

Introduction and Book Overview

Cases of **Acquired Immune Deficiency Syndrome*** (AIDS) were probably present in low numbers in sub-Saharan Africa (SSA) for decades or centuries before this disease syndrome was recognized as a distinct clinical entity in 1981 in several young homosexual males[†] in southern California. At the time, I was the State Epidemiologist responsible for the prevention and control of communicable diseases in California. Since then, I have been involved virtually full-time with the international response to the AIDS pandemic, which is without question one of the most severe infectious disease pandemics in modern times. During my public health career that began in the early 1960s, I have always been considered a part of conventional or mainstream medical science. However, since the mid-1990s, I have found myself swimming upstream against mainstream AIDS organizations. I have, during this period, gradually come to the realization that AIDS programs developed by international agencies and faith-based organizations have been and continue to be more socially, politically, and moralistically correct than epidemiologically accurate.

My understanding of how human immunodeficiency virus (HIV) infections are spread (HIV transmission dynamics) and of the very low potential for epidemic transmission in populations with current low HIV prevalence “fits” exactly with what has occurred. However, my conclusions are at marked variance with the beliefs of many AIDS “experts” and with the prevailing Joint United Nations Programme on HIV/AIDS (UNAIDS) paradigm. According to UNAIDS, if effective HIV/AIDS prevention programs are not directed to the general public, especially all youth, epidemic heterosexual HIV transmission will inevitably break out in most populations where HIV epidemics have not yet occurred. My HIV/AIDS paradigm is that *epidemic* HIV transmission requires human behaviors that involve having unprotected sex with *multiple* and *concurrent* sex partners[‡] and/or routinely sharing needles and syringes with other injecting drug users (IDU). According to my understanding of HIV transmission dynamics, HIV epidemics cannot occur in populations where high risk patterns and the highest prevalence of such risk behaviors are not present.

Exaggeration of the potential for HIV to spread into the “general” population is a “glorious”[§] myth perpetuated by UNAIDS, AIDS program advocates, and activists, partly to avoid further stigmatization of persons with the highest levels of HIV risk behaviors (MSM, IDU, and sex workers (SW)** and their clients). UNAIDS also wants the public and policy makers to be fearful about HIV infections “jumping out” from these foci of infection to spread into the “general population.” Yet no such spread into any general population has occurred! In well

* AIDS is not a simple infectious disease. It is a disease syndrome because it is a group of illnesses that collectively indicate or characterize a specific disease syndrome.

† As of the mid-1980s usually referred to as men who have sex with men (MSM).

‡ Traditionally defined as sexual promiscuity.

§ An example of *splendide mendax* – gloriously or nobly false for a good cause.

** Formerly referred to as prostitutes.

over 100 IDU and/or MSM epidemics documented worldwide, no significant spread to the general population has occurred except to the regular sex partners of infected IDU or bisexual MSM. This myth of a high potential for “generalized” HIV epidemics has resulted in a large and unnecessary amount of effort and funds being used for programs directed to the general population and especially youth. Yet these groups, outside of SSA, are at minimal to no risk of acquiring HIV from risky sexual behaviors. This major focus on preventing “generalized” HIV epidemics means that there is usually insufficient effort given to preventing infections in persons with the highest HIV risk behaviors. UNAIDS, AIDS program advocates, and activists have used this myth effectively in their aggressive struggle for an increasing share of the limited international health budget at the expense of other equally urgent public health needs. I’ll detail these fundamental disagreements and problems in this book and let readers decide whether I’m more on target than UNAIDS and many other AIDS “experts.”

Book Overview

AIDS was recognized as a newly emerging disease just over a quarter of a century ago. From the outset, there were many uncertainties about this invariably fatal disease syndrome that seemed to have appeared out of nowhere. These initial uncertainties and questions about what AIDS was, what caused it, and why at that time AIDS primarily affected MSM and IDU populations spawned many misconceptions and myths about this emerging pandemic. Most of the extreme, “far out” myths have been dismissed by mainstream* science, but some persist, including some that are defended with a cult-like faith and fervor by UNAIDS and many AIDS “experts.” These latter myths are “glorious” myths like the one mentioned earlier – since they are for a good cause, but they have no epidemiologic basis or support.

For close to a half century, my work as a public health epidemiologist has involved field research, program management, and teaching, mostly on public health surveillance and prevention and control of communicable diseases. In these positions, I have had a unique opportunity to study the epidemiology of HIV from the initial investigations in the early 1980s in California to the Global Programme on AIDS (GPA) at the World Health Organization (WHO). There I was responsible for developing the methodology and guidelines for global and regional HIV/AIDS surveillance. One of my responsibilities at GPA/WHO was to “brief” new staff members on the epidemiology of HIV. In addition I provided them with updates on global patterns and prevalence of HIV/AIDS. I found that most of the new staff (also probably the older staff) had an inadequate understanding of HIV epidemiology and a poor understanding of HIV/AIDS numbers. Now, close to two decades later, in thinking about what is needed to provide anyone involved or interested in AIDS with a better understanding of the most probable past, present and future of the pandemic, I felt obligated to write this book.

I had problems in deciding what type of book I should write and who would be the target audience. Should this book be written as a textbook or primer on AIDS, i.e., HIV/AIDS 101, or should I write it to describe my personal and professional

* In this book, “mainstream” will refer to the conclusions about HIV/AIDS by WHO, UNAIDS, CDC, and NIH. I’ll try to alert readers when I may stray or depart from “mainstream” conclusions and positions.

experience in studying this pandemic from its recognition in California in 1981 up to late-2006. I finally decided that I would include:

- 1 primers on the basic epidemiology especially the transmission dynamics of HIV related to different patterns and prevalence of risk behaviors
- 2 descriptions of the methods and data used for estimating and projecting HIV infections and AIDS deaths, along with a detailed discussion of the limitations and problems of current UNAIDS estimates and projections
- 3 my response to the many myths and misconceptions about the AIDS pandemic, and
- 4 my personal and professional views of the international response to the AIDS pandemic.

Prevailing Beliefs About the AIDS Pandemic

Several hundred theories about what AIDS is and its possible origin have probably been developed. I will not address most of these theories but will comment on a few of the most persistent in this book.

As of late-2006 two extreme views about this pandemic persist.

- *The position of Duesberg and other AIDS “dissidents”*: Human immunodeficiency virus (HIV) is *not* the cause of AIDS! The driving force of the AIDS pandemic is poverty, not sexual promiscuity.
- *The prevailing UNAIDS paradigm*: HIV is the cause of AIDS: without effective prevention programs, it is only a matter of time before heterosexual HIV epidemics will erupt in almost all populations where HIV infection rates are currently low.

The reality of the HIV/AIDS pandemic lies between these extremes.

HIV is the cause of AIDS, but epidemic HIV transmission requires the highest level of risk behaviors: HIV transmission in any population is determined by the pattern and prevalence of HIV risk behaviors present in that population, as well as the prevalence of facilitating and protective factors. *Heterosexual risk behaviors in most populations outside of SSA are insufficient to sustain significant epidemic HIV transmission.*

There is no question that HIV is the cause of AIDS, as all evidence collected over the past couple of decades by thousands of medical scientists supports this conclusion. Since the first report of AIDS, epidemic HIV transmission has been found only in populations with the highest levels of risk behaviors. With the exception of transmission from infected MSM and IDU to their regular sex partner(s), no significant HIV spread to surrounding heterosexual populations has been documented following hundreds of MSM and IDU epidemics. Nevertheless, UNAIDS and many AIDS “experts” are still sounding alarms that epidemic HIV transmission is “on the brink” of occurring if education and prevention programs are not aggressively directed to the general population, especially all youth! Peter Piot, the head of UNAIDS, in one of his speeches about AIDS in Asia said: “Let’s stop the nonsense of trying to determine a ‘natural limit’ to the [HIV/AIDS] epidemic in Asia and the Pacific...” My response is that it is epidemiologic nonsense to deny that there are no natural limits to epidemic HIV transmission based on the patterns and prevalence of HIV risk behaviors!

In addition to my contrary conclusions about HIV transmission dynamics, I also consider most of the HIV/AIDS estimates and projections made or accepted by UNAIDS to be grossly overestimated. Several years ago I received a telephone call from Laurie Garrett who was, as usual, calling from an airport and was in a great rush. She told me that some of my former colleagues in Geneva were accusing me of “low-balling” the AIDS pandemic and she asked me to comment or defend myself. I told Laurie that those persons who were accusing me of “low-balling” were themselves “high-balling” the pandemic. Laurie had to hang up to catch her plane and she never to my knowledge followed up on this subject.* As will be described in detail in this book, UNAIDS in late 2003 significantly reduced HIV prevalence estimates in many SSA countries as a result of improved surveillance data and the increasing use of population-based HIV serosurveys.

Aside from grossly overestimating prevalence in those populations where epidemic HIV transmission has occurred, UNAIDS in its December 2005 update on the AIDS pandemic included statements such as “...the pandemic is ever increasing and expanding and the numbers of persons living with HIV continues to reach all time record highs.” I have been saying that annual global HIV incidence peaked almost a decade ago. UNAIDS in its mid-2006 report on the AIDS pandemic finally acknowledged that “Overall, globally, the HIV incidence rate (the annual number of new HIV infections as a proportion of previously uninfected persons) is believed to have peaked in the late 1990s and to have stabilized subsequently, notwithstanding increasing incidence in a number of countries ...” In this book, I’ll provide data reported by UNAIDS that supports my conclusion that global HIV incidence and prevalence are not ever-increasing and expanding.

In all my contacts with journalists and reporters about the accuracy of reported or estimated HIV/AIDS numbers I try to convey the message that, because of the major limitations of HIV data, estimation of HIV/AIDS numbers cannot be very precise or accurate. However, even with limited data, HIV prevalence in populations can be confidently classified as low (less than 1 per thousand in the 15–49 year age group), moderate (more than 1 per 1000 and less than 1 per 100), high (more than 1 per 100 and less than 1 per 10), or very high (more than 1 per 10). Even if HIV prevalence estimates in many or most SSA countries were reduced by 50 percent or more, HIV prevalence will still be high or very high in most SSA countries. I caution journalists not to throw out the *baby* (high and very high HIV infection rates in Africa and to a lesser extent in several Caribbean countries and a few SE Asian countries, as well as in MSM and IDU populations throughout the world) with the *bathwater* (the general overestimation of HIV in Africa, the Caribbean and Asia and the exaggerated potential for “generalized” HIV epidemics).

I also have significantly different views and conclusions regarding the UNAIDS litany of poverty, discrimination, and lack of access to healthcare as major factors for the high HIV prevalence rates in SSA. In my opinion, a double standard is used by “mainstream” AIDS organizations which attribute high HIV and other STD rates in black populations in the USA and in SSA primarily to poverty,

* I suspect that Laurie believes that I have been too conservative or low with my HIV estimates and projections, but most of my conservative estimates and projections are probably still a bit high! In February 2005 she was quoted in a news release supporting Susan Hunter’s new book *AIDS in Asia: A Continent in Peril*, that claims that figures for HIV prevalence in Asia are vastly underestimated, whereas I believe they are overestimated.

discrimination and lack of access to healthcare while clearly pointing out that the major reason for high HIV and other STD rates in MSM populations is high sexual risk behaviors. This double standard is clearly shown in the editorial comments made by CDC following two reports of syphilis in the same issue of MMWR in 2001.

Primary and Secondary Syphilis – USA, 1999

...Syphilis continues to disproportionately affect minority populations – the 1999 reported rate of P&S [primary and secondary] syphilis in blacks was 30 times the rate reported in whites (0.5). [This] is, in part, attributable to differences between blacks and whites regarding *poverty* and in *access to and use of health-care services*, especially in the rural South...

Outbreak of Syphilis Among Men Who Have Sex With Men – Southern California, 2000

...The results of this investigation and other similar outbreaks suggest that an increasing number of MSM are participating in *high-risk sexual behavior* that places them at risk for syphilis and HIV infection.

(2001) *MMWR*. February 23, **50**(07)

Since my resignation from GPA/WHO in early 1992,* I have been an independent consultant to evaluate the patterns and prevalence of HIV in developing countries – primarily in Africa and Asia for different international agencies. I have prepared dozens of country reports and a few regional reports for USAID, the Asian Development Bank, the World Bank, and the WHO Regional Offices in Manila (WPRO) and New Delhi (SEARO). Much of what is presented in this book was prepared for these reports. In addition, some of the text and graphics are from material I have prepared for the classes and seminars I teach at the School of Public Health, University of California at Berkeley.

Chapter Previews

Chapter 2: Personal and Professional Background

This chapter is not essential for understanding the AIDS pandemic. It provides readers with details of my personal and professional background up to the time I joined Jon Mann at WHO in Geneva, Switzerland in early 1987. I was born in China[†] and I arrived in Brooklyn, NY, when I was about 5 years old. My formal education started in PS 99 in Flatbush and ended with my receiving an MPH in Epidemiology from the School of Public Health, UC Berkeley in 1961. My professional training and experience as an infectious disease epidemiologist began in 1961 with my appointment as an International Research Fellow first with the Hooper Foundation at the UCSF Medical Center and subsequently at the Institute for Medical Research (IMR), in Kuala Lumpur, Malaysia. I became chief of the Infectious Disease Section, California State Department of Health Services in Berkeley, California from the early 1970s until 1987. My experience with the

* Details as to why I resigned from GPA/WHO are provided in Chapter 11.

[†] My older brother, Bill, and I had derived US citizenship from our father who was a naturalized US citizen.

Global Programme on AIDS (GPA) and my work on HIV/AIDS since my GPA tenure are described in the last chapter – Chapter 11.

Chapter 3: The Most Probable Origin and Initial Global Spread of HIV

This chapter provides “documentation” for what most mainstream scientists and public health workers believe to be the origin of HIV: it includes a description of the origin of most human infectious disease agents and a brief review of emerging infectious diseases since 1950. An interesting note is that since starting my classes on the AIDS pandemic at the UC School of Public Health in Berkeley, I have had very few students who know anything about Jon Mann. None of them had any idea of why and when he went to Kinshasa, Zaire.* This chapter provides details taken from several oral histories that can be accessed via the internet about how and why Project SIDA[†] was established in 1983 in Kinshasa by NIH, CDC, and the Belgium Institute of Tropical Medicine. What amazes me is how few people who are currently interested in or working in AIDS programs are aware of Jon Mann and the Haiti to Zaire connection in the 1960s and 1970s.

Chapter 4: A Basic Primer on HIV Infections and AIDS Cases (HIV/AIDS)

When I was responsible for briefing GPA staff on HIV epidemiology and global trends, I was surprised at their general lack of knowledge about epidemiology and infectious diseases. Some hardly knew the difference between a bacterium and a virus. Thus, I decided to include a chapter that would bring all readers up to speed on the basics of epidemiology, especially infectious disease epidemiology. Readers who do not have a biology or science background will find here basic information on the epidemiology of infectious diseases so that they can understand that HIV is not a simple or “classical” infectious disease agent. I believe that even those who consider themselves to be very knowledgeable about infectious diseases should at least skim this chapter to see if we are in general agreement on the natural history and epidemiology of HIV infection.

Chapter 5: HIV Epidemiology and Transmission Dynamics

This chapter is the most detailed, technical section in the book and is the only one in which I have included detailed references as endnotes. Of special importance is that this chapter explains why *HIV is not and cannot become a “generalized” infectious disease agent*. The information here is essential for understanding HIV epidemiology and transmission dynamics; such an understanding is needed to identify populations in whom epidemic HIV transmission may be expected. Key epidemiologic and infectious disease concepts include:

- 1 the definition of an infectious disease epidemic, including when an epidemic can be considered a “generalized” epidemic
- 2 the basic reproductive number (R_0) of an infectious disease agent
- 3 the generally low infectivity of HIV via sexual intercourse

* Zaire is now the Democratic Republic of the Congo.

† SIDA is the French acronym for AIDS.

- 4 the paramount importance of patterns, prevalence, and frequency of sex partner exchanges for sexual transmission, including the size and extent of overlapping sex networks
- 5 the importance of major facilitating factors (not cofactors) and protective factors such as male circumcision and condoms for epidemic sexual HIV transmission, and
- 6 the fact that there are major differences in the patterns and prevalence of sexual risk behaviors as well as facilitating and protective factors within and between countries and regions.

These concepts are described in this chapter along with a detailed description of HIV epidemiology and transmission dynamics.

Chapter 6: Understanding HIV/AIDS Numbers

There has been and continues to be tremendous misunderstanding and confusion about HIV/AIDS numbers. HIV is not a simple infectious disease agent because the disease syndrome it causes (AIDS) does not usually develop until years, perhaps up to a decade or longer, after infection. Thus, in measuring and monitoring HIV infections and AIDS cases and deaths, these different stages of HIV infection need to be kept in mind constantly. HIV/AIDS programs need to know how many persons may have acquired an HIV infection in a year (annual HIV incidence); how many persons are living with an HIV infection at the end of a year (HIV prevalence); and how many AIDS deaths occur in a year. Specific definitions for each of these numbers and rates are given here as well as description of the methods and data used to estimate these numbers and rates. It's fair to say that in 2005, both the heads of UNAIDS and the Global Fund revealed that they do not fully understand how annual incidence numbers in India are estimated. They would do well to read this chapter through carefully.

Chapter 7: How Credible are HIV/AIDS Estimates?

This chapter describes HIV/AIDS patterns, prevalence levels, and trends in all the major global regions. It also reviews and evaluates the problem of overestimation and projection of HIV prevalence in SSA and in selected Asian countries. In mid-2005 UNAIDS issued a press release on the status of the AIDS pandemic that declared that there was a "quantum worsening in the [HIV] epidemic's trajectory." However, since the late 1990s, there has been a clear trend of leveling or slightly decreasing HIV prevalence rates in SSA and most other global regions. There is no marked increase in HIV prevalence – except for a few countries where HIV epidemics in IDU populations have continued almost unabated. Many countries in SSA and the Caribbean region have, in recent years, carried out population-based HIV surveys. These indicate HIV prevalence has been overestimated on average by about 50 percent. HIV prevalence estimates probably remain too high in those SSA countries where population-based surveys have not been carried out and so are likely too high in many Caribbean, eastern European and Asian countries. UNAIDS finally acknowledged in mid-2006 that epidemic HIV transmission peaked in SSA almost a decade ago. UNAIDS will now need to modify their previous standard press releases to expunge the words "ever-increasing" or "expanding" to describe the current status of the AIDS pandemic.

Chapter 8: HIV/AIDS Prevention

HIV prevention programs have been implemented throughout the world over the past two decades with only limited success. Explosive HIV epidemics in IDU populations continue to occur. Explosive sexual HIV transmission has been more successfully controlled by the 100 percent condom program for commercial sex encounters. However, little progress has been made in preventing transmission from HIV-infected persons (regardless of how the infection was acquired) to their regular sex partners. This latter pattern may now be the predominant mode of HIV transmission throughout the world. This chapter describes: primary HIV preventive measures along with the major issues associated with these public health interventions; and problems of measuring and evaluating the success of HIV/AIDS programs in reducing HIV incidence and prevalence. HIV prevention programs need to re-evaluate their prevention strategies to respond more effectively to current patterns of HIV transmission. This means directing attention primarily to HIV-discordant couples and regular sex partners of HIV-infected persons. All HIV prevention programs now need to identify HIV-infected persons systematically and nominally (by name) to: provide them with secondary and tertiary prevention services (i.e., ART) as needed; and routinely follow-up on all of their regular sex partners to provide them with primary, secondary, or tertiary prevention services, as needed.

Chapter 9: Dispelling “Glorious” HIV/AIDS Myths and Misconceptions

Most of the far out “flat earth” type theories of the origin of AIDS and what AIDS is or isn’t, were dismissed by mainstream science by the mid-1980s. However, several glorious myths and/or misconceptions about HIV epidemiology continue to be accepted and used by UNAIDS as well as 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 adolescents and young adults – it is just a matter of time before heterosexual HIV epidemics erupt in current low HIV prevalence populations. The studies and observations of HIV epidemiology and transmission dynamics 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.

The “glorious” myths and misconceptions of UNAIDS cannot be dispelled until there is a willingness among current “believers” to at least accept the possibility that the UNAIDS paradigm has little or no clothes! UNAIDS and all AIDS activists should be happy to hear that global HIV incidence probably peaked about a decade ago, but they have been reluctant even to consider this possibility because it undermines their paradigm. UNAIDS has finally accepted the fact, or at least

* Also referred to as sexual promiscuity.

the possibility, that the AIDS pandemic has peaked. UNAIDS will now have to prepare the public and policy makers to accept the reality that, even though HIV incidence has peaked, the pandemic is not over. I totally agree with mainstream AIDS experts who declare that this is not a time to be complacent about HIV prevention, since annual global HIV incidence will still be at least 2 to 3 million.

Chapter 10: The Most Probable Past, Present, and Future of the AIDS Pandemic

This chapter compares the AIDS pandemic with other major infectious disease pandemics to put AIDS in historical perspective. It also compares AIDS deaths with other leading causes of death to provide a global perspective on the current impact of the pandemic. The AIDS pandemic is without question one of the most severe infectious disease pandemics in modern times. Yet compared to the estimated **billion** or more TB deaths in the 18th and 19th Centuries alone, AIDS has a long way to go to catch up to the death tolls of old human diseases like TB and malaria. In addition, the global impact of AIDS has been and will continue to be very uneven. AIDS deaths in SSA will continue to be the leading cause of death in this region for at least the next several decades. In many or most MSM and IDU populations throughout the world, AIDS has been, is, and will continue to be the leading cause of death in these populations for decades to come. However, the demographic impact of AIDS deaths in countries outside of SSA will be minimal to non-measurable. In most of the world's heterosexual populations, epidemic sexual HIV transmission has not occurred. Furthermore, there are no valid epidemiologic reasons to expect epidemic HIV transmission in populations without high risk patterns and the highest prevalence of HIV risk behaviors.

Chapter 11: The International Response to the AIDS Pandemic

This chapter presents my observations and biases regarding the international response to the AIDS pandemic from WHO's initial efforts in the early 1980s to the past decade of effort by UNAIDS and more recently the Global Fund for AIDS, Tuberculosis, and Malaria (ATM). The personal jealousies and politics that I believe prompted Jon Mann to resign his position as Director of GPA in 1990 are described. In addition, I describe how GPA was converted into a "typical" WHO program after Jon's departure by his successor – Mike Merson. This chapter also includes a brief overview of the international response to the AIDS pandemic after UNAIDS replaced GPA/WHO in the mid-1990s.

The AIDS pandemic has exposed the major problems and inequity of international health programs. Prior to the AIDS pandemic, no international agency or donor provided support for routine treatment for any disease as part of its international health commitment. Effective, but expensive, anti-retroviral drugs needed on a daily to weekly schedule have significantly extended the lifespan of HIV-infected persons. These drugs are now provided to virtually all HIV-infected persons who need them in most developed countries. The WHO's 3 by 5 program established an international health precedent by setting a target for the provision of anti-retroviral treatment (ART) for HIV-infected persons in resource-poor countries. The responsibility for further development of international support for ART in developing countries has been assumed by the Global Fund. As of

late-2006, it is not clear if the moral commitment made in late-2005 by the richest (G-8) countries to assure universal access to ART in developing countries by 2010 will or will not be met.

In concluding this introduction and overview, I'm copying the first couple of sections from the flyer posted for my course at UC Berkeley, since it succinctly describes what I'll be presenting in this book and what the prerequisites are for reading it.

PH 295: The Epidemiology and Transmission Dynamics of the AIDS Pandemic

Overview: This course provides a detailed review of the past, present, and probable future of the HIV/AIDS pandemic based on the basic epidemiology and natural history of HIV, especially HIV transmission dynamics and the paramount importance of the patterns and prevalence of HIV risk behaviors. A major focus will be to evaluate official HIV/AIDS estimates and projections. Readings and discussions will focus on the primary determinants of epidemic HIV transmission. Most of the papers and reports used are available via the Internet.

Prerequisites: Good access to the Internet and an open mind regarding the past, present and probable future of the HIV/AIDS pandemic.