



Notes and Quotes

Contaminated needles and the spread of HIV in Africa

By comparing the prevalence of the hepatitis C virus (HCV) and HIV in countries around the world, evolutionary biologists at the University of Oxford have concluded that unsafe medical practices are not a major source of HIV infection in sub-Saharan Africa (*Nature* 2003, **422**: 679). The finding refutes controversial claims, made earlier this year, that contaminated needles and medical equipment play a larger role than unsafe sex in the spread of HIV in Africa.

Both HIV and HCV are blood-borne pathogens. Most experts assume that at least 90% of HIV infections south of the Sahara result from sexual transmission between men and women. The medical re-use of needles and syringes is thought to account for another 5%. Conversely, scientists think that HCV is spread almost exclusively by direct contact with blood. In developing countries, non-sterile medical instruments and contaminated blood products are largely to blame for spreading the liver-destroying virus.

Several weeks before the Oxford study, researchers led by Pennsylvania-based consultant David Gisselquist created a stir when they suggested that unsafe medical practices, not unsafe sex, were driving the HIV epidemic in Africa (*Intl J of STD and AIDS* 2003, **14**: 144–173). Using data culled from two decades worth of studies, the researchers estimated that sexual trans-

mission causes only 30% of the HIV infections in Africa and that early in the epidemic 48% of new HIV infections resulted from unsafe injections. They noted that the “transmission of blood-borne pathogens... notably hepatitis B and C, should be consistent with parenteral transmission of HIV.”

However, the team led by Edward Holmes at Oxford University found little resemblance between the dynamics of the HIV and HCV epidemics in Africa. By plotting data from 123 countries that track the prevalence of HCV and HIV in the general population, the researchers showed that sub-Saharan countries had disproportionately more HIV than HCV than would be expected if the viruses were transmitted in the same way.

The differences were even more dramatic when the scientists plotted the increase in the number of HIV and HCV infections in South Africa since 1990. The prevalence of HIV and HCV did not rise in tandem. Instead, the proportion of South African adults infected with HCV hovered around 1–2%, while HIV infection catapulted to 25% of the adult population.

“Those two epidemics should mirror each other if unsafe injections are causing the problem,” says Holmes. “That’s clearly not what we see. HCV is completely decoupled from the spread of HIV in South Africa.”

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