

Rich and Poor Theories of HIV Transmission **Dr. Stephen F. Minkin**

Chinua Achebe, the Nigerian novelist, made this bitter observation about Dr Albert Schweitzer in an essay entitled "*An Image of Africa*":

Schweitzer says: "The African is indeed my brother, but my junior brother." And so he proceeded to build a hospital reminiscent to the needs of junior brothers with standards of hygiene reminiscent of medical practice in the days before the germ theory of disease came into being. (1)

When it comes to international efforts supporting AIDS prevention, Africans are often still seen as junior brothers and sisters for whom the germ theory of disease only applies to their sexual organs.

The United States and Western Europe has been most successful in fighting AIDS by preventing the spread of HIV infection at hospitals and clinics. We invested heavily in universal precautions, reduced the use of transfusions and screened all blood and blood products for HIV. In contrast many countries are advised to skip this step and go directly to sex education and condoms. These too are valuable tools but it is hard for me to understand how AIDS prevention will be effective without investing in harm reduction in the provision of medical services. HIV is a germ carried by blood and lymph as well as semen. This is as true in Africa as it is in Europe and North America. Effective HIV prevention must include harm reduction within all areas of the health sector.

What are we to make of the fact that World Bank and UN personal are advised to bring their own disposable syringes in areas with high prevalence of HIV but clean syringes are not a priority for the World Bank and UNAIDS prevention. Does this not stink of the junior brother and junior sister mentality? To what extent do such attitudes perpetuate a relativist germ theory of disease and thereby reducing the effectiveness of AIDS prevention and distorting the research agenda?

Imagine AIDS in the United States or Europe if we had ignored the potential for hospitals and clinics to become centres of HIV infection. Suppose we highlighted condoms and sex education but were haphazard in the application of universal precautions and blood screening. Suppose our hospitals and clinics played viral roulette by sometimes using sterile equipment but often reusing unsterile syringes needles, catheters, specula and other invasive equipment over and over again. Under these circumstances AIDS in the US and Africa would look more similar. The rich countries would have an overwhelming health problem, with large numbers of women and children dying from AIDS.

Many people in developing countries face the daunting task of preventing AIDS without any certainty that the doors to the medical transmission of HIV have been closed. Data on injections, obstetrics including abortions and other nosocomial routes of transmission are remarkably absent given the huge number of invasive procedures in areas with high prevalence of HIV.

After two decades we still have much to learn about HIV transmission and prevention. In 1999 a large prospective study in Africa on the relationship between STDs and HIV was conducted. The results, in Rakai, Uganda, were not as expected. The overwhelming majority of " HIV seroconversion occurred without recognised STD symptoms or curable STD detected by screening." ⁽²⁾ The Uganda research follows earlier studies showing that many or most HIV-positive women at outpatient maternity clinics had no previous history of sexually transmitted diseases. Such findings run contrary to the viewpoint that promiscuity alone account for the fact that Africans are so vulnerable to HIV/AIDS.

Surely, AIDS is sexually transmitted in many parts of Africa, but as in the United States and Europe there is much more to the story than sex alone. The incidence of blood borne HIV is greater countries where women start childbirth early and have closely spaced pregnancies. Demand for blood to treat obstetric emergencies and pregnancy-related anaemias are a vexing problem where the prevalence of HIV among blood donors makes safe blood a scarce and rare commodity.

Pregnancy-related anaemia is most serious in areas with endemic and epidemic malaria. Likewise prevalence of severe paediatric anaemia requiring blood transfusions, particularly in malaria-endemic regions has markedly increased along with AIDS. Women of childbearing age, infants and young children are most vulnerable to the devastation of malaria compounded by poor diet and the numerous stresses caused by poverty.

In developing countries women and young children are most vulnerable to medically transmitted HIV infections. Women of reproductive age get more injections and invasive examinations than other demographic groups. Usually they start childbirth earlier and have more children than women in the West. They need more life-saving transfusions for childbirth complications and for pregnancy-related anaemia. They are also placed at risk because of medically questionable injections and transfusions. A vexing problem is to ensure that they get blood when they need it without exposing them to HIV, Hepatitis B or C, and other diseases. This will require investments in training, salaries and equipment.

In the US and Europe the greatest risk of HIV infection for heterosexuals is among people using unsterile needles or women whose sex partners use unsterile needles. In the US people infected by needles are called "junkies" or IV drug users. In other parts of the world they are often called patients. The October 1999 World Health Organisation Bulletin reported that over 50 percent of injections were unsafe in African countries for which data was available.

UNAIDS estimates that 5-10 percent of global HIV infection burden is directly related to blood. That means millions of infections are at issue. Even if we accept these minimal figures, their significance for AIDS prevention in developing countries is much greater. Investing in AIDS without plugging this hole is like pouring water in a bottomless bucket. Without safe health care, much of the future spending on AIDS will be both ethically dubious and ineffective.

For centuries the West has exploited Africa's human and vast natural resources. Europe and the United States have most often been behind much of the violence and war that have plagued and

ruined much of Africa. It is now time to make things right. One important step is to support an alliance ensuring that no woman, man or child is infected by HIV when seeking health care.

Here is part of a message I received recently from a friend working in Uganda:

"The one unfinished research item on the HIV transmission occurs in places such as Mulago Hospital where 70 deliveries are done daily, sometimes without access to running water and without rubber gloves for the midwives. Mulago is the best and then when you think of rural hospitals and how much blood is associated with deliveries and what proportion of the women are HIV positive..."

Such issues have not been popular within the international AIDS community. I personally do not understand the global double standard. Are white people more vulnerable than brown and black people to HIV infections from blood or unsterile medical procedures?

While millions of dollars have been invested in academic studies on sex risk factors, how many studies or interventions have focused on viral loads in needles, syringes, scalpels and speculum, catheters, IV drips and multiple dose vaccines and medicine vials. We need to rule out these potential sources of HIV transmission. There is no literature on invasive medical procedures and the risk of HIV transmission in areas with high prevalence of HIV. The absence of studies does not mean that there is no problem of HIV transmission in health centres but suggests that Chinua Achebe comments are still very relevant today.

Where are the case studies of injection practices and HIV in formal and non-formal healthcare settings? What about risks associated with births and abortions in hospitals? Has anyone looked at cases of postpartum HIV to search for the sources of infections? Who has looked at surgical patients and post-operative rates of seroconversion? What about the use of specula as potential sources of HIV infection, but also as a way of transmitting genital ulcers? Has anyone clearly ruled out phlebotomy as a means of transmitting HIV? It is remarkable how little we know about these potential routes of transmission nearly twenty years after the modern AIDS pandemic entered Africa.

The myth that HIV is a fragile virus is simply not true. The virus can remain viable and infectious in both wet and dry states for many days:

" Solutions of HIV were analysed for the presence of infectious particles and reverse transcriptase activity after exposure to different temperatures over a three -week period. Competent HIV was no longer detectable after three to five hours at 5 °C, after 11 days at 37°C and was barely detectable after 15 days at room temperature (20° to23°C). HIV solutions that were allowed to dry at room temperature yielded infectious particles upon reconstitution between three and seven days after the initial drying.(3)

That doesn't seem fragile to me. What I find so astounding is that most of this work was done so early in the epidemic and yet the myth persists that the virus is fragile. Next come hospital practices

that increase the infectivity of medical equipment for example the all too common practice of soaking batches of syringes in weak disinfectant solutions. We know from the work on IV drug users that this is an excellent way to cross contaminate syringes. (4)

Hospital infections are a problem in both rich and poor countries. In the United States tens of thousands of nosocomial infections occur every years despite substantial resources for infection control. In Bangladesh I learned that Dhaka Medical College has the same problem as Maulgo. 15-20 caesarean sections are performed nightly and 25-30 vaginal births. There is no soap, running water, and gloves. A senior nurse said to me the delivery rooms are "filthy" but " to our surprise Bangladeshi women do no get infections " How can poor people not get infected in an atmosphere of blood, and filth fuelled by the overuse of caesarean sections? The real message is a political one: Let the rich soak up the medical resources, and don't worry about neglecting the poor because they are not subject to the same germ theory of disease.

I have no doubt that many hospitals in areas with high HIV prevalence have excellent infection control. But at this point in the AIDS Pandemic we need to know how many do not, and why.

It is the responsibility of every government and every health facility to ensure that no child, or adult is every infected by HIV during medical treatment. It is most important to able to document the steps taken every day to meet this target along with the obstacles standing in the way of ensuring the application of universal precautions.

When I read in newspapers that billions of dollars are needed to fight AIDS, I applauded. But then I asked, " how will the money be spent"? What proportion will actually go to improving the quality of healthcare where it is needed and what will be spent in Europe and the United States in the name of fighting AIDS. One thing I am certain is that billion of dollars worth of investments in condoms and sex education alone will not solve the problem. Certainly HIV is a sexually transmitted disease and in this respect women are most vulnerable. But HIV is also much more than a sexually transmitted disease. Again it is women who are exposed to the greatest risks of medically transmitted infections.

References:

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- 3 McGrath M.S. " **HIV stability and Methods for Inactivation**" in P.T. Cohen et al Eds. AIDS Knowledge Base 1990 p 3.1.4-1. See also Resnick L. et al "Stability and inactivation of HTLV111/LAV under clinical and laboratory environments JAMA 225, (14), 1986

4 Koester S et al " **The risk of HIV transmission among IV drug users.** Int. J. Drug Policy 1, (6) 2830, 1991