

Dispelling Glorious* HIV/AIDS Myths and Misconceptions

As described in Chapters 3 and 4, most of the far out, “flat-earth” type theories of the origin of AIDS and what AIDS is and isn’t, were dismissed by mainstream science and public health by the mid-1980s. However, several “glorious” myths and/or misconceptions about HIV epidemiology continue to be accepted and used by UNAIDS and other mainstream AIDS agencies and activists. These myths are needed to support the UNAIDS paradigm that without aggressive HIV/AIDS prevention programs – especially directed to youth – it is just a matter of time before heterosexual HIV epidemics erupt in current low HIV prevalence populations. The studies and observations described in Chapter 5 on HIV epidemiology and transmission dynamics and the global HIV/AIDS patterns and prevalence described in Chapter 7 have led me to far different conclusions about the potential for epidemic HIV transmission in most heterosexual populations. My conclusions are:

- 1 HIV prevalence can rise only to those levels permitted by the prevailing patterns and prevalence of HIV risk behaviors and the prevalence of facilitating and protective factors and
- 2 in most heterosexual populations, the patterns and frequency of sex partner exchange[†] are not sufficient to sustain epidemic sexual HIV transmission.

UNAIDS and most AIDS activists believe that these conclusions, especially my second conclusion, are not socially and politically correct and will lead to complacency by the public and policy makers regarding the potential course and severity of the AIDS pandemic.

UNAIDS, other mainstream AIDS agencies, and many social activists believe – without epidemiologic support – that the major determinants of high HIV infection rates are poverty, discrimination and lack of access to healthcare. Without aggressive prevention programs directed to the general public, especially youth, they believe that it is only a matter of time before heterosexual HIV epidemics erupt in almost all developing countries where HIV infection rates are currently low. Some mainstream AIDS “experts” assert that there are insufficient data to support my conclusions or paradigm. My response is that there are *no data* to support their concern that HIV can and will spread into general populations or “ordinary” people if aggressive prevention programs directed to the general public, especially youth, are not implemented. In this chapter, I will provide my evaluation of the glorious myths and misconceptions about HIV epidemiology and transmission dynamics used to support and perpetuate the prevailing

* Glorious myths are those used for a good cause, i.e., *splendide mendax* (splendidly or gloriously false).

† Commonly referred to as sexual promiscuity.

UNAIDS paradigm. I will also describe when and why I began to swim upstream against the orthodox beliefs of mainstream AIDS agencies, but first it would be helpful to review what I understand to be the major determinants of epidemic (i.e., $R_0^* > 1$) HIV transmission.

Major Determinants of Epidemic HIV Transmission

I need to stress that my understanding of HIV transmission dynamics is not very different from most mainstream epidemiologists.[†] The problem in accepting my conclusions and paradigm is that most AIDS activists do not want to acknowledge that epidemic HIV transmission requires the highest risk patterns and prevalence of HIV risk behaviors. These activists do not want to further stigmatize persons or population groups (MSM, IDU, FSW, etc.) who have such high levels of HIV risk behaviors and who are already marginalized. First and foremost, we have to be aware that, as described in Chapter 5, all published sex partner studies show the risk of HIV transmission from any single coital act is very low – about 1 per 1000 or less. By contrast, a pandemic influenza virus would be capable of *generalized* spread in any population because virtually all infants, children, and adults, young or old would be at moderate to high risk of infection to such an agent. However, HIV transmission requires the exchange of a significant amount of blood or sexual fluids. Thus, only a small percent of most general populations or “ordinary” persons would be at moderate to high risk of exposure to and infection with HIV.

There is no question among infectious disease epidemiologists that the primary determinants of epidemic ($R_0 > 1$) HIV transmission are risk behaviors that include having unprotected sex with *multiple* and *concurrent* sex partners and/or routinely sharing drug injecting equipment with other IDU. Epidemic HIV transmission has been documented only where the *highest levels* of such risk behaviors are present. Thus, it is only logical to conclude that in the absence of high HIV risk behaviors, epidemic ($R_0 > 1$) transmission will not occur. What has been essentially ignored is the more important and relevant question: what are the major determinants of HIV risk behaviors? Most social activists do not hesitate to say that poverty and discrimination are the root causes of HIV risk behaviors. However, I don't know of a clear and simple answer to this question, since I consider it more likely that cultural, social, religious, and many other factors, including economic factors, all collectively play some role as determinants of sexual and IDU risk behaviors. Because there is no clear answer to what are the major determinants of HIV risk behaviors, many worthy social agendas have been hitched onto the AIDS program wagon. These social issues, such as poverty, discrimination, gender inequity, and lack of access to health-care, are major problems that clearly hinder effective HIV prevention and treatment programs, but they are not the major determinants of epidemic HIV transmission!

* R_0 is the reproductive number of an infectious agent. It is described in detail on page 60, Chapter 5.

† I was the principal author of the HIV/AIDS chapter in the 17th edition (2000) of the Control of Communicable Diseases Manual (CCDM), published by the American Public Health Association (APHA).

Glorious Myths or Misconceptions of HIV Transmission Dynamics

Below are what I consider to be the major myths or misconceptions about HIV epidemiology and transmission dynamics that continue to be used by UNAIDS and mainstream AIDS agencies to support the prevailing socially and politically correct, but epidemiologically incorrect, UNAIDS paradigm: *in the absence of aggressive prevention programs directed to the general population, especially youth, it is only a matter of time before epidemic heterosexual HIV transmission will break out in populations where HIV prevalence is low.*

- **Virtually everyone is at almost equal risk of infection with HIV**

The origin of this glorious myth derives from the initial short doubling times for reported AIDS cases in the early 1980s that led to the false conclusion that AIDS was caused by a highly infectious agent. Observations that HIV risk behaviors (sexual promiscuity in homosexual and heterosexual populations and routine sharing of injecting drug equipment) are present in virtually all countries throughout the world also led to the belief that HIV epidemics would eventually occur in all populations. However, it does not follow logically that the potential for extensive HIV epidemics in MSM, IDU, FSW and their clients is equally present in all populations and countries. Further, it is simply not possible for HIV to jump into any “general” population from these high risk groups to spread in epidemic fashion in “ordinary” people. There are no credible STD experts who are concerned that syphilis – which is caused by a bacterial agent that is hundreds of times more infectious per coital contact than HIV – has the potential to sweep through general populations “like a hot knife through cold butter!”

The major characteristic of HIV as an infectious disease agent is that its risk of transmission is, in the absence of facilitating factors, very low for any single sex encounter. This characteristic of HIV is not something that AIDS programs or agencies usually include in their educational messages about HIV transmission. Both Jon Mann and Mike Merson specifically instructed me not to distribute a table I had prepared on the risk of HIV transmission by type of exposure since this table indicated that, in the absence of facilitating factors, the risk of HIV transmission per single coital act was about 1 per 1000 or lower. They were both aware that my table was accurate, but both believed that distributing this information to the public would be sending the public a mixed message about the risk of HIV transmission via unprotected sexual intercourse.

Aside from the low infectivity of HIV, the pattern and prevalence of HIV risk behaviors differ markedly from country to country. As described in detail in Chapter 5, the WHO/GPA surveys of sexual knowledge, attitudes, behaviors, and practices (KABP) carried out in the late 1980s found that:

- 1 the pattern of sex partner exchange in SSA populations is mainly on a concurrent basis whereas in most developed countries, sex partner exchange is mainly serial, not concurrent and
- 2 a relatively large percent (up to 40 percent) of females in some SSA countries have sex outside of marriage, whereas less than 1 to 2 percent of Asian females report such behavior.

These findings, as well as the observation that the prevalence of multiple facilitating factors, that can greatly increase the risk of sexual HIV transmission, are more than 10 times higher in SSA populations compared with most other populations, help explain why epidemic heterosexual HIV transmission has occurred in most SSA countries but not in most other populations. In the few Asian countries where epidemic heterosexual HIV transmission has been documented in FSW and their clients, this can be attributed to the large commercial sex networks that were present.

UNAIDS and most AIDS activists have either intentionally or out of honest ignorance ignored the fact that HIV is very difficult to transmit sexually. By refusing to accept the fact that HIV is very difficult to transmit sexually without the highest levels of sexual risk behaviors, AIDS programs have avoided labeling some populations as being more promiscuous than others. It is a much more socially and politically correct public health message to say that sexual promiscuity exists in all populations and thus the risk of epidemic heterosexual HIV transmission to the “general” public, or to “ordinary” people can be prevented only by aggressive **ABC** programs directed at the general population, and especially to youth.

A parallel pandemic of AIDS “experts,” most without any epidemiologic training, have used a variety of epidemic models to project large heterosexual epidemics in countries where HIV prevalence rates in the general population are still very low. These “experts” sound alarms that the “next waves” of HIV epidemics are imminent, or HIV is “on the brink” of jumping into the general population from existing foci in MSM and IDU populations. The “next waves” of HIV epidemics predicted for the general heterosexual populations in developed countries during the 1980s have never materialized. Most of these AIDS “experts” have given up sounding alarms about heterosexual HIV epidemics in developed countries and have turned their attention to large populous countries in Asia. For countries such as India and China they project severe heterosexual HIV epidemics, if any sex outside of marital sex is permitted to occur, and education of the general public, especially youth, on how HIV is transmitted, are not aggressively implemented.

- **HIV “bridge” populations will invariably ignite heterosexual HIV epidemics**

Another major misconception about HIV transmission dynamics is that infected bisexual males or infected IDU (male or female) serve as the “bridge” population for HIV entry into the general heterosexual population. What has been virtually ignored over the past two decades is that such “bridging” has and continues to occur from what is described in Chapter 5 as nonepidemic transmission between HIV-discordant couples, i.e., HIV transmission from an infected person (regardless of how infection was acquired) to his/her regular sex partner or partners. This is currently the predominant mode of HIV transmission throughout the world, but these are usually “bridges to nowhere.” This is because epidemic heterosexual HIV transmission has not and cannot occur in any population without the presence of a very high risk pattern and frequency of sex partner exchange. In the absence of these latter factors there will not be significant spread within the general population. This is exactly what has happened following the hundreds of HIV epidemics that have been documented in MSM and IDU populations

throughout the world since the early 1980s. This also happened with the many HIV-infected persons who traveled out of Africa during the 1960s and 1970s: there were probably hundreds or thousands of such “sparks” that introduced HIV into many populations but they did not start significant epidemic spread until such a “spark” was introduced into a gay bathhouse or an IDU “shooting gallery.”

It should be noted that in SSA, where heterosexual HIV transmission has been so extensive, the majority of “general” populations, even in SSA countries with the highest HIV prevalence rates, are at low to no risk of acquiring HIV via sexual intercourse because they are monogamous or faithful to their spouses.

These aspects of HIV transmission dynamics were not fully understood during the late 1980s and early 1990s. In the USA and in most developed countries, where explosive HIV epidemics in MSM and IDU populations occurred during the early 1980s, the anticipated “next wave” of HIV epidemics did not materialize in any “general” heterosexual population. Michael Fumento accurately and in great detail documented this situation in his book *The Myth of Heterosexual AIDS*. However, he also seriously questioned the large and well documented heterosexual HIV epidemics in SSA and Thailand during this same time period.

Mainstream science and public health did not question these large heterosexual HIV epidemics but during this time period were at a loss to explain why epidemic heterosexual HIV transmission was so rampant in SSA and to a lesser extent in a few populations in the Caribbean and Asia and almost nonexistent in developed countries and most developing countries. Some of the initial theories were that: anal intercourse was more prevalent in African and Asian populations than was then believed and/or that poverty was a major determinant of high HIV prevalence. These myths or misconceptions about heterosexual HIV transmission continue to have staunch supporters. There has and continues to be some sort of fixation about anal intercourse that is also not warranted. There is nothing exceptional or mysterious about anal intercourse compared with vaginal intercourse with regard to the risk of HIV transmission. Anal intercourse results in a higher risk simply because of the greater likelihood of tissue trauma and thus more lesions in the fragile rectal epithelium compared to vaginal epithelium. However, there are multiple facilitating factors that can increase the amount of blood or sexual fluids that may be exchanged during vaginal intercourse and as described in Chapter 5, these facilitating factors are highly prevalent in SSA populations compared to most other populations.

- **All high HIV risk behaviors will result in HIV epidemics**

Until the mid-1990s, it was not fully realized that there are major differences in the pattern and size of commercial sex networks. It was believed, almost as a matter of faith, that once HIV was introduced into any commercial sex network, epidemic HIV transmission would inevitably ensue. I don’t want to minimize the public health risk that epidemic HIV transmission can occur in virtually all commercial sex networks, but it should be realized that this risk can range from very low to very high. Fortunately, the risk has been very low in those networks where partner exchange rates are not the highest. AIDS denialists such as Duesberg and his followers, who believe that sexual transmission of HIV is a myth, point to the many studies of female prostitutes in developed countries and in many developing countries that show either no HIV infections or only a few to support their theories.

Calculation of the annual probability of a FSW acquiring an HIV infection in a low HIV prevalence country indicates that large annual increases in HIV incidence and prevalence cannot be expected (*see* Appendix 1 to Chapter 5). According to these calculations, if there were several hundred thousand FSW in the Philippines,* less than 100 might acquire an HIV infection each year because of sex work. These infected FSW can be expected to infect several male clients during an arbitrary work span of 10 years as a FSW. However, these numbers will be largely offset by the hundreds of AIDS deaths that can be expected annually from the thousands of prevalent infections in this very low HIV prevalence country. Since the early 1990s, sentinel surveillance in the Philippines has consistently found annual HIV prevalence in registered FSW to be about 1 per 1000. This low prevalence can be attributed to several factors:

- 1 a very low HIV prevalence in male clients of FSW – less than 1 per 1000
- 2 most males in the Philippines are circumcised at about the age of puberty
- 3 most FSW average less than one client a day and
- 4 reported condom use with FSW in the Philippines is more than 50 percent.

In countries where explosive HIV epidemics have occurred in IDU populations, a major public health concern is that some HIV-infected female IDU will become a FSW in order to support their drug use. Such an increase in HIV-infected FSW has been found in almost all HIV epidemics in IDU populations. These FSW can transmit infection to some of their clients, but as described above such increased transmission in low HIV prevalence countries does not lead to very large increases in annual national HIV incidence and prevalence. The factors needed for sustained epidemic heterosexual HIV transmission include:

- 1 large open or overlapping sex networks
- 2 high numbers of daily sex partner exchanges
- 3 a low percentage of male circumcision
- 4 low condom usage rates and
- 5 a high prevalence of multiple facilitating factors.

Thus, the probability of epidemic heterosexual HIV transmission in a low HIV prevalence country like the Philippines, even in the highest risk population (FSW and their clients), is low. The highest public health priority in low HIV prevalence populations is to assure that HIV prevalence in persons with the highest levels of heterosexual risk behaviors (FSW and their male clients) remain as low as possible. This can be accomplished by continuous preaching of **A**bstinence and **B**e faithful, but most likely, for persons with these sexual risk behaviors, promotion of **C** (consistent condom use) for all commercial sex will be the more effective measure for keeping HIV prevalence low in such populations. Aggressive implementation of all **ABC** measures in the general population with a focus on youth is epidemiologically not essential and will have little impact on potential HIV transmission in FSW and their male clients.

In any country, some pockets of very high sex partner exchange rates exist and they include: border areas with extensive population movement; extensive

* In the most recent (2005) HIV prevalence estimation exercise in the Philippines, the number of FSW was estimated to be less than 200 000 compared to previous estimates of up to a million or more!

migration and/or travel away from stable social environments such as from rural to urban areas for employment; seasonal workers; migrant workers; military, sailors/merchant seamen; long distance truck drivers; large development or construction projects; etc. Primary HIV prevention programs need to be targeted to these vulnerable populations wherever they may be, regardless of whether the potential for epidemic heterosexual HIV transmission is considered low or high.

- **Poverty, discrimination, and lack of access to healthcare are major determinants of high HIV prevalence**

This litany used by UNAIDS and most AIDS programs includes most of the socially and politically correct myths about major determinants of HIV transmission, but there is no epidemiologic support for these myths and misconceptions. Poverty is a socially and politically attractive hypothesis to account for high HIV prevalence, but available data suggest the opposite. As described in Chapter 5, persons in the top 20 percent for income in Kenya and Tanzania have HIV infection rates 2 to 3 times higher compared to persons in the lowest 20 percent – probably because the wealthiest persons, both males and females, have a greater number of sex partners. Some of the richest countries in SSA have the highest HIV prevalence rates and most of the poorest countries in the world have the lowest rates. Poverty as a major determinant of HIV transmission is a glorious myth that is not easily dispelled even though there are no epidemiologic data to support this myth. I have challenged all students who have taken my class since the new millennium to provide me with data to support this myth and they have yet to come up with any.

In 1987, Jon Mann appropriately declared that the quest for effective treatment and a possible cure for AIDS was an inherent basic human right of all persons living with HIV. However, he went on to say: "...Being excluded from the mainstream of society, or being discriminated against on grounds of race/ethnicity, national origin, religion, gender, or sexual preference, led [leads] to an increase of HIV infection." From my perspective, discrimination clearly raises barriers to HIV/AIDS prevention and treatment programs, but discrimination is not a determinant of HIV risk behaviors and, thus, not a determinant of epidemic HIV transmission. This glorious myth was quickly and uncritically accepted by AIDS activists, and is the centerpiece of UNAIDS' litany that poverty, discrimination, and lack of access to healthcare are major determinants of high HIV prevalence. Personally, I am 100 plus percent against poverty, discrimination, and lack of access to healthcare, but I also believe that even if "we" were able to eliminate these social and public health problems, we would not make much of an impact on the high HIV prevalence rates that are present in MSM, IDU and many SSA populations.

- **HIV prevalence is increasing to record highs. In 2005 there were more than 40 million persons living with HIV and there were 5 million new HIV infections**

These HIV/AIDS numbers are much too high: they cannot be supported by the available data or by recent HIV prevalence trends reported by UNAIDS for most global regions. Also as described in detail in Chapter 7, I believe that virtually all of the UNAIDS estimates in 2001 and 2003 were overestimated, especially for SSA and Asia. In mid-2006, UNAIDS significantly reduced many HIV prevalence

estimates in SSA and the Caribbean to more realistic levels. However, I believe that they will need to reduce their lowered estimate for Haiti even more when the population-based HIV serosurveys (DHS+) are completed in Haiti* sometime in 2006. Similar reductions will also need to be made for Eastern Europe and Central Asia (Russia and Ukraine)[†], South and SE Asia (India), and East Asia and the Pacific (China).[‡] I haven't seen any regional estimate that I consider to be an underestimate and I'm convinced that even with the reductions made in the mid-2006 report, UNAIDS will be forced to revise most of their regional estimates further downwards in their next global report on the AIDS pandemic. Global estimates that are more consistent with current data and prevalence trends are about 30 million persons (15–49) living with HIV and closer to 3 million annual new adult HIV infections. Continual denial by UNAIDS of the reality of lower HIV prevalence numbers and continual alarms about HIV being “on the brink” of jumping into general populations will eventually lead to a backlash against AIDS programs for continually crying wolf when there is no epidemiologic basis for such alarms.

UNAIDS considers itself primarily an advocacy agency. Thus, it does not approach the estimation of HIV/AIDS statistics as an objective technical or scientific agency. I recall an exchange I had with the Minister of Health in the Philippines in the early 1990s when I cautioned him about the very high estimate he made by multiplying the 50 reported HIV/AIDS cases by a factor of a thousand to arrive at a national prevalence estimate of 50 000. He told me: “...accuracy is not needed for advocacy!” This unfortunately is how UNAIDS continues to approach the estimation of HIV/AIDS incidence and prevalence. Without all the “doom and gloom” HIV scenarios and without the alarming news releases that warn about constantly increasing HIV infections, AIDS activists fear that the public and policy makers will not continue to give AIDS programs the high priority that it has received up to now. AIDS activists are concerned that the public and policy makers will become complacent about the potential risk of HIV to the general population and will reduce support to AIDS programs if most regional HIV rates are “stable” or decreasing and HIV remains concentrated in MSM, IDU, FSW and their clients, and in most SSA populations.

This is a realistic concern, but as described at the end of Chapter 7:

- 1 global and regional HIV rates have remained stable or have been decreasing during the past decade
- 2 HIV has indeed continued to be concentrated in populations with the highest levels of HIV risk behaviors and
- 3 HIV is incapable of epidemic spread in the vast majority of heterosexual populations.

* In the UNAIDS/WHO 2005 *AIDS Epidemic Update Report*, the reduction in HIV prevalence for Haiti from about 6 percent to 3 percent was considered as a possible sign that the HIV epidemic in Haiti may have “turned the corner.” There was no mention that such a reduction was forced because of low HIV prevalence findings in rural populations.

† There have been large HIV epidemics in IDU populations, but overall HIV prevalence is probably overestimated.

‡ The 2005 report also said that the number of persons in this region living with HIV in 2005 increased by 20 percent compared to 2003. Actually, the official Chinese estimate for 2005 (released in early 2006) showed the opposite. There has been a decrease in HIV prevalence from 840 000 in 2003 to 650 000 in 2005.

Denial of these realities will lead to further erosion of whatever credibility UNAIDS and other mainstream AIDS agencies may still have.

Swimming Upstream Against Mainstream AIDS Agencies

As someone who was in the vanguard of mainstream medical science and public health understanding about the HIV/AIDS pandemic until my resignation from GPA/WHO in early 1992, I fully understand and am sympathetic to the beliefs and positions that AIDS activists have taken and continue to defend. I share the same objectives as my mainstream colleagues; effective prevention and control of HIV/AIDS; and the provision of effective ART for all HIV-infected persons. However, over the past decade, I have come to believe that AIDS programs, especially those developed and supported by international agencies and faith-based organizations, have been politically correct and morally motivated but epidemiologically incorrect.

When AIDS was first recognized in California in 1981, I had already worked as a public health epidemiologist in general communicable disease control for close to two decades. I was rapidly totally immersed in the study of AIDS. In addition to my evaluation of all studies and reports of HIV/AIDS in California as the State Epidemiologist responsible for infectious disease control, I served on a National Academy of Science/Institute of Medicine (NAS/IOM) committee in 1986 that prepared a national report on AIDS.* During the 6-month work period of this committee, I was able to help review and evaluate all of the national and international epidemiologic, clinical, and laboratory studies on HIV/AIDS that were made available to this committee. Thus, when I took early retirement from the California Health Department in 1987 to join Jon Mann at WHO in Geneva, I had been involved almost fulltime in the study of HIV epidemiology for about 6 years.

In retrospect, all of the initial HIV prevalence estimates that I was personally involved with were gross overestimates. I was a member of a small group of epidemiologists who made the first national HIV prevalence estimate for the USA during the 1986 Coolfont Conference in West Virginia. Based on the limited data available to our group we estimated that there were from 1 to 1.5 million HIV-infected persons in the USA. The first HIV estimation meeting that I organized after Jon anointed me to head the Surveillance, Forecasting, and Impact Assessment (SFI) unit at GPA was held in Strbske Pleso, Slovakia in early 1988. In reviewing the HIV prevalence estimates made during this meeting, I now realize that most of these estimates were also gross overestimates: the UK estimate was 40 000 and this estimate was later reduced by almost half; the initial working estimate for France was 200 000 and this estimate was also reduced by more than half after more data became available.

In 1986, Jon Mann estimated that there were from 5 to 10 million HIV-infected persons worldwide; this was the "official" global estimate I inherited when I was appointed Chief of SFI. During the Fourth International AIDS Conference in Stockholm in mid-1988, Bob Biggers, a CDC (Atlanta) epidemiologist who was working in Africa, confronted me in a hallway and challenged the WHO global estimate of 5–10 million. I had been collecting and reviewing all available HIV

* *Confronting AIDS: Directions for Public Health Care and Research* (NAS/IOM, 1986).

data from WHO member countries and had to agree with Bob that the estimate of 5–10 million was too high. I brought this situation to Jon's attention and recommended that WHO revise the global estimate to about 5 million since my estimate based on the data I had reviewed could reasonably only support an estimate that was less than 5 million. I even drafted a statement for his consideration for release: "WHO in 1986, based on the limited HIV data available, estimated global HIV prevalence to be 5 to 10 million. However, as of mid-1988, with additional HIV data, the best estimate of global HIV prevalence is closer to the lower range of about 5 million." Jon decided not to issue this statement because he felt sure that at the apparent rate of increase in HIV prevalence in SSA noted in the most recent HIV datasets, that within a year or two at most, global HIV prevalence would be well within the 5–10 million range. Jon proved to be right on the mark and by the early 1990s, global HIV prevalence increased to well within the 5–10 million range.

As I gradually recognized that the HIV estimates described above were gross overestimates, I resolved that any estimate I would be responsible for would be conservative, and further, I would not release an estimate that I could not defend with the available data. After my resignation from WHO in early 1992, I maintained contact with my former staff at SFI and was pleased that HIV prevalence estimates prepared by SFI up to the mid-1990s continued to be conservative and defensible. I was, however, concerned about the urban/rural HIV differential in SSA. Thus, I urged WHO and subsequently UNAIDS staff to devote more effort to measure this differential since the majority of populations in SSA lived in rural areas. This factor has turned out to be the major reason for the 50 percent or more overestimate of HIV prevalence in most SSA and Caribbean countries.

Most AIDS activists were greatly disturbed by any downward revision of official HIV prevalence estimates: they perceived such revisions as a deliberate ploy by public health programs to minimize the severity of HIV/AIDS epidemics. There was and continues to be great distrust of official HIV prevalence estimates by most AIDS activists. During the late 1980s and early 1990s, high and constantly increasing HIV/AIDS estimates were accepted uncritically and assumed to be the unchanging trend of all HIV/AIDS epidemics by AIDS program advocates and activists. Any lowering of an estimate or any projection that HIV or AIDS might be peaking or decreasing was considered to be dangerous to HIV/AIDS programs. It was thought such projections would lead to complacency in implementing prevention and control measures.

Thus, when I predicted in 1991 that "...in developed countries annual AIDS cases were projected to reach a peak before the middle of the decade..."^{*} I incurred the displeasure of Sir Donald Acheson, the Chief Medical Officer in the UK. He apparently was in the audience for my lecture and he immediately dispatched one of his best and brightest medical officers, Dr. Anne Johnson, a very astute medical epidemiologist, to determine if my projection of AIDS cases peaking in developed countries before 1995 could be refuted. Anne Johnson and I had a very cordial and collegial discussion regarding my prediction. As an experienced STD/HIV epidemiologist, she was aware that HIV incidence rates peaked in the USA and the UK before the mid-1980s. Anyone who knew the

^{*}State of the Art – Plenary Lecture – Present and Future Dimensions of the HIV/AIDS Pandemic. Seventh International Conference on AIDS, Florence, Italy, June, 1991.

median progression interval from HIV infection to the development of AIDS was estimated to be from 8 to 10 years did not require any complex mathematical model to predict that AIDS cases would peak in these countries before the mid-1990s. Apparently, Anne Johnson was able to adequately explain the epidemiologic basis of my prediction to Sir Donald since I did not hear anymore about this. I had thought my projection regarding the natural decline in AIDS cases that could be expected based on the natural history of HIV infections and on HIV incidence and prevalence trends would be welcomed as “good” news, rather than “bad” news.

Up to the time of my resignation from WHO, I considered myself to be an integral part of mainstream AIDS beliefs. I traveled with Jon Mann and Daniel Tarantola in 1988 to meet with key staff of the WHO Regional Offices in Manila (WPRO) and Delhi (SEARO) to try to kick start some aggressive HIV/AIDS prevention programs in Asia. We exhorted them with the rhetoric that the “window of opportunity” for effective HIV/AIDS prevention in Asia was fast closing. I was convinced by my visits to cities such as Cairo and Manila that it was not a matter of if, but when heterosexual HIV epidemics would break out in these cities. However, by the mid-1990s, when there was no sign of epidemic heterosexual HIV spread, other than in those populations where such epidemic transmission had been documented during the 1980s and early 1990s, seeds of doubt regarding the “gathering storm” of HIV epidemics in Asia began to emerge.

These doubts began to grow but it wasn't until a 6-week USAID mission to evaluate the HIV/AIDS situation in the Philippines in 1995 that I was “converted” to my present understanding of HIV transmission dynamics. I was the epidemiologist and Tony Bennett, who was working for Family Health International (FHI) in their Bangkok office, was the social behavioral expert on this mission. Tony provided me with detailed qualitative and quantitative information on commercial sex networks in Asia. We jogged for close to an hour almost every morning on Roxas Boulevard and pondered why epidemic heterosexual HIV transmission had not erupted in Manila when commercial sex was so visible, especially near all hotels. Tony pointed out that commercial sex for foreigners was readily available and quite visible in virtually all Asian cities but this was not a good gauge of the extent of commercial sex for the indigenous population. It was from these discussions that we both began to realize that the patterns and prevalence of sexual risk behaviors in the Philippines were among the lowest in Asia. Our conclusion has made us *personae non gratae* to the Philippines AIDS program because staff of the national program believes that there is a very high potential for heterosexual HIV epidemic transmission in the Philippines and our conclusion is therefore dangerous and represents “blind optimism.”

Tony and I, together with Steve Mills, a social behavioral office colleague of Tony's, prepared a paper that we submitted to *Lancet*. Our paper was rejected on the basis that it was common knowledge that HIV transmission is correlated with sexual risk behaviors and this had been amply documented by many African studies. The basic conclusion of our paper – still not accepted by most mainstream AIDS “experts” – is that countries such as the Philippines and Indonesia will not reach HIV prevalence levels of more than 0.5% (1/200) in their 15–49 year old population because the sex networks and general levels of sexual risk behaviors are insufficient to drive significant heterosexual epidemics. We eventually were

able to get our paper published in a special supplemental issue of the journal *AIDS* devoted to AIDS in Asia.*

At the 1997 AIDS in Asia Conference in Manila, Peter Piot, in his keynote lecture warned that when HIV epidemics break out in Asian countries, "HIV will cut through Asian populations like a hot knife through cold butter!" Aside from several explosive HIV epidemics in IDU populations, there have not been significant heterosexual HIV epidemics in any Asian country since Peter's dire and colorful prediction. My question to those who believe in the inevitability of HIV epidemics sweeping through general populations in Asian countries is: How many decades do we need to wait before such epidemics might be considered unlikely? Tim Brown told me that, using his HIV/AIDS model, epidemic HIV transmission could occur in FSW in the Philippines within one or two more decades. I told Tim that this would never happen if HIV prevention in the Philippines were to be focused almost totally on populations with the highest risk behaviors (includes IDU, MSM and FSW and their clients) instead of directing a major portion of the prevention budget to educate the general public and youth. My cynical opinion is that pretty soon, AIDS activists will begin to assume full or at least major credit for "successful" HIV prevention programs in Asian and Pacific countries.

After resigning from WHO, I returned to California and became a self-employed[†] independent consultant on HIV/AIDS in developing countries and was able to supplement my retirement incomes with about a half a dozen assignments per year. I was able to evaluate the epidemiology of HIV/AIDS or participate in HIV prevalence estimation meetings in Kenya, Malawi, Albania, Turkey, China, Indonesia, Malaysia, Vietnam, Nepal, Philippines, Hong Kong, Taiwan, South Korea, Laos, India, and Myanmar. In addition, I was asked by several agencies to prepare regional HIV/AIDS reports. Specifically, I was asked to prepare a situation analysis of HIV/AIDS in Asia for the 33rd Annual Conference of the Asian Development Bank (ADB) held in Chiang Mai, Thailand in May 2000. My problem with this report and my subsequent reports was that I tried to be as objective as possible. I kept downplaying the potential for HIV to ever become a "generalized" epidemic in any Asian country. Since such a conclusion was not compatible with the UNAIDS paradigm or with the concerns of AIDS program advocacy organizations such as the International Harm Reduction Association (IHRA), I was considered by mainstream AIDS agencies as not a "team player!"

In spite of my growing reputation as an epidemiologist with unorthodox conclusions about HIV/AIDS, I was asked by the WHO regional offices in Manila (Western Pacific Regional Office – WPRO) and Delhi (South East Asia Regional Office – SEARO) to prepare a report in 2001 on AIDS in Asia and the Pacific regions. I was surprised to be asked and I told my WHO colleagues that I had just finished a similar report for the ADB and I would not be changing much of what I had prepared but I would provide more details and would update the report. This was accepted and I was basically given a blank check during my 3-month assignment to visit any country in the Asia and the Pacific regions to get what updates and details I might need for preparing my report. I finished a draft report for WPRO and SEARO on schedule and was pleasantly surprised

* Chin J, Bennett A and Mills S (1998) Primary determinants of HIV prevalence in Asian-Pacific countries. *AIDS*. 12(Suppl B): S87–91.

† My wife Anne correctly points out that I was mostly unemployed!

that there were no major changes requested for the final report. The only change I can remember is that the final draft contained the word “promiscuity”: I was asked to change it and had no problem changing promiscuity to “a high level of sex partner exchange.” To the credit of WPRO and SEARO, they released the 2001 report* in spite of external pressures to stop its printing and distribution. I think that the report was generally well received as an accurate and objective report on AIDS in Asia and the Pacific regions – but that’s my personal bias.

Most AIDS “experts” do not understand and don’t even want to think about what I have tried to stress constantly in this book. HIV is difficult to transmit sexually and epidemic heterosexual HIV transmission can occur only in the presence of the highest risk pattern and highest prevalence of sexual risk behaviors. Such high levels are not present in most “general” populations. I have found that it is very difficult to change the mind set and beliefs of most “hardcore” AIDS “experts” and activists. Such changes require first and foremost an open mind and in addition it requires a basic understanding of infectious disease epidemiology as well as what I have been referring to as HIV transmission dynamics. Significant heterosexual HIV epidemic transmission has only occurred in populations with the highest risk pattern and prevalence of sexual risk behaviors: mostly in SSA, several countries in the Caribbean, and a few in Asia. In over 100 HIV epidemics in MSM and/or IDU populations in developed and developing countries, no significant heterosexual HIV epidemics have subsequently erupted. This can only be explained by

- 1 highly effective HIV prevention programs or
- 2 the fact that in most heterosexual populations, the patterns and prevalence of heterosexual risk behaviors are not sufficient to sustain or fuel epidemic HIV transmission.

I obviously don’t think that effective HIV prevention programs can be credited for the low HIV prevalence present in most countries throughout the world!

Over the past few years, virtually all of the graduate students (about half post-doctoral students) who enroll in my class at Berkeley come in with orthodox views and beliefs about HIV epidemiology consistent with the UNAIDS paradigm. I generally find that it takes from 10 to 12 class hours before some begrudging changes start to take hold. The most difficult orthodox myth to dispel is that poverty is a major determinant of high HIV prevalence in developing African and Asian countries. When challenged to provide epidemiologic support for this view, their doubts emerge gradually when they cannot find support for this myth. By contrast, I’m able to show them epidemiologic data that indicate the wealthiest persons in several African studies have the highest HIV infection rates. By the end of the class, I believe that I had converted them to accept my HIV/AIDS paradigm.

I was surprised that I was again asked to prepare a 2003 report on AIDS in Asia and the Pacific regions for WPRO and SEARO. Because of the political sensitivity of my views and conclusions about HIV/AIDS, this second report was probably

* This report was available for downloading from WPRO as of August, 2006 www.wpro.who.int/NR/rdonlyres/3E936DD1-BDF6-4669-88F3-854B4D0EA95F/0/HIV_AIDS_Asia_Pacific_Region2001.pdf

sent to just about everyone working or interested in AIDS in WHO or UNAIDS in Manila, Delhi, Bangkok, and probably Geneva for editorial review. I received such a barrage of comments and suggestions for changes that I finally threw in the towel and told WPRO and SEARO that I agreed to prepare the 2003 report and I would stand by what I had prepared. I was not prepared to rewrite my report based on comments from virtually the total staffs of several offices. Actually, the final 2003 report* eventually released was not very different from what I had initially submitted.

The World Bank also asked me to prepare a detailed report on the prospects for severe HIV epidemics in Asia. I prepared a 50-page report and several months after submitting it I asked about its disposition. I was told that World Bank staff had prepared a detailed situation analysis of HIV/AIDS in the Asia region and my report was "helpful." In the final strategy paper they issued, my report was essentially boiled down to one footnote: "In contrast [to high range projections], low range estimates predict Asia HIV epidemics are constrained by low risk sexual behavior in the general population (Chin, 2003)."

Tony Bennett and I submitted a more detailed paper entitled "The Epidemiologic Basis for Limited Heterosexual HIV Epidemics" to the *American Journal of Epidemiology*. We initially got no response until close to 6 months after submission and then we received a letter of rejection. The reviewers did not believe that we provided sufficient data to support our conclusions. One stated: "...[the] hypothesis discussed in this paper, that heterosexual HIV transmissions is unlikely to reach epidemic proportions in most populations (with the exception of SSA and a few Caribbean and Asian countries) is interesting, and may have merit. However, the data presented and the analyses described are not sufficient to draw conclusions." Our position was and continues to be that there are far less data to support the prevailing paradigm that in the absence of effective HIV prevention, epidemic heterosexual HIV transmission will inevitably occur. I believe that we provided more than ample data to show that extensive sexual HIV epidemics, whether in homosexual or heterosexual populations, have occurred only in those populations with the highest risk patterns of sex partner exchange and that such populations have much higher prevalence (from 1 to 2 orders of magnitude higher) of facilitating factors for sexual HIV transmission compared with populations where no epidemic sexual HIV transmission has occurred. Tony Bennett and I can't figure out what additional data these epidemiologists need or want?

After discussions with my epidemiologic mentor,[†] he recommended that we submit our conclusions to the *New England Journal of Medicine* for their Sounding Board section which includes brief opinion or editorial type papers. Our submission was rejected on the basis that our paper was not sufficiently noteworthy compared with their waiting list of papers accepted for the Sounding Board section. After this second strike, I persuaded Tony to resubmit our paper that was rejected by the *American Journal of Epidemiology* to the *American Journal of Preventive Medicine*. We redrafted the paper and renamed it: "Heterosexual HIV

* This report was available for downloading from a WPRO site as of August, 2006 www.wpro.who.int/NR/rdonlyres/11ED3283-9821-43BE-9B73-B3444A3DADE6/0/HIV_AIDS_Asia_Pacific_Region2003.pdf

[†] Warren Winkelstein, emeritus Professor of Epidemiology, School of Public Health, UC Berkeley.

Transmission Dynamics: Implications for Prevention and Control” and submitted it after I informed the chief editor that we were submitting a paper that had been rejected by another peer review journal.* When we received our third rejection from this journal, both Tony and I agreed that we had struck out – strike 3! It is a bit telling that one of the comments from the reviewer who apparently was the most assertive in rejecting our paper was: “...there is no such thing as nonepidemic heterosexual HIV transmission, since every HIV infection is part of the total AIDS pandemic!” It was quite clear to us that this reviewer did not have a clue as to what we were talking about when we described nonepidemic HIV transmission from an infected person to his or her regular sex partner(s) and the implications this pattern of HIV transmission has for prevention programs.

I realize that I have to walk a very fine line in criticizing the UNAIDS paradigm because I’m acutely aware that the needs of AIDS prevention and treatment programs throughout the world in both developed and developing countries have been and continue to be grossly under funded. HIV/AIDS numbers in SSA, even if cut in half, still constitute one of the largest human disease disasters in modern times! According to what may be the lowest estimate of current adult HIV prevalence in SSA (15 million), about 4000 AIDS deaths can be expected to occur daily! If UNAIDS’ prevalence estimate of close to 25 million is accepted, then about 6000 AIDS deaths would occur daily. By comparison, the December 26, 2004 Indian Ocean earthquake and tsunami was estimated to have killed over a quarter of a million persons and the disastrous earthquakes in Pakistan and India in October 2005 may eventually claim up to 100 000 lives. Yet, regardless of which HIV prevalence estimate in SSA may be more accurate, there are now at least 2 million AIDS deaths annually in SSA and this annual number may continue to be this high for at least another decade! Thus, I do not want, in any way, to compromise the international support that has been mobilized for the Global Fund. I believe that even with the lowest possible HIV estimate for SSA, there are insufficient funds to meet the needs of ART programs in SSA and all other resource-poor countries. I do not want the public and policy makers to *throw out the baby* – the severe AIDS problem in SSA and MSM and IDU populations – *with the bath water* – systematic overestimation of HIV prevalence and exaggeration of the potential for epidemic heterosexual HIV transmission in most developing countries outside of SSA.

The following response of a policy person in the WHO Office in Beijing, China after my March 2003 debriefing on the HIV/AIDS situation in China is typical of what I have come to expect from most AIDS program advocates. She said that my conclusions about the low potential for severe heterosexual HIV epidemics in China might well be accurate, but that she could not be certain that it was really an accurate picture of HIV/AIDS in China since UNAIDS paints an entirely different picture. She also said, “What is the harm in keeping the public and policy makers fearful of impending heterosexual HIV epidemics erupting in China if sexual risk behaviors are not reduced or eliminated?”

The basic harm, from my perspective, is that in China HIV prevention efforts are misdirected and essentially wasted on the general public and youth who are

* Prior to these rejections, I submitted over 70 papers for publication where I was the sole author (about 50) or was a co-author (about 20), to mostly peer review journals without a single rejection.

at little or no risk of epidemic heterosexual HIV transmission. In China, for the past decade, the primary mode of HIV transmission has been from an HIV-infected person to his/her regular sex partner, i.e., HIV transmission in discordant couples. HIV infection of large numbers of poor farmers via faulty plasma collection procedures probably peaked by the mid-1990s. HIV epidemics in IDU populations have occurred starting in the late 1980s and annual HIV incidence in most of these epidemics peaked or at least leveled off by the late 1990s. For the past decade, there has been great concern that HIV infections from the large pool of infected IDU and the large number of poor infected peasants would “jump” into the general population via infected female prostitutes. Intensified HIV sentinel surveillance was set up in all areas where any HIV epidemic had occurred but as of late-2006, I’m not aware that any significant heterosexual HIV epidemic spread has been detected in China.*

In China and throughout the world, I believe that there has been insufficient attention given to the different patterns of sexual risk behaviors that exist and range from the highest risk (hundreds to thousands of different sex partners annually) to the lowest (a few different sex partners during a lifetime). It is socially and politically correct to assume that, because sexual risk behaviors are present in all populations throughout the world, all populations are, therefore, at almost equal risk of epidemic sexual HIV transmission. There is an occasional disclaimer that perhaps heterosexual HIV epidemics may not ever be quite as severe as those in SSA. As a very old and experienced infectious disease epidemiologist, I fully recognize that any heterosexual epidemic, no matter how “small” in populous countries such as China, India, and Indonesia could quickly total several million or more new HIV infections during this decade. However, I cannot understand the need to have huge numbers of HIV infections to make AIDS a very high priority public health problem. As a global community, “we” would not tolerate a few human mad cow disease cases, yet if a country has “only” a few thousand HIV infections, AIDS activists somehow feel belittled.

I am not preaching public health complacency, but I am preaching that effective prevention of HIV transmission in low prevalence countries must be targeted primarily to the highest HIV risk populations and not to the general public and youth. I am also saying that there has been and continues to be insufficient public health attention and effort directed to the regular sex partners of HIV-infected persons in both developed and developing countries.

Summary and Conclusions

The UNAIDS paradigm is very socially and politically attractive and correct, but there are no data to support the litany that poverty, discrimination, and lack of access to healthcare, are the major determinants of high HIV prevalence in developing countries. To the contrary, all of the available epidemiologic data indicate that having a high risk pattern of sex behaviors (multiple and concurrent sex partners) as well as the highest frequency of sex partner exchanges are the major factors that drive sexual HIV epidemics in MSM or heterosexual populations. My

* Aside from published and official HIV data released by China, I have not seen any data that show significant HIV transmission that may be independent of the IDU or plasma collection epidemics.

paradigm, that epidemic sexual HIV epidemics can only occur in populations with the highest risk pattern and highest prevalence of sex partner exchanges, is consistent with all of the current sexual HIV epidemics that have been documented throughout the world. Despite UNAIDS' constant alarms, no epidemic heterosexual epidemics have occurred following hundreds of HIV epidemics in MSM and IDU populations!

Explosive HIV epidemics occurred in MSM and IDU populations in many developed countries during the early to mid 1980s and such epidemic spread peaked (i.e., HIV incidence peaked) by the mid- to late-1980s. Since the new millennium, HIV prevalence has also peaked, but has been decreasing very slowly because:

- 1 high risk behaviors are still present, albeit perhaps at some lower levels
- 2 the steady nonepidemic transmission from HIV-infected persons (regardless of how they may have been infected) to their regular sex partners continues to occur
- 3 effective anti-HIV treatment (ART) programs that became available in most developed countries by the mid-1990s have significantly extended the lifespan of many HIV-infected persons.

These factors explain why HIV prevalence in developed countries are "stable" or may even slightly increase over the next several decades.

In several Asian countries, including several Indian States, explosive heterosexual HIV epidemics occurred within their large and very open commercial sex networks. In addition, several explosive and relatively independent HIV epidemics occurred in IDU populations in many developing countries in Asia and in several countries of the former Soviet Union during the 1990s. The scope of all of these epidemics have been largely exaggerated and the concern that HIV epidemics in IDU populations will inevitably lead to epidemics in the general population or to "ordinary" people continues to have staunch believers. This entrenched myth persists even though there is scant, if any, HIV spread into the general population other than from the infected IDU to his or her regular sex partners. Commercial sex driven epidemics in Asian countries peaked by the mid-1990s and HIV prevalence in countries that had any HIV epidemics have been level or decreasing since the new millennium.

In SSA, heterosexual HIV epidemics have progressed much slower compared to other global regions because the majority of sex networks have been and continue to be relatively small (as small as 3 to 4 in a sex group). According to the most recent UNAIDS estimates, the HIV prevalence rate in SSA peaked around the year 2000, and has been decreasing slowly since then. In order for HIV prevalence in SSA to be decreasing since the new millennium the annual HIV incidence rate in SSA had to have peaked around the mid-1990s. Such decreases in HIV prevalence and incidence are totally inconsistent with UNAIDS' most recent press releases about the ever-expanding and increasing numbers of the AIDS pandemic. UNAIDS and all AIDS activists should be happy to hear that HIV incidence in SSA probably peaked about a decade ago, but they are not willing to even consider this possibility because it would undermine their paradigm.

The vast majority of the public and policy makers have no inkling that the UNAIDS paradigm is inconsistent with established facts about HIV transmission dynamics. This is because they have not had any reason to doubt UNAIDS'

information and data. Up to 2006, there has been no criticism or disagreement with the UNAIDS paradigm and its assessment of the AIDS pandemic raised by: any of the major public health and infectious disease agencies (NIH, CDC, APHA, etc); any of the international development agencies (USAID, DFID, etc.); or any of the UN agencies. However, some break from this thundering silence of mainstream AIDS organizations is finally beginning to appear. In late March, 2006, I received a draft of a paper that was submitted to the *Lancet*.^{*} The authors of this paper (technical staff of USAID and the World Bank) reached the same conclusions as I have about the AIDS pandemic peak (end of Chapter 7). Shortly after this article was published, UNAIDS acknowledged in their mid-2006 report to the UN that global HIV incidence probably peaked during the late 1990s. I'm confident that starting in late-2006, UNAIDS will be forced to come up with even more realistic estimates and projections, especially when more mainstream epidemiologists and the news media begin to critically question the epidemiologic basis of the UNAIDS paradigm.[†]

Regardless of my epidemiologic disagreements with UNAIDS, I totally agree with mainstream AIDS experts who declare that this is not a time to be complacent about the need to strengthen HIV prevention, since annual HIV incidence globally will still be at least 2 to 3 million. However, the glorious myths that are still perpetuated by UNAIDS and AIDS activists, i.e., that the AIDS pandemic is fueled or driven by poverty; the "next waves" of HIV epidemics are inevitable; and the AIDS pandemic is ever-expanding will, sooner or later, all have to be abandoned.

^{*} Shelton JD, Halperin DT and Wilson D. Has Global HIV Incidence Peaked? The *Lancet*.com published online 30 March 2006, DOI:10.1016/S0140-6736(06)68436-5.

[†] Godwin P, O'Farrell N, Fylkesnes K and Misra S (2006) Five myths about the HIV epidemic in Asia. *PLoS Med* 3(10): e426. DOI: 10.1371/journal.pmed.0030426. Myth number one was: There is a major risk that the epidemic in many Asian countries will have the same disastrous "development impact" as in sub-Saharan Africa, but on a much worse scale, given the huge population sizes of much of Asia.