<td>2.04</td>
<td>1.0-4.1</td>
</tr>
<tr>
<td>Inject alone 3-6 months</td>
<td>1.91</td>
<td>0.9-3.9</td>
</tr>
<tr>
<td>Sharing with HIV+</td>
<td>2.29</td>
<td>1.3-3.9</td>
</tr>
</tbody>
</table>

The most significant risk factor is the number of times a user injects, with the highest hazard ratio assigned to more than 100 injections a month or 1,200 yearly. The second most hazardous factor was sharing a syringe with an infected person.

How many syringes are contaminated with HIV infection? That is hard to know, but a Baltimore pilot project, created to assess the acceptability and use of a community-based syringe disposal project, offers an estimate. A random sample of 3,000 used syringes was subjected to HIV antibody. Eleven percent, more than one in ten, was positive for HIV antibodies. While this experience may not apply to New Jersey, a significant fraction of used syringes may be contaminated.

### Exchanges

In the past, there was debate over the effectiveness of offering sterile syringes to injection drug users: Would they use them? Would drug use increase? Does a providing sterile syringe amount to approving injection drug use? The weight of accumulated research confirms the need for sterile syringes, acquired either through exchanges or drugstore...
purchase without a prescription. Steps to increase access to sterile syringes would be
efficient, effective, and inexpensive tools to reduce HIV and Hepatitis C infection.
Exchanges allow drug users to trade used syringes for fresh, sterile ones. An exchange
can be in a fixed place or mobile. Exchanges can offer or arrange a full array of public
health services, medical testing and can become effective distribution points for informa-
tion. The US Department of Health and Human Services\textsuperscript{6} reviewed the effectiveness of
syringe exchanges and offered the following observations.

1. Many studies show that syringe exchange programs reach and serve the most
disenfranchised population, persons at high risk for HIV infection.
2. The scientific evidence accumulated to date provides a basis on which munici-
palities that are heavily affected by injection drug use should consider syringe
exchange programs.
3. Three out of four AIDS cases in women are due to injection drug use or hetero-
sexual sex with someone infected with HIV through injection drug use, and over
75 percent of new infections in children result from injection drug use by a parent.
4. “...[T]he Department's senior scientists ... concur with the conclusion of the In-
stitute of Medicine that the pattern of evidence is sufficiently strong to support
scientifically clear conclusions regarding the utility of syringe exchange pro-
grams, in communities that choose to adopt them, as part of a comprehensive
HIV prevention strategy.”

**Pharmacy Sales\textsuperscript{7}**

Over-the-counter sales of syringes without a prescription can be another strategy for
increasing access to sterile syringes. It has several advantages:

- Since pharmacies would be open for business more frequently than exchanges,
  which usually operate for limited time periods at various locations, pharmacy dis-
  tribution would allow broader access to syringes.
- Since drug users purchase syringes at pharmacies with their own funds, there is
  no requirement for public funding.
Research on pharmacy sales has shown that drug users actually do take advantage of this option, and that it is effective in reducing the spread of HIV, and other blood-borne diseases. After Connecticut passed legislation allowing for over-the-counter pharmacy sales without a prescription, the percentage of drug users who reported sharing syringes during a 30 day observation decreased by 40 percent, and fewer injection drug users reported buying syringes on the street. An additional social benefit was a decrease in syringe stick injuries to police officers (66 percent over a six month period).

The growing consensus is that outreach programs, exchanges and pharmacy sales of syringe can each be a significant part of an effective multiphase strategy to deal with avoidable HIV/AIDS and Hepatitis C. The Berkley/Institute for Health Policy Studies noted that needle exchange programs should be supplemented by the expanded sale of syringes by pharmacists, an approach that has the advantage of protecting client confidentiality while still guaranteeing the client that the syringe obtained is sterile.

**Strategies for Increasing Access**

Removing legal barriers to syringe access is not new or untried. As part of a broad HIV/AIDS strategy, it has been endorsed by: The American Bar Association, The American Medical Association, The American Pharmaceutical Association, The Association of Boards of Pharmacy, The National Alliance of State and Territorial AIDS Directors. And The National Association of State and Territorial Health Officials.

The American Bar Association led the way in this issue. Their report on deregulations of syringes begins with the following observations:
1. Injection drug users are at high risk for HIV, Hepatitis and bacterial infections.
2. Access to sterile injection equipment is crucial to prevent disease.
3. Better syringe access:
   a. Does not increase drug use,
   b. Does not hurt other efforts to reduce drug use,
   c. Can be a gateway to other public health offerings,
   d. Does not increase improperly discarded syringes.
4. Syringe access programs don’t increase local crime.

After noting that syringe exchanges had grown considerably, more than 130 syringe exchanges distributing 17 million sterile syringes by 1997, the ABA declares

“Critics . . . contended that giving syringes to IDU’s (injection drug users), especially with government money, sent a message that drug use was acceptable. Research has established that syringe exchange programs can help control HIV and do not encourage drug use, but it has also become clear that syringe exchange is not a panacea for the problem of syringe assess: other ways for IDU’s to obtain syringes, particularly non-prescription pharmacy sales, are also needed to make it possible for IDU’s to inject only with sterile syringes.”

In 2003, there were only five states which required a prescription to purchase syringes in pharmacies, Pennsylvania, California, Delaware, Massachusetts, and New Jersey, even though many had some form of drug paraphernalia laws affecting syringes.

The American Bar Association is not alone in its position on modification of syringe access laws; the American Medical Association went on record in 1997, through its House of Delegates, with a policy stating, “the AMA strongly encourages state medical associations to initiate state legislation modifying drug paraphernalia laws so that injection drug users can purchase and possess syringes and syringes without a prescription.”

The American Pharmaceutical Association has a 1999 policy stating, “The APhA encourages state legislatures and boards of pharmacy to revise laws and regulations to permit the unrestricted sale or distribution of sterile syringes and syringes by or with the
knowledge of a pharmacist in an effort to decrease the transmission of blood-borne diseases."¹²

**Passive and Active Approaches**

Policies concerning increased access to sterile syringes can be passive¹³ or active. Passive policies, once instituted, require no further public sector action. Removal of the legal barriers to syringe access is passive: complete removal of barriers would allow individuals to acquire sterile syringes or allow exchanges to be operated.

Active policies include: State-operated and funded syringe exchanges as part of a coordinated public health care system, State-sponsored exchanges operated by a designated entity, with or without subsidy, or exchanges operated by any entity choosing to do so, with or without subsidy.

Once unnecessary barriers to syringe access are removed, the availability of sterile syringes will increase with no subsidy from or involvement of the state.¹⁴ Removal of barriers does not, however, preclude state involvement; that remains an option creating the possibility of a variety of creative responses using a variety of creative organizations.

The disadvantage of simply reducing barriers to syringe access is that outreach and education may not accompany the syringes. If possible, passive approaches should compliment outreach programs offering education to tell injection drug users that sterile syringes are available, providing information reinforcing the need for sterile syringes and cooperating with organizations voluntarily engaging in sterile syringe distribution.
Summary

Reducing the use of infected syringes can be a prime strategy to fight HIV/AIDS and Hepatitis C in injection drug users, those who have homosexual or heterosexual sex with injection drug users and among the newborn.

The most significant risk for injection drug users is the frequency of injection, with the highest hazard ratio associated with more than 100 injections a month. The second most hazardous risk factor is sharing a syringe with a HIV-infected person or one with Hepatitis C.


Syringe exchanges, over-the-counter pharmacy sales without a prescription, and other modes of increased access to sterile syringes will reduce the spread of HIV, Hepatitis C, and other blood-borne diseases.

Removal of unnecessary barriers to syringe access, neither new nor untried, can take three forms:
a. Complete removal - removing all restrictions on sale and possession of syringes; The Oregon Model.
b. The Rhode Island Model includes unrestricted pharmacy sales, no restrictions on possession while confining sales to pharmacies,


See Note 1 – Fact Sheet.

Bruneau J, Lachance N et al. Changes in HIV Seroconversion Rates of IDUs Attending Syringe Exchange Programs in Montreal: The Saint-Luc Cohort. Canadian Journal of Infectious Diseases, [Supplement] May 1999. This study concluded that after the 1995 changes, there was not a significant difference between seroconversion rates for exchange users and non-users: “From January 1995 to September 1998, 68 seroconverted for a global incidence of 4.3 per 100 person-years (CI 95 percent: 3.4-5.5 : 4.2 per 100 person years (CI 95 percent: 2.8-6.1) among NEP attenders, and 4.4 per 100 person-years (CI 95 percent: 3.1-5.9) among non-attendees. (HR: 0.97 [0.60 - 1.58]).

Riley, Elise; Beilenson, Peter; Vlahov, David; Smith, Laura; Koenig, Matthew; Jones, Stephen T.; Doherty, Meg. "Operation red box: A pilot project of syringe and syringe drop boxes for injection drug users in East Baltimore" Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology, 1998. 18 (Suppl. 1): S120-S125.

United Nations, UNAIDS Organization, “Evidence-Based Findings On The Efficacy Of Syringe Exchange Programs: An Analysis From The Assistant Secretary For Health And Surgeon General Of The Scientific Research Completed Since April 1998.” This paper provides a review of published peer-reviewed research on syringe exchanges completed by senior scientists and public health experts within the Department of Health and Human Services. This section draws heavily on it.

University of California, Berkeley and the Institute for Health Policy Studies, Prepared by the School of Public Health, University of California, San Francisco The Public Health Impact of Syringe Exchange Programs in the United States and Abroad: Summary, Conclusions and Recommendations. Prepared for the Centers for Disease Control and Prevention.

New Jersey is one of only five states that require a prescription to purchase a syringe in a pharmacy (New Jersey, Pennsylvania, Delaware, California, and Massachusetts).


Ibid.


Each of these requires one positive action and then becomes passive; the Legislature has to affirmatively act to change the current, regulated system of distribution of sterile syringes.

Unrestricted sale and possession of a specific number of syringes may involve some monitoring costs, but these need not be significant.
6. Costs and Benefits of Increased Syringe Access

If a syringe exchange "avoids" one new case of HIV, it returns $16.00 in public healthcare savings for every $1 spent. HIV infection in New Jersey is projected to grow by 1,500 to 1,800 new cases annually over the next few years. If each of these costs $27,000 in current dollars or $149,000, in present values, the total increase in HIV/AIDS costs could be in excess of $400 million per year. If 40 percent of these cases are related to injection drug use, $107 million in treatment costs might be avoided if every injection drug user used a sterile syringe every time.

Cost Savings

Increasing access to sterile syringes has to be part of a comprehensive approach to HIV/AIDS and HVC reduction including substance abuse treatment, community outreach, tailored HIV counseling and testing, as well as services in correctional settings, primary drug prevention, and services for those already infected.

One approach to increasing access to sterile syringes that has been successful in a number of places is needle exchanges. While exchanges may seem new, they have been in existence for some time, not only in the United States but in other countries. There is a body of research and experience to draw on, including analysis of the costs and benefits of syringe access.³

Australia – A Global Leader: Australia, like all other nations, has an HIV/AIDS problem,
but it also has one of the lowest HIV/AIDS infection rates in the world. The Alcohol and Drug Council, an Australian NGO, notes, “By world standards the prevalence of HIV among injection drug users [in Australia] remains low and is currently less than five percent. In some cities around the world HIV prevalence among injection drug users is well over 40 per cent.” The Council sees a very close, very productive connection between liberal access to sterile syringes and Australia’s low rates of HIV/AIDS and other blood-borne diseases,

Needle and syringe distribution systems have been directly responsible for the reduction in HIV/AIDS and hepatitis C infection rates in Australia. . . . Supplying needles to drug users has saved Queensland an estimated $279 million since 1991, representing the health and economic costs associated with people who have avoided contracting HIV/AIDS.

The Australian government provides even more information. It reviewed exchange programs across the world to determine the costs and benefits of its own extensive efforts. Data from 103 cities was collected and analyzed by comparing HIV and Hepatitis C infection among injection drug users in countries with and without needle exchanges. The conclusions:

- Cities exchanges had an average 18.6 percent decrease in HIV prevalence compared with an 8.1 percent increase in cities that did not have exchanges. The cost of the Australian needle exchanges, from 1991 to 2000 was $71.8 million (US$).
- In Australia, public health savings in long-term HIV and Hepatitis C treatment costs were $1.3 billion (US$) discounted; without discounting savings were $4.2 billion (US$).

The Australian government saved, in present values, $18 for every $1 spent on needle exchanges, not including savings for treatment costs for other blood born-borne dis-
аетes and infections. Whether these savings would be greater or less in New Jersey is
not easy to know given substantial differences in health care delivery systems, but a
public expenditure that returns $18 for every $1 spent could be very important.

Closer To Home: The Centers For Disease Control and Prevention\(^8\) offers a description
of needle exchange programs in the United States showing how they compliment public
health outreach programs. In 1995, 70 exchanges reported exchanging 11 million sy-
ringes; in 1996, 84 reported exchanging 14 million syringes. These exchanges also of-
fered an array of health and information services; some offered information about safer
injection techniques, disinfection, and provided referrals to substance abuse treatment.
Others added education about the prevention of sexually transmitted diseases, on-site
HIV counseling and testing, primary health care, tuberculosis skin testing and screening
for sexually transmitted diseases.

Heimer, et al\(^9\) reported that the average number of injections per syringe declined by at
least half after needle exchanges were set up in New Haven, Baltimore, and Chicago. In
San Francisco, Baltimore, and Chicago there were significant increases in the percent-
age of injection drug users reporting once-only use of syringes. Self-reporting and sy-
ringe tracking estimates confirmed that participation in a needle exchange was associ-
ated with decreases in syringe reuse and with increases in once-only use. “These find-
ings add to earlier studies supporting the role of exchanges in reducing the transmission
of syringe-borne infections such as HIV and hepatitis.”\(^10\)

In Baltimore, one of the first cities in the United States to institute needle exchange pro-
grams, the incidence of HIV among injection drug users declined 12% per year between
1988 and 1998.\(^11\)
Even if exchanges have been proven beneficial, will communities accept the presence of needle exchanges? Communities do appear to be receptive to exchanges and pharmacy sales, even though they see some risks. In 1995, 72 percent of sampled households in Baltimore thought needle exchanges would attract injection drug users to the neighborhood, but, still, 65 percent still approved them and 47 percent approved unregulated pharmacy sales of sterile needles. Why?

Acceptance of exchanges and pharmacy sales was based on an understanding of three points: both would decrease the number of discarded needles in the area, neither would encourage injection drug use and both would decrease HIV incidence. These three points mitigated community concerns about the presence of injection drug users. Support for needle exchange programs was high.

Cost Savings in New Jersey

There are a number of estimates of the cost of sterile needle exchanges, but none are specific to New Jersey. What would a needle exchange cost in New Jersey?

The AIDS Action Council estimates the budget for a needle exchange program at $170,000 a year. Sixty-six percent of this would be for staffing, rent, and overhead, roughly $100,000. The cost of a sterile syringe was approximately $1.35. The $170,000 budget would allow the exchange to purchase 50,000 syringes. The Action Council concludes a typical exchange could serve over 100 clients per day. The Action Council concludes,

Considering that as many as 33 Americans are infected with HIV each day due to contaminated syringe equipment, if only two HIV infections are prevented
through clean needles, the cost of running a needle exchange program for a year would save money. Mathematical models predict that [exchanges] prevent HIV infections among injecting drug users, their partners, and family members at a cost of approximately $9,400 per avoided HIV infection. Considering the lifetime cost of treating a person living with HIV/AIDS is approximately $200,000, this represents a 95.3 percent savings per life.

Estimates of the cost of avoiding one additional case of HIV/AIDS vary from a low of $3,000 upward to $50,000. The CDC used an estimate of $34,300 per HIV infection avoided, based on $155,000 in lifetime treatment costs, and concluded,

Providing sterile injection equipment to injecting drug users in the United States (through syringe exchange programs and pharmacy sales), along with the costs of syringe disposal to cover all illicit injections has been estimated to cost just over $423 million per year [nationally]. Compared with the status quo, this policy would cost an estimated $34,278 per HIV infection averted, a figure well under the estimated lifetime costs of medical care for a person with HIV infection.

A needle exchange costing $170,000 and "avoiding" a single new HIV infection would save New Jersey $227,000 over the lifetime of the infected person or $147,000 in present value, would return $0.87 cents for each public dollar invested, not including savings from avoiding new cases of Hepatitis C. If that needle exchange "avoided" two new HIV infections, it would return $1.75 for each public dollar invested.

**Pharmacy Sales**

Pharmacy sales of sterile syringes do not fit into a cost/benefit model. If the legislation is "costless," the return to its enactment from even one case of HIV or HCV avoided would be infinite; in a case such as this cost/benefit analysis is not relevant. The cost (not necessarily the price) of sterile syringes varies by method of distribution and by scale. Lurie et. al. provide a variety of cost estimates under five syringe distribution strategies coupled with a goal that each injection drug user will have a sterile syringe for each injec-
Section 6: Costs and Benefits of Increased Syringe Access

section:

- In a needle exchange program, 97-cents;
- In a pharmacy-based exchange, 37-cents;
- Free pharmacy distribution of pharmacy kits, 67-cents;
- Sale of such pharmacy kits to injection drug users, 43-cents; and
- Sale of syringes in pharmacies, without a prescription, 15-cents.

Of course, comparison of these costs should be undertaken with care. In each the combination of goods and services the injection drug user receives varies, from just receiving the syringe to getting the syringe in the context of other public health services, drug education, etc.

**Number and Cost of Sterile Syringes**

In the United States between 920 million and 1.7 billion illicit injections take place each year: 1912 million in San Francisco, more than 80 million in New York City. That’s a large number of syringes when the goal is a sterile syringe for every injection.

However, pharmacy-based strategies have increased the use of sterile syringes in Europe, Australia, and New Zealand. Modification of laws restricting syringe purchase and possession were crucial to pharmacy-based access in those places and led to marked increases in purchase of syringes and consequent reductions in needle sharing. Significant numbers of pharmacists in other states and countries play a significant role in syringe sale and distribution.

Increasing syringe access through pharmacy sales will require efforts to incorporate pharmacists as active partners in HIV and Hepatitis C prevention, and information suitable to pharmacists’ understanding of the importance of increased access to sterile sy-
ringes as part of a coordinated public health strategy. The earliest experiment with increased access to sterile syringes took place in France with significant cooperation from pharmacists. The same is true of New York, Maine and Connecticut; all required significant cooperation from the pharmacy community.

France, one of the first countries to liberalize access to syringes, found needle sharing cut in half. An early study to evaluate the productivity of increased access to sterile syringes showed that the emergence of AIDS among injection drug users caused radical changes in sharing behavior; after liberalized syringe sales went into effect approximately half the injection drug users in Paris stopped sharing syringes and purchased them at pharmacies. The authors concluded that:

The results of the study clearly showed that the decision to make syringes freely available for sale definitely had an effect on addicts' behavior: 52 per cent of the intravenous drug users in the street sample stopped sharing syringes and were purchasing them at pharmacies. The change in behavior dated back to the period 1983-1985 and was distinctly commenced with, and was reinforced by, the liberalization of syringe sales.

Similar programs in the United State have had varying success. Generally the more pharmacists buy into the concept, the more successful the program. New York has an “Expanded Syringe Access Demonstration Program” (ESAP), allowing anyone 18 and older to purchase up to 10 sterile syringes at once without a prescription at specially registered pharmacies.

New York’s syringe access program is a growing success. The New York Academy of Medicine sponsored three studies suggesting that injection drug users are responding positively. First, drug-users are increasingly taking advantage of the program in many, though not all, parts of the city. A survey of Harlem drug users revealed that 12.5 percent had purchased a syringe from a pharmacy after the program began compared to
4.9 percent before. In Brooklyn and Queens, more than 50 percent of injection drug users have purchased syringes from pharmacies since ESAP began. Second, the number of Harlem pharmacies participating in ESAP grew from 49 percent to 79 percent. Third, it was determined some drug users did not realize they could buy syringes at pharmacies, because the law legalizing the practice also prohibited advertising it. Last, no harmful effects, such as an increase in improperly discarded needles or altercations inside pharmacies, have occurred as of June 2002.

Maine's program is less successful. In October 1993, Maine repealed prescription laws regulating the sale of syringes. Licensed pharmacists were allowed, but not required, to sell syringes to anyone 18 or older. A telephone survey of pharmacists determined that 94 percent were willing, in all cases at the discretion of the pharmacist, to sell syringes without a prescription. When the interviewers asked about injection drug users, just under half remained willing, 40 percent declined, and 13 percent did not know or declined to answer.

There is a significant lesson to be learned. Despite change in the prescription, paraphernalia and syringe possession laws, Maine did little to clarify the legitimate medical purpose for increasing access to sterile syringes and did not provide continuing education for pharmacists concerning prevention of blood-borne disease. Both appeared necessary to achieve maximum results.

Connecticut changed its pharmacy laws more than a decade ago allowing pharmacy sales of sterile syringes. Two years after the change, a survey of pharmacy managers in Connecticut indicated that while most pharmacies implemented policies permitting the sale of syringes without prescription, only 31 percent of pharmacy managers, who were
allowed to sell syringes in all instances, and 18 percent, who could sell syringes at their discretion, were very willing to sell syringes to injection drug users. Two issues affected these pharmacists’ decisions: risk of discarded contaminated syringes around their pharmacies and in the community coupled with reluctance to deal with injection drug users.

Despite this initial reluctance, Connecticut’s law has become a success. The percentage of injection drug users who reported sharing syringes dropped by 40 percent, the number of intravenous drug users purchasing syringes in pharmacies increased from 19 percent to 78 percent, and fewer injection drug users reported buying syringes on the street. In addition, accidental needle sticks to police officers dropped 66 percent after the law was enacted.24

**Summary**

Increasing access to sterile syringes through pharmacy sales could go a long way to reducing the transmission of HIV/AIDS and Hepatitis C. Public health would improve and public health cost savings would be significant.

Increasing access to sterile syringes through needle exchanges has improved public health and reduced healthcare costs wherever they have been implemented. If a needle exchange "avoids" one new case of HIV, it returns $16.00 in public healthcare cost savings for every $1 spent. New HIV infections in New Jersey are projected to grow from 1,500 to 1,800 annually over the next few years. If each infection requires $227,000 ($149,000, in present value) in treatment cost, the total increase in HIV/AIDS costs could exceed $400 million per year. If 40 percent of these cases are related to injection drug use, $160 million in treatment costs might be avoided if every injection drug user could use a sterile syringe for every injection.
Section 6: Costs and Benefits of Increased Syringe Access


7 Sydney Morning Herald, Australia: Needle Schemes Stop Thousands of HIV Cases. 10.23.02; Paola Tataro


10 Ibid.


12 Keyl, Penelope M.; Gruskine, Leslie; Casano, Kate; Montag, Helen; Junge, Benjamin; Vlahov, David. "Community support for needle exchange programs and pharmacy sale of syringes: A household survey in Baltimore, Maryland" Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology, 1998. 18(Suppl 1): S82-S88.

Section 6: Costs and Benefits of Increased Syringe Access

...