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**AUTHOR(S):** D.S. BURKE, J.F. BRUNDAGE, W. BERNIER, L. I GARDNER, R.R. REDFIELD

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**ADDRESS:** Ft Detrick, Frederick, MD 21701-5012

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**ABSTRACT:** (Continue on reverse if necessary and identify by block number)
Demography of HIV infections among civilian applicants for military service in four counties in New York City*

DONALD S. BURKE, MD; JOHN F. BRUNDAGE, MD; WILLIAM BERNIER, MD; LYTT I. GARDNER, PHD; ROBERT R. REDFIELD, MD; JEFFREY GUNZENHAUSER, MD; JAMES VOSKOVITCH, MD; JOHN R. HERBOLD, DVM

ABSTRACT. During the period October 1, 1985-July 31, 1986, blood samples from 9,498 civilian applicants for military service from four New York City counties (New York, Kings, Queens, and Bronx) were tested for antibodies to the human immunodeficiency virus (HIV). Ninety-seven (1.03%) specimens were positive as confirmed by Western blot. Antibody prevalence was strongly associated with age. Among recruit applicants who were less than 18, 18-21, 22-25, and greater than 25 years old, HIV seroprevalence rates were 0.23%, 0.31%, 1.30%, and 2.95%, respectively. Among applicants of different racial groups, the rates of seroprevalence were as follows: whites, 19/2,553, 0.74%; blacks, 58/4,869, 1.16%; and others including Hispanic, 22/2,076, 1.06%. Rates among male applicants (84/7,838, 1.08%) and female applicants (13/1,560, 0.83%) were not significantly different (p = 0.45).

(PATIENTS AND METHODS

Beginning October 1, 1985, serum specimens from 9,498 civilian applicants were tested for antibodies to HIV. Data for the ten-month period October 1, 1985-July 31, 1986. Data were tested for statistical significance using chi-square analysis for contingency tables.

RESULTS

Seroprevalence rates among military applicants for service in the counties of New York, Kings, Queens, and Bronx are presented by county in Table I. Overall, 97 of 9,498 applicants were HIV seropositive (1.03/1,000). Rates by county ranged from 4.2/1,000 (10/2,400) in Queens to 17.1/1,000 (24/1,404) in Manhattan.

<table>
<thead>
<tr>
<th>County</th>
<th>No. Positive</th>
<th>No. Tested</th>
<th>(Rate per 1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>24</td>
<td>1,404</td>
<td>17.1*</td>
</tr>
<tr>
<td>Kings</td>
<td>36</td>
<td>3,382</td>
<td>10.6</td>
</tr>
<tr>
<td>Queens</td>
<td>10</td>
<td>2,400</td>
<td>4.2</td>
</tr>
<tr>
<td>Bronx</td>
<td>27</td>
<td>2,312</td>
<td>11.7</td>
</tr>
<tr>
<td>Totals</td>
<td>97</td>
<td>9,498</td>
<td>10.3</td>
</tr>
</tbody>
</table>

* HIV seropositive as determined by Western blot.
* Rate HIV Western blot positive per 1,000 tested.

From the Walter Reed Army Institute of Research (Drs Burke, Brundage, Gardner, Redfield, and Gunzenhauser), the US Army Medical Research Institute of Defense, Washington, DC 20307-5100. Requests for reprints should be addressed to Col Donald S. Burke, Department of Virus Diseases, Walter Reed Army Institute of Research, Washington, DC 20307-5100.

This article is based on a presentation at the "Symposium on the Heterosexual Transmission of AIDS," sponsored by the Department of Epidemiology and Social Medicine, Montefiore Medical Center and Albert Einstein College of Medicine, and held October 21, 1986, at the New York Academy of Medicine.
The probable mode of infection for each HIV-infected individual was analyzed according to age or racial groups, with rates generally similar among each racial group: white males, prevalence among young adults. Risk of infection is not uniform, and there were substantial differences in seroprevalence among male applicants (84/7,938, 10.6/1,000) compared to female applicants (4/333: 12.0/1.000). Male and female seroprevalence rates were generally similar among each racial group: white males, 11/389, 0.9/1,000; black males, 6/2,048, 0.3/1,000; females, 2/255, 0.8/1,000; and others, 4/1,015, 0.4/1,000.

When analyzed by age, male and female HIV seroprevalence rates were generally similar across specified age groups. However, young adults (18-25 years old) had seropositivity rates that were four to ten times greater in these four counties than in the rest of the United States. The overall seroprevalence rate among recruit applicants in the United States was 1.5/1,000. Seroprevalence rates among applicants from the New York City area were substantially higher than rates throughout the rest of the country.

For the current report, we analyzed data on HIV seroprevalence among military recruit applicants from four contiguous counties in New York City which had unusually high HIV infection rates. These four counties, more than 1% of all applicants had serologic evidence of HIV infection. As noted for the US at large, seropositivity was closely associated with increasing age. However, rates for any specified age group were four to ten times greater in these four counties than in the rest of the United States.

In this analysis, we did not detect substantial differences in HIV seroprevalence rates between different racial groups. This finding differs from that for the nation at large, where black applicants have a 3.6-fold higher rate and applicants of other racial groups a 1.5-fold higher rate than white applicants (D.S. Burke, J.F. Brundage, W. Bernier, et al, unpublished data, 1987).

The seroprevalence rates among men and women in these four counties were surprisingly similar, suggesting that infection is occurring in the male and female populations at comparable rates. This observed sex ratio of close to 1:1 differs substantially from the ratio of 13:1 reported for AIDS cases. When the male-to-female infection ratio was analyzed according to age or racial groups, rates were comparable in all subcategories except for applicants over the age of 23 years, for which the male-to-female ratio was 2.7:1.

We interpret these data to show that in the four counties in central New York City, HIV infections are highly prevalent among young adults. Risk of infection is not confined to any racial group and is not appreciably greater for men than for women, at least under age 26. Data on the probable mode of infection for each HIV-infected recruit applicant is not currently available. Although exposure through intravenous drug abuse cannot be ruled out.

### Table II. HIV Seroprevalence Rates Among Military Recruit Applicants in New York, Kings, Queens, and Bronx Counties, by Age, Sex, and Racial Group, October 1, 1985–July 31, 1986

<table>
<thead>
<tr>
<th>Age (yr)</th>
<th>M F</th>
<th>M F</th>
<th>M F</th>
<th>M F</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18</td>
<td>0/115*</td>
<td>0/6</td>
<td>0/124</td>
<td>1/41</td>
</tr>
<tr>
<td>18-21</td>
<td>3/1,328</td>
<td>0/104</td>
<td>6/2,048</td>
<td>3/582</td>
</tr>
<tr>
<td>22-25</td>
<td>3/495</td>
<td>2/57</td>
<td>15/896</td>
<td>2/255</td>
</tr>
<tr>
<td>≥25</td>
<td>11/389</td>
<td>0/59</td>
<td>25/700</td>
<td>4/223</td>
</tr>
<tr>
<td>Totals</td>
<td>17/2,327</td>
<td>2/226</td>
<td>46/3,768</td>
<td>10/1,101</td>
</tr>
</tbody>
</table>

Data gathered from comparable in all subcategories except for applicants over specified age group were four to ten times greater in these four counties than in the rest of the United States. For any specified age group were four to ten times greater in these four counties than in the rest of the United States.
the high rates of infection observed among women suggest that heterosexual relations may be a significant mode of transmission in urban centers in the United States. Young persons who apply for entry into the military may not be representative of the population at large. Nonetheless, these data suggest the possibility of a substantial change in the epidemiology of AIDS in the New York area within the next five to ten years.

REFERENCES