This posting contains the executive summary of a new white paper from Physicians for Human Rights, on the transmission of HIV in Africa through unsafe medical care, including unsafe injections and blood transfusions. The paper concludes that AIDS prevention efforts need to take into account significant evidence that transmission through unsafe medical care has been significantly underestimated, and urgently recommends increased investment in adequately protecting blood supplies, preventing re-use of needles for injections, and taking other health care precautions that are considered standard in developed countries.

While acknowledging that there is much legitimate debate over precisely how much transmission occurs through these means, the paper notes that even according to minimum estimates from the World Health Organization, the HIV virus is transmitted to as many as half a million people a year in developing countries through these mechanisms rather than through sex. While critics say that focus on these figures could divert attention from necessary prevention measures aimed at safe sex, the PHR paper argues for increased resources for safe medical care without reducing resources for the safe-sex message.

The paper notes the double standard implicit in the denial of basic principles of safe health care for developing countries. Among the examples it cites is a recent finding in Bas Congo Province in the DRC that only 42% of the blood that was transfused in the province was screened for HIV. The study cited estimated that in this one province of about 3.3 million people, blood transfusions alone led to approximately 888 HIV infections in the first nine months of 2001. In the first decade of the HIV pandemic, developed countries stepped up medical care precautions, including blood screening, reducing transmission through these means. Such measures, however, have never been implemented systematically in many African and Asian countries, while the medical establishment has downplayed the problem.

Other resources on this topic include recent congressional hearings, a new article in the March 2003 issue of the International Journal of STD & AIDS, and an earlier posting on the same subject in the E-Journal last October.

Congressional Hearings on Transmission of Global AIDS in Africa, March 27, 2003
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Let it be sexual: how health care transmission of AIDS in Africa was ignored, by David Gisselquist PhD1, John J Potterat BA2,
HIV Transmission in the Medical Setting:
A White Paper by Physicians for Human Rights

Full text (including footnotes) available at:

Executive Summary

Even as prevention programs aimed at sexual transmission require greater funding, the high risk of HIV transmission in health care settings requires immediate and sustained attention from national and multilateral organizations involved in HIV/AIDS prevention activities. Every year, because of violations of core aspects of the right to health, at least half a million people - and possibly many more - contract HIV through unsafe medical injections(1) and blood transfusions(2). Throughout the developing world, health care providers, health facility staff, patients, and the community at large are placed at risk of contracting HIV because of a lack of supplies, poor training, poor awareness about the danger of unsafe injections, and lack of incentive to observe good practices.

A foundational principle of medical ethics is that physicians must "first, do no harm." A central tenet of the right to health is that health care must be safe. People in every country, rich and poor, have the right to a health system that improves people's health, not one that creates grave risks to health. Yet unsafe medical injections and unsafe blood transfusions contribute significantly to the greatest health crisis of our time, the HIV/AIDS pandemic. Inadequate efforts by donors, multilateral organizations, and the governments of impoverished countries themselves to ensure safe health care for people in poor countries suggest a tacit, widespread acceptance of a two-tiered health system: health care must observe the highest standards in wealthy countries, but not necessarily in poorer countries. Under human rights law, health care must be safe in every country. Until the discriminatory perception ends, unsafe medical injections and unsafe blood transfusions will continue to contribute considerably to the HIV/AIDS pandemic, as well as to the spread of other bloodborne pathogens such as the hepatitis B and hepatitis C viruses.

 Discrimination against people living with HIV/AIDS is also fueling the pandemic. The widespread inability of health care providers in developing countries to implement universal precautions necessary for them to protect themselves from contracting HIV from their patients contributes to that discrimination. Without proper training or adequate supplies, health care providers' often reasonable fears for their own safety frequently have devastating consequences. The fears can lead health care providers to refuse to
Unsafe medical injections
Unsafe medical injections are probably the most significant route of HIV transmission in the medical setting(7). Medical injections are procedures that pierce the skin and introduce a substance into the patient for curative or preventative medical purposes, including immunizations. The infections they cause each year will lead to more than a million deaths from hepatitis B, hepatitis C, and HIV/AIDS(8). Injections are unsafe when syringes are re-used without being sterilized properly or at all. When a syringe is used on an HIV-positive patient, that syringe can be contaminated with HIV-infected blood, which can then be passed on to the next person if re-used. The danger is especially great because of the extensive, often unnecessary and irrational use of injections in developing countries. Studies have estimated that as many as 70-90% of injections in developing countries are unnecessary(9). Re-use of injection equipment is especially high in Asia and sub-Saharan Africa, where syringes may be re-used as frequently as 50% or more of the time(10).

According to a very recent model, unsafe injections cause 260,000 HIV infections globally every year(11). This number may be understated since it is based on a lower proportion of unsafe injections in Africa than probably exists(12); it uses an arguably low estimate of the efficiency of HIV transmission through unsafe injections(13), and; studies from Africa indicate a greater importance of HIV transmission through unsafe injections than the model generates(14). A large study in South Africa found high levels of HIV in children ages 2-14, about 70% of which could not be explained by mother-to-child transmission(15). Low levels of sexual experience for these children suggest that many of these infections may have been caused by unsafe injections and other modes of medical transmission. Several studies have shown significant HIV levels among adults who reported never having any sexual experience, or who reported having had only one sexual partner, who was HIV-negative(16). Also, a data-driven model found that sexual activity can explain only about one-third of the epidemic's growth(17). This suggests that a relatively high proportion of infections may be attributed to unsafe injections and other forms of transmission in the health care setting, including blood transfusions and modes of transmission whose importance is not yet be well understood.

Along with transmitting HIV, unsafe injections are responsible for significant proportions of hepatitis B and C infections. Every year, about 8-20.6 million people become infected with hepatitis B and 2.0-4.7 million with hepatitis C because of unsafe medical injections(18). Of those people infected with hepatitis B and hepatitis C every year through unsafe injections, an estimated 1.2 million will die from these infections(19).

Inexpensive technology exists to make injections safe, in particular single-use and auto-disable syringes. Single-use syringes are meant to be disposed of after one injection. Auto-disable syringes have the added advantage of being automatically altered so that they cannot be re-used. Along with the availability of this equipment, health care providers and the general public need to be educated about the dangers of unsafe injections, as well as about the appropriate use of injections, so as to reduce the number of unnecessary injections. Annual cost
estimates for a global injection safety initiative range from about $300 million to $900 million (20).

The public needs to be encouraged to insist that their health care providers always use a new, sterile needle and syringe. Because syringes will be used only once, the number of syringes disposed of will increase, at least until health care worker training and public education reduces the number of unnecessary injections. This means that safe injection waste management will be particularly important. The potentially hazardous waste must be contained in safety boxes and destroyed to avoid putting health facility staff and community members at unnecessary risk of needlestick injuries and bloodborne infections.

In 1999, the WHO-sponsored Safe Injection Global Network (SIGN) became the central organization in advocating safe injections (21). UNICEF, the U.S. Agency for International Development (USAID), and others have contributed to increased use of auto-disable syringes in immunization and family-planning programs (22). A “bundling” policy for immunizations encourages donors and lenders who finance vaccines to also finance auto-disable syringes and safety boxes for their disposal (23). However, comparable progress in using safe injection equipment has not been made for curative injections, which account for the vast majority of medical injections (24).

Recognizing the important connection between unsafe medical injections and HIV/AIDS would likely accelerate efforts to ensure injection safety for curative injections. At present, most HIV prevention initiatives fail to give adequate attention to the risks of contracting HIV through medical injections. Some countries, though, such as Uganda and Senegal, have included or are beginning to include injection safety as part of their HIV/AIDS strategies (25).

Multi-dose vials

Multi-dose vials also have been implicated in transmitting bloodborne infections, including hepatitis B, hepatitis C, and HIV (26). Multi-dose vials contain multiple doses of an injectable substance, meaning that the health care provider will insert syringes into the vial multiple times. Both the high levels of syringe re-use and the high prevalence levels of HIV increase the possibility that multi-dose vials could be responsible for transmitting HIV when the vials are contaminated with the virus. These risks can be eliminated by replacing multi-dose vials with single-dose vials. Immunization programs that are financed by national governments might be unable to afford single-dose vial use without international assistance.

Sterilization of equipment

Even if syringes are never re-used, some instruments, such as scissors and forceps, will continue to be used on multiple patients. This makes it critical that health care providers are trained in proper sterilization techniques and have the necessary equipment, such as steam sterilizers and time-steam saturation-temperature indicators, to properly sterilize these instruments and verify their sterility.

Blood transfusions
Blood transfusions are another significant mode of HIV transmission in the health care setting. They appear to be responsible for 5-10% of new HIV infections (27). According to WHO's Regional Office for Africa, only about 75% of blood transfused in Africa is screened for HIV, with far lower proportions screened for hepatitis B and hepatitis C (28). As of 2000, most countries in Africa did not have safe blood policies, though WHO and other organizations have been working with countries to help them develop such policies (29).

It is well within the capacity of African nations to implement effective blood transfusion policies. Countries including South Africa, Zimbabwe, Namibia, and Uganda have achieved a safe blood supply (30). Key elements of a safe blood policy include careful selection of voluntary, unpaid blood donors, and health infrastructure that includes blood banks, training for donor recruiters, counselors, blood collectors, laboratory staff, and quality managers, blood test kits and reagents, a robust supply chain, and refrigeration capacity.

The potential for blood transfusions to cause large numbers of HIV infections is apparent from the epidemic in Henan Province, China, where as many as one million or more people became infected through blood selling practices in the 1990s, which involved unsterile blood donation procedures (31). China has included an investment of about $115 million in its five-year plan to build more blood collection stations, though increasing the number of voluntary blood donors is also critical to improving blood safety in China (32). India too has taken measures to improve blood safety, following the identification of transfusions as a significant cause of HIV transmission there (33).

Universal precautions

To protect health care providers, as well as to prevent HIV and other infectious diseases from being transmitted from health care providers to their patients, universal precautions must be implemented. Universal precautions are infection control measures aimed at preventing the transmission of HIV and other pathogens in blood and other body fluids in the health care setting. They include safe injection practices and measures to create physical barriers such as wearing gloves, goggles, and other protective gear. UNAIDS has estimated the cost of implementing universal precautions in all countries with an adult HIV prevalence of more than 1% at about $500-600 million in 2003, rising to about $1.1-1.2 billion by 2007 (34).

The greatest risks for occupational infections appear to come from needlestick injuries (35). One study estimated that the risk of occupational acquisition of HIV for surgeons practicing in Zambia was fifteen times that of their Western colleagues, primarily due to the high HIV prevalence in Zambia. That study found that most injuries to surgeons occurred through needlestick injuries caused by suture needles (36). Replacing sharp suture needles with blunt needles could prevent many injuries caused during suturing (37).

Universal precautions are frequently not followed in both sub-Saharan Africa and much of Asia because of both a shortage of supplies and inadequate training. Dangerous diagnostic equipment,
such as nonretracting finger-stick lancets and glass capillary tubes, is often used in developing countries, in spite of the fact that safe alternatives exist(38).

Healthy health care providers are an absolute necessity for a strong health care system and universal precautions will contribute to protecting their well-being. Many countries, particular in Africa, are facing severe shortages of health professionals and other health care providers. Minimizing reductions in the health care workforce by improving occupational safety through the implementation of universal precautions is an important step in retaining qualified and experienced staff.

Implementing universal precautions will help strengthen health care systems. Many countries, particular in Africa, are facing severe shortages of health professionals and other health care providers. Universal precautions can help save their lives. The potential for a fast, significant impact on the HIV/AIDS pandemic should help convince policymakers to seriously address the risks of HIV transmission in health care settings. It is critical that they act now, for the dangers of unsafe injections and failing to implement universal precautions increase as HIV prevalence increases. The longer countries wait to address these dangers, the greater the amount of HIV transmission in health care settings will occur.

Call to action

The number of people who become infected with HIV through unsafe injections and other medical procedures is a controversial question. While the discussion of the number of people who become infected through these modes is one that should take place, Physicians for Human Rights urges WHO, UNAIDS, national health and HIV/AIDS organizations, donors, and others who are responding to the pandemic to focus their energies not on debating numbers, but on implementing programs and initiating new, life-saving policies without delay. In particular, PHR calls upon the international community to live up to its pledge in the Declaration of Commitment on HIV/AIDS to implement universal precautions in all nations by 2003. PHR further calls upon the international community to endeavor to ensure that all health facilities have safe injection equipment by the end of 2003, given the significance of HIV transmission through unsafe injections and the relative ease with which this problem can be solved(39).
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