

PORTRAIT OF THE HIV/AIDS EPIDEMIC IN WASHINGTON, D.C.
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Objectives: To assess the size and dynamics of an urban HIV/AIDS epidemic.

Methods: The District of Columbia (DC) is the urban center of the Washington, DC metropolitan area (pop. 4 mill.). Of 607,000 DC residents, 2/3 are black and 1/3 are 20-64 y/o. We used therapy-adjusted backcalculation from AIDS cases, adjusted for reporting delays and under-reporting and linked to HIV infection through the incubation distribution, to determine the probable number of HIV-infected persons by exposure group, race, and calendar year of infection. Estimates were compared with data from recent serosurveys in DC.

Results: By 1/1/1991, DC had had 3520 AIDS cases. We estimate that 12,000 residents had ever been HIV-infected (plausible range 10,000-23,000). The range is broad because of random variation, uncertainty about the natural HIV-AIDS incubation distribution and the impact of therapy. By exposure group, 5,500 were homosexual (HS) men, 4,200 were intravenous drug users (IDU), 500 were both, and 1,200 were heterosexual. There were two HIV epidemic waves: the first, in HS men, peaked in 1982-84, with relatively few infections after 1985; the second, in IDU and heterosexuals, began in the mid-1980s. We estimate that among DC residents 20-64 y/o, HIV prevalence as of 1991 was 4.9% in black males, 2.9% in white males, 1.6% in black females and 0.3% in white females. These estimates are consistent with survey data from applicants for military service, child-bearing women, persons in drug treatment programs, and patients admitted for non-HIV-related conditions to a sentinel hospital.

Conclusions: National AIDS trends may be stabilizing but the DC experience suggests that AIDS will continue to increase in urban core populations.

UPDATE ON THE INTERNATIONAL REGISTRY OF HIV-EXPOSED TWINS. Goedert J¹, Dullage AM², Felton S³, Biggar RJ¹, Ves NCI, Genentech, So. San Francisco, RTI, Washington.

Objectives: To update our previous report on twins, with emphasis on genetic and intrapartum factors.

Methods: 50 investigators in 11 countries contributed demographic, clinical and epidemiological data on 147 sets of twins and 2 sets of triplets. Data were analyzed by McNemar's test for matched pairs and Kaplan-Meier survival curves with a log-rank test.

Results: In 92 sets that could be assessed for HIV infection, neither twin was infected in 49 sets, both were infected in 13 (14%), only the 1st-born in 23 (25%) and only the 2nd-born in 7 (8%, p=0.006). By mode of delivery:

	Both vaginal	Both cesarean	Total
1st-born	20/46 (43%)	13/37 (35%)	36/92 (39%)
2nd-born	11/46 (24%)	6/37 (16%)	20/92 (22%)

HIV infection concordance was higher monozygotic ($\kappa=0.58$) than dizygotic ($\kappa=0.15$) sets. With both twins infected, CDC stage was discordant in only 2/13 sets, both of which were dizygotic. Among all 56 infected twins, actuarial estimate of AIDS incidence (median age at diagnosis) was very high and similar for 1st-borns (43 mos.) and 2nd-borns (34 mos., p=0.97).

Conclusion: Twins Registry data continue to show lower concordance in HIV-1 infection among dizygotic twins and a higher risk for 1st-born than 2nd-born twins, apparently by proximity to the birth canal. Possibly beneficial non-invasive (e.g., cleansing the birth canal, suctioning of mouth and nose) procedures should be carefully evaluated. The progression of HIV disease is similar in 1st-born and 2nd born twins.

DIFFERENCES BETWEEN HIV1 AND HIV2 DYNAMICS IN FEMALE SEX WORKERS IN SENEGAL

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Objective: We have followed registered female prostitutes in urban centers in Senegal and the measurement of HIV2 and HIV1 incidence allows a better understanding of HIV population dynamics

Methods: Sequential serum samples from prostitutes were obtained for a semi annual retrovirus examination (HIV1, HIV2, HTLV). HIV serodiagnosis was performed with immunoblot, RIPA, recombinant env peptides of HIV1 and HIV2. All seroconversions were verified on standardized antigen.

Results: The cumulative seroprevalence in Dakar prostitutes was 9.9% for HIV2, 3.4% for HIV1 and 0.5% for HIV1/2. We determined the annual incidence for HIV2 to be 10.7 per 1000 per year. The incidence rate was found to be similar over the 5 year period with a constant rate over the 5 year period predicting a doubling time of 11 years. Incidence of HIV1 in this population was 8.1 per 1000 per year; a five-fold increase over the last 2 year period indicate a doubling time of less than 5 years.

Conclusion: Despite higher prevalence of HIV2, the incidence measurement indicates a lower rate of new infections with HIV2 than with HIV1.

HIV-1, NOT HIV-2, IS PREVALENT IN NIGERIA

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Between 1987 and 1991, Nigeria experienced a steep rise in HIV seroprevalence. To investigate the pattern of emerging HIV infections there, we examined sera by ELISA and Western blot in the ICSC World Lab we had set up in Jos, Nigeria. Of the 83 sera from 6 AIDS patients, 4 prostitutes, 17 individuals with sexually transmitted diseases and 56 HIV positively screened blood donors, 62% were HIV-1 seropositive. Only 1 sample was HIV-2 positive. Thus unlike other West African countries, HIV-1, not HIV-2 is prevalent in Nigeria. Travel between Nigeria and HIV-1 prevalent parts of Central and East Africa is near impossible. Therefore the easier and frequent travel to the West may be responsible for the recent spread of HIV-1 in Nigeria. Seventeen of the 25 (68%) HIV-1 positive sera were able to neutralize the infectivity of a chimeric HIV-1 virus possessing the V3 loop of the MN isolate, indicating recognition of the prototype US and European viral strain. On-going isolation and molecular characterization of Nigerian HIV-1 isolates will confirm their origin and contribute to the development of globally effective vaccine(s).