

Tabulating the numbing numbers . . .

In what has become a ritual at annual AIDS meetings, U.S. epidemiologists last week presented their latest disease progression data from the nation's few, large, closely followed samples of men infected with the AIDS-causing virus, HIV. The longest-running of these studies, conducted by the San Francisco Department of Public Health, has traced the fates of 6,697 homosexual and bisexual men. As of last month, of the men known to have become infected 10 to 11 years ago, just over half had died of AIDS-related illnesses.

Of men who became infected between 1980 and 1982 — by far the most common years for this group to become infected — 33 percent have succumbed to the disease, 41 percent show some symptoms of AIDS, and 26 percent remain asymptomatic.

. . . and applying them to public policy

AIDS epidemiologic studies have as their mission more than a simple tally of deaths. By documenting specific physiological changes in HIV-infected individuals as they progress to AIDS, the studies can help reveal the telltale signs of decline. Researchers want to use that information to decide when to start prophylactic drugs — some of which are too toxic or too expensive to take before they're really needed but may be ineffective if given too late.

Marking one of the first practical applications of such data, U.S. Assistant Secretary for Health James O. Mason last week announced new federal recommendations stating that some asymptomatic, HIV-infected people should not wait until they have symptoms of *Pneumocystis carinii* pneumonia before beginning treatment with aerosolized pentamidine — a drug that helps prevent the disease. *P. carinii* is the major cause of death among people with AIDS.

The Centers for Disease Control in Atlanta will publish the new recommendations within the next few weeks, Mason says. The policy will apply to HIV-infected people having fewer than 200 CD4 cells (a kind of white blood cell) per cubic millimeter of blood. Studies indicate that *P. carinii* pneumonia is often preceded by low CD4 counts and that early administration of pentamidine, given as an aerosol inhalant, can delay its onset for years.

Aerosolized pentamidine has been widely available since February through a special federal program that offers promising new drugs to patients with proven needs. Without the federal endorsement that now appears imminent, however, insurers have not been obligated to pay for the drug.

How the government or insurers will foot the bill, however, remains unclear. Monthly doses of pentamidine cost more than \$100; CD4 tests can cost even more. Tens of thousands of individuals may be eligible for the drug.

Soviet describes AIDS errors

It didn't make sense. Of 17 million men screened in the Soviet Union as of 1988, only five had antibodies indicating HIV infection. Of 4 million women, only eight tested positive. So officials were surprised in December 1988 to learn of two positive tests in the small city of Elista near the Caspian Sea, where no AIDS cases had ever been seen.

What followed was the discovery of a public health debacle that left at least 84 children and seven nursing mothers infected with HIV, and disturbing new evidence that the AIDS virus can pass from baby to mother during breast feeding.

Vadim V. Pokrovsky of the Central Institute of Epidemiology in Moscow now reveals details of the Elista tragedy, which first drew official attention when an ill baby tested positive for HIV and an unrelated adult woman tested positive after donating blood. Investigators found that the woman and child had previously had overlapping stays in the same local hospital.

Testing of other children and adults hospitalized during that same period revealed HIV infections in 61 children and seven mothers. Of 5,000 hospital staff and family contacts tested, only one infected woman's husband tested positive.

From there, medical investigators pieced together the story: The man had become infected years earlier while in Africa, then infected his wife, who bore an HIV-infected baby. Not knowing of the baby's infection, hospital workers caring for the infant "made a lot of mistakes in their work," says Pokrovsky. They repeatedly failed to sterilize a syringe, spreading the infection to other babies — some of whom were later transferred to another hospital, where the same practice resulted in two further outbreaks infecting 23 more infants.

Moreover, some of the babies developed bleeding oral sores that apparently allowed spread of the virus to seven mothers through small fissures in their breasts during breast feeding. The mothers, now HIV positive, had no other known risk factors for AIDS. All told, the outbreak went on for more than eight months. One child has died, and three children have AIDS. "This showed us there are no 'risk groups' for AIDS," warns Pokrovsky. "All human beings are at risk of this infection."

A police investigation is underway, he adds. And the Elista hospital chief "is now unemployed."

Nowhere to run, nowhere to hide

Doctors who performed an intense experimental treatment on a 41-year-old man with AIDS and cancer say they appear to have completely eliminated the AIDS virus from the patient. The man died seven weeks later from a recurrence of his aggressive cancer, but tests after the treatment and following his death — including viral assays using the extremely sensitive polymerase chain reaction — detected no evidence of HIV in the man's blood or in any of his organs.

Rein Saral, Albert D. Donnenberg and their colleagues at the Johns Hopkins Oncology Center in Baltimore exposed the patient to high-dose, total-body irradiation and chemotherapy, killing every kind of blood- and bone-marrow-derived cell known to harbor HIV. They then provided a bone marrow transplant from a compatible sibling. Before and after the transplant, they gave the patient the HIV-killing drug zidovudine to keep residual viruses in dying cells from infecting the new marrow. During the last two weeks of the patient's life, and in all postmortem tests, the researchers found no evidence of HIV.

They plan to repeat the procedure on volunteers with both AIDS and cancer.

And a few short takes

- A multicenter European study coordinated by the World Health Organization finds that female-to-male sexual transmission of HIV is enhanced during menstruation, perhaps via virus in menstrual blood cells.

- Patricia Fultz of the Yerkes Regional Primate Research Center in Atlanta reports preliminary evidence that HIV-infected chimpanzees may be developing AIDS four to six years after inoculation. If confirmed, this would be the first naturally occurring, nonhuman animal to get HIV-induced AIDS.

- Researchers at Johns Hopkins University in Baltimore find that few emergency room personnel at the university's hospital use AIDS-protecting gowns, gloves and masks despite a known HIV infection rate of 6 to 18 percent in emergency patients. They also wonder if the \$500,000 Hopkins spent to improve availability of these protections is worthwhile when 80 percent of HIV infections in health workers result from inadvertent needle sticks rather than skin exposure.