LABOR MIGRATION, GOLD MINING, AND LOW HIV PREVALENCE IN GUINEA

By

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To Kristi Kiš, my wife, supporter, biggest fan, and best friend
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Guinea, West Africa has an estimated HIV prevalence of between 1.5 and 3.2%. This figure is among the lowest in the region and on the continent. Though Guinea has low HIV rates, it also has many of the same traits that correlate with high HIV infection rates elsewhere. For example, typically when male labor migrants are away from home for long periods of time, they engage in unprotected, multi-partner sex with prostitutes, rapidly facilitating the transmission of HIV. In Guinea, mining accounts for approximately 70% of exports, and the mines attract thousands of labor migrants from across the country and from neighboring countries. Yet these mining regions have the lowest HIV rates in the country. My study offers cultural and behavioral explanations for this phenomenon. My data shows that faithfulness to one’s sexual partner or partners was the most widely-practiced HIV prevention strategy, and short-term marriage is one cultural expression of this sexual partner reduction.
CHAPTER 1
INTRODUCTION

The Research Problem

Much research has gone into understanding the cultural causes and effects of AIDS in places that are hardest-hit by the pandemic worldwide. Anthropological and epidemiological theories about HIV transmission have sprung out of studies of those nations with the highest infection and death rates in the world. Billions of dollars a year are poured into academic research and development projects aimed at alleviating the effects of AIDS on individuals, families, and employers in high prevalence nations.

In contrast, aside from Thailand, Uganda, and Senegal, comparatively little inquiry has delved into understanding low HIV prevalence countries. Nations with low HIV rates may hold important theoretical clues that can help explain and reduce HIV transmission in high prevalence places. The Republic of Guinea, West Africa, a nation of more than 9.5 million people (Central Intelligence Agency 2006), is one such low HIV prevalence place.

The highest estimates place Guinea’s HIV prevalence at 3.2% (Joint United Nations Programme on HIV/AIDS 2004; see Figure 1-1), while a recent Demographic and Health Survey co-conducted by Macro International (Direction Nationale de la Statistique 2005a) concurs with more conservative estimates (Joint United Nations Programme on HIV/AIDS 2001) placing HIV prevalence at 1.5%; this suggests either a drop in infection rates, over- or underestimation of the prevalence of the disease, or statistical variation. In any case, these figures are some of the lowest in the region and on the continent. In neighboring Côte d’Ivoire, for example, the HIV rate is 7.0%, while in Botswana it is 37.3% and in Swaziland it is 38.8% (Joint United Nations Programme on HIV/AIDS 2004).
Some 25 years into an epidemic that has ravaged the continent of Africa, it is remarkable to find a sub-Saharan African nation that has still not succumbed to the disease in any significant way. Perhaps because it seems initially counterintuitive to some that a sub-Saharan African nation can truly have such low AIDS rates, there are those who quibble with these figures. Most often cited as counterevidence are personal reports from health workers in the field who believe rates to be much higher (though personal opinion cannot trump scientific results substantiated through rigorous research) and objections relating to the reliability of sentinel surveys of maternity clinics (though such objections are not often used to invalidate reported rates of high HIV prevalence countries). The flaw in these objections, however, is that though sentinel surveys may be an imperfect method of determining national HIV seroprevalence, nothing suggests that the method would be any more imperfect in Guinea than elsewhere. Whatever error is introduced into a reported national prevalence rate through methodological insufficiency is no more likely to skew Guinea’s figures any more than other sub-Saharan African countries whose rates were determined using exactly the same methods. Therefore, regardless of any inaccuracies in Guinea’s reported absolute rate, the figures indicate lower relative HIV prevalence than most other sub-Saharan African nations.

In addition, the recent Demographic and Health Survey (which reported a 1.5% prevalence rate) was among the first to move away from the maternity clinic sentinel survey method, instead drawing blood directly from a national sample of both men and women. The report describes their methodology as follows (author’s translation from the French):

With the inclusion of an HIV test in the EDSG-III survey, Guinea is one of the first sub-Saharan African countries to enrich its HIV database with data from a national survey, representative of the general population. For the first time, the country has a direct measure of HIV prevalence instead of an estimation derived from a model based on data from sentinel sites and adjusted by certain parameters. UNAIDS and WHO recommend
that the results from a nationally representative survey be used to calibrate the results of regular surveillance. [Direction Nationale de la Statistique 2005a:36]

Others have attempted to discredit the significance of Guinea’s low AIDS rates with the tautological argument that the rates are so low because AIDS hasn’t yet arrived in Guinea full force. Yet that does not explain why AIDS hasn’t yet arrived in full force, especially considering the higher rates of virtually all of Guinea’s adjacent neighbors. That is precisely the phenomenon of interest. Despite a constant influx of immigrants, refugees, and temporary migrant workers from its higher-prevalence neighbors, national AIDS rates in Guinea have remained low for years.

Guinea is particularly intriguing because, although it has low HIV rates, it also possesses some of the very traits that correlate with high rates of HIV infection elsewhere. For example, it is argued that high poverty is associated with high rates of HIV transmission because poverty produces prostitution, inadequate access to risk-reduction information, and poor access to public health services (Seeley et al. 1994; Hulton et al. 2000; Wyohannes 1996; Krueger et al. 1990). Guinea’s annual per capita GDP of $1,960 puts it at 157th of 175 ranked nations of the world (United Nations Development Programme 2003), yet it lacks the predicted accompanying high rate of HIV. It has also been observed that early sexual debut (associated with increased numbers of sexual partners over a lifetime) increases the probability of being infected with HIV, particularly where early debut involves very young women having unprotected sex with older men (O’Donnell et al. 2001). Guinean youth, however, make their sexual debut at an average age of 16.3 for girls and 15.6 for boys – that is, at approximately the same age as their counterparts elsewhere in high HIV prevalence Africa (Görgen et al. 1998), but there is no parity of HIV prevalence rates between Guinea and most other parts of Africa.
Particularly perplexing is the fact that Guinea, like many high HIV prevalence countries in sub-Saharan Africa, has a high rate of male labor migration. Longstanding theory predicts that when men are away from home for a long time, they are likely to engage in unprotected, multi-partner sex, particularly with prostitutes, which greatly increases both the likelihood of their becoming infected with HIV and of their transmitting the virus to others (Hunt 1989). In Guinea, mining (particularly bauxite, diamonds, and gold) accounted for over 70% of exports in 2004 (Central Intelligence Agency 2006). These mines attract thousands of labor migrants from across the country and from neighboring countries with higher HIV rates. Yet according to a USAID study, out of the five regions of Guinea, the two regions containing the largest gold, diamond, and bauxite deposits in the country (Haute Guinée [gold and diamonds] and Basse Côte [bauxite]) have the lowest HIV rates (2.1% and 2.7% respectively; Fouta Djallon has 3.9%, Conakry has 5.0%, and Guinée Forestière has 7.0%) (Lartigue 2001; see Figure 1-2). In other words, the mining sites for the three principal minerals in the country which account for some 70% of exports and attract hundreds of thousands of workers from higher HIV prevalence regions and neighboring countries are located in the regions with the lowest HIV in the country.

In fact, of all the high-risk groups identified in the country, miners in Guinea have the lowest HIV prevalence at 4.7%. This is 68% higher than the 2.8% prevalence in the general population (as reported in the same study), but it is significantly lower than that of commercial sex workers (42%), tuberculosis patients (16.7%), truckers (7.3%), and members of the military (6.6%) (Lartigue 2001; Direction Nationale de la Statistique 2005b).

What might be going on in Guinea’s mining communities that has a protective effect against HIV transmission? Understanding how this dominant industry has managed to stave off widespread infection thus far can fill in a piece of the puzzle that explains how Guinea as a
whole is avoiding the pandemic. It can also contribute important insights into our broader understanding of HIV transmission in Africa in general.

**Guinea’s Historical Context**

Prior to colonization, the Malinke people had established dominance over Upper Guinea, and soon thereafter (by the 14th century), the whole of Guinea’s territory was incorporated into the Empire of Mali.¹ A century later, Portuguese sailors were among the first Europeans to reach Guinea’s coast, and by 1891, Guinea had become a French colony. There were several resistance movements throughout the French colonization period, the most famous of which was led by Samory Touré. By the mid-1950s, a descendent of Samory, Sekou Touré, was again at the forefront of an independence movement.

With restive independence movements gaining steam across the continent by 1958, the French tried to stay a step ahead of the inevitable by offering each of their West African colonies a choice between increased autonomy within the French system or immediate, complete independence. Guinea was the only country choosing immediate, complete independence, with Sekou Touré declaring that “we prefer freedom in poverty to prosperity in chains.” What happened next is somewhat of a mystery. Conflicting reports indicate that the French were so incensed by this choice that they destroyed infrastructure that they couldn’t take with them, ripping out telephone and electric lines, destroying buildings, and damaging roads and bridges as they pulled out. Such large-scale destruction does not appear to be a hallmark of subsequent French pullouts from other African colonies, either indicating that the reports from Guinea were inflated or that the French realized later on that such a method of pullout was not good policy. In

¹ Information contained in this section was gleaned from Lonely Planet 2002, Central Intelligence Agency 2006, US Department of State 2006, Rémy 1999, and personal conversations with Guineans in the field.
any case, what is certain is that as the French colonial administration and private citizens fled in haste, they took their immense amounts of capital with them.

This sudden large-scale pullout created a vacuum into which Sekou Touré stepped as the country’s first president. The ascension of a Guinean to the country’s leadership, however, didn’t alleviate the need for outside assistance. The French pullout had been so abrupt that Guinea’s economy risked collapse if there was to be no transitional assistance. Having alienated the West with its abrupt rejection of France’s offer of autonomy, Guinea looked for assistance behind the Iron Curtain. But when the Soviet Union proved lukewarm in its support, Sekou Touré instead modeled his country’s economy on the Chinese Maoist system of collectivized agriculture. Having started out on a bad foot economically, this “cultural revolution” dragged the country down even further, leaving Guinea so devastated that it still reels from the consequences today, despite attempts at reform and subsequent outside assistance from the West.

When Sekou Touré died of heart failure in 1984, General Lansana Conté succeeded him in office, where he remains to this date.

To this day, the Malinke are one of the largest ethnic groups in Guinea, and the Malinke language is a lingua franca of sorts throughout the country. Malinke are influential in all levels of society, producing one of francophone Africa’s best known authors (Camara Laye), several of Guinea’s key political leaders, both past and present, and hosting one of the best universities in Guinea in Malinke territory (the University of Kankan). Today, the Guinean Malinke heartland is centered in Upper Guinea, and Siguiri (the site for this research project) is one of this region’s principal cities.

Because of its particular history, Guinea is less developed than many of its next-door neighbors in the region, having ranked at or near the bottom of the UN’s quality-of-life index for
the past 15 years or so. Like many sub-Saharan African nations, Guinea is also dealing with the arrival of AIDS. Its long-term isolation from the outside world, however, may also have shielded it from developing AIDS as endemically as the rest of Africa. African nations with the most outside contact with each other and the rest of the world (particularly the West) have the highest rates of HIV on the continent. Correlation does not necessarily imply causation, but it is impossible nonetheless to ignore the relationship. Aside from HIV, Guinea’s contemporary challenges include gross underdevelopment, accommodating over half a million refugees from neighboring Liberia and Sierra Leone, and steering clear of involvement in cross-border strife stemming from those nations’ recent civil wars.

**The History of Gold Mining in the Bouré.** Gold has been mined in the Bouré since at least the time of the Empire of Mali in the 14th century (Bouré 1999). The Empire of Mali was known for its wealth of gold, which was passed on to successive empires that ruled the same region (Clarke 1964). Industrial gold mining in the modern era centers on Siguiri, with the largest operation in the country run by SAG\(^2\) since 1985 (Direction Nationale de la Statistique 2005b). Information on the history of traditional mining in Guinea is extremely scarce, but it is reported that children from the age of 12 onward sometimes accompany their parents to the mines, providing labor with no recompense save for experiential knowledge enabling them to become miners themselves. In this way, there is continuity with the past and children continue the family history of involvement in gold mining (Direction Nationale de la Statistique 2005b).

\(^2\) There does not seem to be consensus on what SAG stands for. It has been alternately referred to as Société Ashanti de Guinée, Société Ashanti Goldfields, and Société Aurifière de Guinée. It appears, however, that SAG is owned by AngloGold Ashanti, a merger of South Africa’s AngloGold and Ghana’s Ashanti Goldfields.
The Dissertation Outline

The rest of this document outlines HIV prevention strategies being used in Guinea’s mining communities, and situates this information in a historical context. Data for this research project were collected between October 2005 and April 2006 near Siguiri, Haute Guinée (Upper Guinea), Guinea. Seven rigorously selected and trained field research assistants (four male, three female) helped with various portions of data collection and translation between French and Malinke. During the research I was a part-time volunteer with ADRA Guinea (Adventist Development and Relief Agency). This gave me immediate entry to the area and access to resources such as office support. The study, however, was conducted independently of ADRA: the organization had no part in designing or supervising the research.

The next four chapters address the historical and theoretical background of this study. Chapter 2 discusses the history of anthropological investigation into HIV/AIDS through mid-2006. Chapter 3 examines the sometimes acrimonious debate between adherents to radically different paradigms about how best to fight the epidemic. Chapter 4 investigates that cherished Western ideal, the educational model of social change, and explains why it has limited impact on behaviors rooted below the superstructural level. Chapter 5 traces the history of indigenous disease prevention in West Africa, particularly in the context of non-Western models of disease etiology.

Chapter 6 presents the data from this study and analyzes them in reference to specific hypotheses and cultural narratives. Chapter 7 concludes with a discussion of the research findings, how they tie in to the historical and theoretical background presented in earlier chapters, and what inferences can be drawn from the information presented.
Figure 1-1. Adult HIV Rates in Africa for 2003 (Source: Joint United Nations Programme on HIV/AIDS 2004)
Figure 1-2. HIV Prevalence in Guinea by Region (Source: Lartigue 2001)
CHAPTER 2
ANTHROPOLOGICAL PERSPECTIVES ON HIV/AIDS

Almost as soon as AIDS was identified, researchers from nearly every discipline rushed to describe this new disease. Efforts to understand its causes, manifestations, and transmission modes revealed more questions about its origins, effects, and preventability. Now, more than 25 years since its emergence, AIDS is still one of the hottest topics in biomedical and sociocultural research, both because a cure still evades the medical research community, and because there is sharp disagreement within the behavioral scientist community about the best way to prevent and control the epidemic.

This chapter traces the history of HIV/AIDS research from an anthropological perspective, focusing on literature that deals with the social aspects of the disease, rather than its biomedical aspects. The literature on AIDS is addressed from three different angles: causes, effects, and risk groups. The section on “causes” addresses cultural factors that assist in the transmission of AIDS; “effects” looks at cultural impacts of the disease; and “risk groups” analyzes what constitutes a risk group (and the validity of defining such groups).

This literature review is not exhaustive. A search for “HIV” in Journal Storage: The Scholarly Journal Archive (JSTOR) alone produces 8,856 hits. Limiting the “HIV” keyword search to anthropological journals produces 244 hits (search conducted on www.jstor.org, April 26, 2005). Expanding the search to other journal search engines would add to these figures. In this chapter, I focus on the major themes of social science research on HIV/AIDS.

Causes/Transmission

Where did AIDS come from in the first place? There is strong speculation among biological scientists that it was a crossover virus that leapt from other primates into humans in Africa. But not all theories of origins are biological – or accidental. Some see a sinister, human
hand in the genesis of the disease. There are those who believe AIDS arose from a batch of contaminated polio vaccines intentionally administered in central Africa in the 1950s, à la Tuskegee (Marshall 2004).³ Others, such as the outspoken Kenyan Deputy Environment and Natural Resources Minister and recent Nobel peace laureate, Wangari Maathai, advance the idea that the AIDS virus was deliberately created by a Western scientist for biological warfare and mass extermination. It was, she claims, created to exert control over black people, though no one knows exactly who created it (Agence France Presse 2004).

Among the early attempts to describe the epidemiology of AIDS, Quinn et al. (1986) recognized that AIDS is caused by a virus that is spread through both social means (sexually; through childbirth) and through non-social means (blood transfusions; unsterilized needles). They were also among the first to recognize that, although the biological manifestation of AIDS is similar in most patients, “the epidemiology and clinical features of the infection in different countries may vary, depending on cultural differences, endemic diseases, and other unidentified risk factors” (Quinn et al. 1986:955-956). Homosexual contact and intravenous drug use were already established modes of transmission of AIDS in the United States at that time; through a careful accounting of AIDS cases in Africa, it was acknowledged that AIDS can also be transmitted through heterosexual contact, and that this latter form of transmission is much more prevalent in Africa than any other.

Over time, these differences in transmission patterns became more widely recognized, and it was deemed useful to formalize these differences for the sake of targeting interventions more appropriately. The epidemiological community initially identified two primary transmission

³ In the infamous Tuskegee study of syphilis, patients were not adequately informed of their diagnosis and treatment options in order that the disease could run its course and observations could be made about each stage of the illness. This caused permanent damage or death in many study participants, and though the study advanced modern medicine’s knowledge of the disease significantly, it has been cited as an all-time low in research ethics.
patterns, but the list was eventually expanded to four patterns. Each pattern typically predominates in a specific region of the globe. Pattern I is typified by male-to-male sexual transmission and transmission by intravenous drug users (this is found in industrialized countries of the West). In Pattern II, male/female transmission predominates, and perinatal transmission is common (this typifies sub-Saharan Africa and the Caribbean). Pattern III, which exhibits few cases, involves transmission through infected blood supplies (this is found in Eastern Europe, North Africa, and the Middle East). Finally, Pattern IV primarily involves transmission from female sex workers (FSW’s) to their clients, with a higher number of infected men than women (a few FSW’s are core transmitters to a large proportion of male clients; this typifies Asian transmission patterns) (Green 2003b).

According to Green, the epidemiological community has now somewhat abandoned these designations, believing that only one pattern would emerge over time (2003b). This abandonment may have been motivated by ignorance of how to deal with multiple modes of transmission. At the outset, there was only one known way to approach HIV reduction (based upon the gay community in the West), and there may have been reluctance within the ranks of AIDS experts to acknowledge patterns that they did not know how to deal with conclusively. But time has demonstrated that pattern differences persist, and unique social and cultural influences on HIV transmission should not be ignored. Acknowledging different causal patterns opens the door to multiple prevention solutions, which may lead to more successful outcomes than are currently being seen in the worldwide fight against AIDS.

Nested within the various patterns themselves, specific factors (behavioral and biological) are known to cause or facilitate HIV transmission. Body fluid exchange is the primary biological driver, while the presence of STD’s facilitates HIV transmission during sexual contact. High-
risk groups (such as prostitutes) can disseminate the disease rapidly, and HIV-positive mothers can transmit the infection to their children through childbirth and breastfeeding. Ritual scarification, tattooing, circumcising, and piercing also have the potential to transmit HIV (Quinn et al. 1986).

Other researchers have noted additional specific factors that cause or facilitate the spread of HIV. For example, Parker (1987) described how Brazilian cultural understandings of sexuality permit both male-male and male-female anal intercourse to be practiced by heterosexuals without necessitating a change in sexual identity. This cultural trait permits HIV to jump easily between the homosexual and heterosexual populations, and it blurs the lines between the distinct transmission patterns discussed above. This does not necessarily mean that a new pattern should be developed for every possible variation. But at the very least, it needs to be acknowledged that exceptions do exist to the recognized transmission patterns, and these exceptions should trigger awareness of the specific cultural contexts that influence how HIV is spread. Rather than discrediting the pattern identification system altogether, exceptions refine it and make the system more versatile to help develop appropriate responses.

Other well-known HIV infection routes include transmission by truckers and migrant workers who frequent prostitutes (see more about this under the “Risk Groups” section of this chapter). Hunt (1996) labeled these activities “sexual networking”, and they were accelerated in Africa as a result of the introduction of colonial enterprises that relied upon trucking and migrant labor. Colonists deliberately left certain areas of their territories underdeveloped, so that inhabitants would continue in subsistence agriculture and remain as a labor pool from which they could draw workers for enterprises in other regions (Hunt 1996). In the post-colonial era,
truck and labor migration remain vitally important to the economies of many African nations, and sexual networking of the kind described by Hunt remains widespread.

HIV may also be transmitted via dangerous, unethical research practices. Like the Tuskegee study alluded to earlier, studies of HIV transmission may neglect to treat and inform research subjects about the HIV status of their partners so that they can make an informed decision about whether or not to continue the relationship at the risk of their own infection (Marshall 2004).

While some researchers look at behavioral factors that directly affect HIV transmission, others prefer to focus on external factors that influence behaviors themselves. One example is Farmer’s account of AIDS in Haiti (1992). He focuses on structural inequality and poverty as catalysts for AIDS transmission; those in “power-down” positions or extreme poverty are less able to resist unwanted sexual advances; they engage in money-generating sexual behaviors; and they have the least access of anyone to adequate health care. Another example is Poku (2002) who argues that Africans are no more hypersexualized than many Westerners who also engage in unprotected multipartner sex, so a behavioral explanation for differential HIV transmission rates won’t do. Though Poku may be right (notwithstanding the difficulty one would face in creating an unbiased index of hypersexuality with which to compare the two groups), similar levels of hypersexuality would not necessarily indicate similar expressions of hypersexuality. Cultural and behavioral differences would still generate different patterns of HIV transmission, even if levels of sexual activity were similar between the West and Africa.

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4 Marshall (2004) takes this a step further by saying that racial mischaracterization of Africans’ hypersexuality causes many Westerners to believe that Africans deserve AIDS, fueling Westerners’ apathy towards its mitigation in Africa.
Though Poku says that sexual behavior can be an important factor, “alone, however, it appears totally inadequate in explaining HIV prevalence as high as 30% of the adult population in some African countries and less than 1% anywhere in the Western world” (2002:533). Instead, Poku fingers poverty as the culprit driving the epidemic. It constrains the treatment of STD’s (cofactors in HIV transmission), drives people to seek work away from home (increasing multipartnering), and creates even deeper poverty by killing off productive family members and driving girls and women into prostitution to survive. In addition, Poku argues that structural adjustment policies – which cut governmental health expenditures to bring budgets more in line with donor expectations – constrain the ability of behavior change strategies to be successfully implemented (2002).

Rather than just rely on anecdotal evidence, Seeley et al. (1994) tested the hypothesis that socioeconomic status is associated with HIV risk, using type of dwelling, available land size, cattle ownership, and an index of household items as measures of wealth. The study, conducted in southwest Uganda, found that all four indicators revealed that the poorest heads of household were most likely to be HIV-positive. The authors speculated that the reason for this is partly due to the nature of income-generating strategies practiced by the poor in order to survive.

Behavioral and structuralist explanations are not mutually exclusive. Poverty drives people to engage in risky sexual behaviors to survive, but sexual behaviors that spread AIDS exacerbate poverty. This means that we should not be asking whether to pour prevention money into behavior modification or into changing the structures of poverty, since both kinds of intervention are needed.

**Effects**

In addition to sociocultural causes of AIDS, researchers are also interested in the effects of AIDS on individuals and societies. Bloom and Carliner (1988) note the economic impacts that
AIDS can have, such as affecting market output if a significant number of workers fall ill or die from the disease. It also affects family economics, as earnings from a sick individual are foregone, in addition to any household services they might render if healthy. Paul (1994) reports that in Thailand, tourism and foreign investment are also impacted, which has serious financial repercussions for the nation.

Fredland (1998) argues that AIDS has consequences for the national psyche of many African countries. Independence and nationalism are relatively recent phenomena, but as AIDS cripples African countries, Fredland believes that their national identity (patriotism, national pride, optimism for progress) will be undermined. Life expectancy is also affected by AIDS. In countries hardest hit by the epidemic, life expectancies can drop by more than 20 years in a relatively short time, and the most highly educated elites may be severely affected (Fredland 1998). This can rapidly destabilize a country that depends on those elites for smooth operation of government and society.

Knodel et al. (2001) discuss the effects of AIDS on the elderly, including strains of caring for their sick adult children, providing financial support, raising orphaned grandchildren, dealing with emotional stress, and losing support for themselves that would have been provided, had their children not died prematurely of AIDS. The effects are particularly great in cultures that place a high value on intergenerational care giving and familial support.

In earlier work, Kiš reported the effects on funeral culture in Malawi as rural people face rising death rates from AIDS (2007). Attending funerals cuts into productive work time, puts a strain on finances (as each attendee is expected to bring a gift to the family of the deceased), and sometimes interferes with other social obligations. In response, Malawians are attending only the highest priority funerals (defined as those for people they feel indebted to or in whose
families they want to create a sense of social indebtedness) or attending a small part of each funeral when several are in progress. In addition, increasing property seizure by relatives is creating a financial burden for AIDS victims, as such seizure used to occur only after death.

Some effects of AIDS loop back into causes in a vicious cycle that continues unchecked without deliberate interference. An example is the difficulty Thai AIDS orphans face in acquiring property rights when their parents die. Without property to sustain them, many children have no alternatives but petty crime and sex work, which place them at high risk for HIV infection (Paul 1994).

Stigmatization of AIDS victims removes those infected from contexts where they might contaminate others. But it’s also a large disincentive to be forthcoming about infection, and keeping things under wraps makes for good chances that AIDS will be passed on unknowingly.

AIDS neutralizes development gains as resources are poured into prevention at the expense of other needs. The neglect of other development needs worsens the overall situation, and circumstances become more favorable for HIV transmission as poverty increases (Fredland 1998).

AIDS leads men to seek younger and younger sexual partners who are less likely to be infected (Fredland 1998). In some parts of Africa, according to popular opinion, sex with a virgin can cure AIDS, and the youngest possible partners are sought (including infants) under the assumption that they are more likely than anyone else to be virgins (see Vickers 2006; Swindells 2003; Sandars 2006). In a particularly egregious feedback loop of effects and causes, this predation on children exposes them to the virus.

Many Africans are reluctant to alter their reproductive strategies after being infected with HIV. Reasons given include wanting to prove that they can still bear healthy children, wanting
to keep up appearances of normalcy to avoid being ostracized, and wanting to stick with a preset plan for the number of children desired. In Zambia, however, AIDS does impact childbearing decisions: families sometimes reduce the number of children that they produce in order to care for relatives’ children whose parents have died of AIDS; and HIV-positive women who know their status are less likely to continue bearing children so that it doesn’t “bring out” the disease in them (Rutenberg et al. 2000). In these cases, seropositivity engenders childbearing limitations primarily for self-protection rather than to protect unborn children from the disease.

AIDS also impacts Zimbabweans’ reproductive decision making. If parents discover that they are HIV-positive, the desire to produce children as insurance in old age (a common strategy throughout Africa) is squelched, as the parents are unlikely to ever reach old age. Even without a medical diagnosis, Zimbabweans take a child’s death under five years of age as a potential sign of seropositivity. Conversely, if their children successfully reach five years of age, it is understood as a clean bill of health and a license to produce more children. In addition, having children as early as possible is seen as a way of producing HIV-free children, under the assumption that the number of sexual partners increases with age, which increases the probability of contracting the disease (Grieser et al. 2001).

Effects of AIDS that feed back into causes are an important target for interventions. Providing more leaves of absence for Malawians to attend more funerals helps people cope with the devastation of AIDS, but does nothing to prevent the disease. Breaking feedback loops, however, can lower the incidence and prevalence of AIDS.

**Risk Groups**

As with any disease, AIDS has a congeries of risk factors, including risky behaviors, which increase the probability of infection, and identifying groups of people associated with risk factors has been helpful in targeting interventions. Some researchers and activists have been reluctant to
define risk groups, for fear that in doing so, members of those groups would be stigmatized and that individuals not belonging to any of the risk groups might feel that they were immune. These are valid concerns, but the overwhelming value of identifying risk groups in order to target interventions has kept the risk group concept alive in AIDS research.

Walters (1988), for example, was an early supporter of targeting interventions to male receivers of anal intercourse, IV drug users of both sexes who share needles, and women who have vaginal intercourse with IV drug users. Walters justified such targeting on two grounds: intensive coverage of those particularly at risk is likely to be more efficient than general education messages, and higher risk groups need – even deserve – more intense warnings of the risks they are exposed to.

Caldwell and Caldwell also endorse risk group categorization. They contend that “the temptation to keep governments and individuals vigilant by arguing that the progress of [AIDS] is inexorable and threatens all parts of society and all societies equally will almost certainly prove to be self-defeating” (1993:817). Indeed, to insist that all sectors of society (from sexually-active adolescents to monogamous geriatrics) are equally at risk – in order to maintain vigilance against AIDS – can lead to the belief that it apparently doesn’t matter what you do: you’re just as likely to get AIDS anyway. This could lead to a laissez-faire attitude toward proven prevention behaviors on the part of those who need vigilance the most: members of high risk groups.

Some risk behaviors appear to be determined by group affiliation. A study of HIV risk within an Ethiopian/Eritrean community in California noted risky behaviors such as not using condoms, having multiple sexual partners, consuming alcohol, and avoidance of HIV testing due to stigma (Beyene 2000). These attitudes and behaviors among immigrants were found to be
very similar to their counterparts in Africa, suggesting that risk behaviors follow cultural lines, rather than geographical ones, at least in the short term. This underscores all the more the need to tailor prevention methods to specific cultural contexts.

That risk group definitions may not have cross-cultural validity is suggested by Karnik (2001), who argues that importing pre-defined risk groupings to India makes little sense in that cultural context. It also obscures our ability to discern risk groupings of a different sort than are expected according to Western models. We need to be more open to the idea that there are risk categories beyond those already identified, but the concept of risk groups has proven effective. Some groups that have been documented to have greater risk of contracting HIV include hemophiliacs, HIV-negative partners of infected persons, prisoners, and health care workers (Walters 1988). In addition, heightened HIV risk has been documented in uncircumcised men (though this particular factor has been disputed), those receiving blood transfusions, those practicing dry sex, 5 those practicing mass scarification, and residents of violent war-torn areas (as invading armies often rape local women) (Caldwell and Caldwell 1993). Prostitutes and those with other STD’s have also been found to be at greater risk of HIV contraction (Walters 1988; Caldwell and Caldwell 1993). In addition, military personnel are at risk for HIV contraction and dissemination through frequenting prostitutes while separated from their wives and girlfriends (Walters 1988; Hunt 1996).

A study of American teenagers showed that early sexual debut increases the probability of other risky sexual behaviors, such as having multiple concurrent sexual partners, forcing a partner to have sex, and having intercourse while drunk or high (O’Donnell et al. 2001).

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5 Dry sex is more than simply avoiding the use of lubricant. It is the practice of inserting desiccating agents into the vagina prior to intercourse under the premise that drier sex increases friction and pleasure. Unfortunately, increased friction also increases risks of tearing the vaginal wall, adding the potential of blood-to-blood HIV transmission in addition to seminal transmission.
Another study of American teenagers and young adults found that alcohol and drug use, as well early debut, were associated with increased odds of having multiple sexual partners, whereas marriage was associated with decreased odds of having multiple partners (Santelli et al. 1998).

An interesting twist on the risk group concept suggests that those perceiving themselves to be at risk from AIDS might also benefit from targeted interventions, even if their actual risk is low. Prohaska et al. (1990) found that fear of AIDS, concern over one’s health, shame associated with AIDS, identification as Asian-American, and lack of identification with any particular religious group were associated with increased perceptions of risk for HIV infection.

One of the most well-known risk factors for HIV infection and transmission is migration. Rural-urban migration, return migration, refugee migration, tourism, business travel, and travel associated with the drug trade have all contributed to the spread of HIV. Collectively, the members of these migrations comprise a potent AIDS risk group. Separated from erstwhile steady sexual partners, many migrants have sex with new partners and contribute to the spread of the disease to new locations across societies.

In Africa, it is common (and has been since colonial times) for young men to go abroad in search of better wages and employment opportunities than are available back home. South African gold and diamond mines have attracted large numbers of workers for decades. The mostly male migrants send remittances to their families in Malawi, Zambia, Zimbabwe and other countries. Long absence from home led many migrants to seek other sexual partners in their new locale, thus increasing their overall number of lifetime sexual partners. Labor migration has long been recognized as facilitating the transmission of all sexually-transmitted diseases (Hunt 1989).

There is now enough evidence about HIV transmission, effects, and risk groups to formulate prevention strategies. Some of those strategies are generated by researchers, far
removed from the situation; others are generated by people on the ground in the worst affected areas. The next chapter analyzes the most prominent of these prevention strategies to produce a picture of contemporary AIDS control and mitigation efforts.
CHAPTER 3
AIDS PREVENTION: WHAT HAS WORKED, AND WHAT HASN’T

Strategies for the prevention of HIV/AIDS must grow out of our knowledge of how the disease is transmitted. Those who favor behaviorist explanations can be expected to focus on behavioral interventions (such as promoting the lowering of extramarital contacts for truckers). Those who favor material explanations, on the other hand, focus on changing the structural conditions (like severe poverty) or infrastructural conditions (like the lack of condoms) known to be associated with the transmission of HIV.

While this seems straightforward, working in a cross-cultural context injects an additional dimension – the superstructure – that must be addressed by those working to halt the spread of the disease. How well has this been done? Wonderfully in some cases, abysmally in others. Thankfully, much of what has been accomplished and learned through field experience has been well-documented so that others can eschew interventions with marginal impact and embrace high-impact interventions that are adapted to local contexts.

Some interventions are promoted alone. Others are introduced as a suite of efforts. This chapter analyzes each approach in turn.

Individual HIV Prevention Approaches

Though AIDS is a socially and culturally complex disease, some interventions approach it somewhat simplistically. One benefit of cases where a single intervention has been introduced is the ability to assess a given approach’s impact in a relatively direct, isolated way. Teasing out interaction effects of simultaneously promoted multiple approaches is far more difficult. But a major drawback to singularly focused prevention efforts is that they tend not to have broader impacts beyond limited scenarios. Even in their limited target scenarios, single-pronged
interventions may not clearly be effective, indicating that perhaps a multi-pronged approach might work better.

For example, Robles et al. (1998) studied whether a needle-exchange program (NEP) would be used by intravenous drug users (IDU’s) in San Juan, Puerto Rico, aiming to reduce the chances that needles would be reused and shared. The NEP reported a 40.3% return rate for syringes that they had passed out (identified by numerical markings), indicating that some of the original customers were indeed returning to this reliable source for clean needles, though a majority still did not. The authors claimed that the program was effective in reducing sharing of syringes; however, it is not clear whether this was directly measured or simply extrapolated from the fact that needles were being exchanged (one might share a needle with dozens of people before returning it). So the results of the study were inconclusive as to whether NEP’s are effective at reducing sharing of needles. As a single-pronged intervention, the program did not address other potential sources of HIV infection in IV drug users.

Anti-retroviral drugs (ARV’s) are typically considered to be palliative rather than preventive interventions that make HIV seropositivity easier to live with. However, they may have preventive effects through reducing an HIV-positive person’s viral load and thus postponing their chance of developing AIDS. In addition, if certain combinations of ARV’s are administered within 24 hours of a person’s exposure to the virus, they can prevent development of HIV seropositivity (Centers for Disease Control and Prevention 2001). Relying on ARV’s alone to protect one from AIDS is neither practical nor recommended in many places (they are prohibitively expensive and hard to distribute in areas with poor infrastructure). Yet that is essentially what happens in cases of disinhibition. Because of people’s confidence of being treated in case of infection, some abandon other prudent prevention measures. A false sense of
security leads some to freely engage in more and more risky sexual behavior, depending upon drugs to bail them out when things go awry (Green 2003b). And yet, over-reliance on ARV’s may increase the burden of HIV-infected individuals needing ARV treatment, when there aren’t enough ARV’s to go around even now.

In addition, inconsistency in the implementation of treatment regimens can lead to the predominance of ARV-resistant strains of HIV, which lowers ARV’s effectiveness for prevention. Chloroquine-resistant strains of malaria and antibiotic-resistant strains of pneumonia are well-documented examples of diseases that have morphed in response to treatment drugs. This may already be occurring with AIDS. The popular press has picked up on reports of new, virulent strains of HIV that kill their victims within six months, compared to more common strains that take up to ten years to produce full-blown AIDS (Brewster 2005; Bartholomew 2005). This, too, demonstrates the need for a variety of HIV prevention methods.

Apart from drugs, HIV prevention is largely a behavioral enterprise. Because it is driven by social contacts, interventions must address people’s social behaviors that might increase or limit their risk for infection. As Caldwell puts it, “We now know enough about the social context of the epidemic, and the interventions that would probably succeed, to begin to limit the epidemic’s impact without waiting for the development of vaccines or depending on antiretroviral drugs for prolonging life” (2000:117).

Of all the major behavioral HIV prevention methods, none has been studied, promoted, and implemented alone more than condom use. (Abstinence or fidelity have so rarely been promoted alone as to make it impossible to analyze their separate impacts). This means that a large body of evidence has accumulated over the years, allowing one to analyze in-depth the effectiveness of promoting condom use. For example, in Thailand, most new infections occur
through commercial sex work and a 100% condom policy in Thai brothels has lowered HIV transmission significantly (Green 2003b). And De Vincenzi (1994) has demonstrated that among serodiscordant heterosexual couples (who remain sexually active), those who used condoms consistently (about half of the study participants) had no cases of seroconversion over the course of some 15 thousand episodes of intercourse, while those who used condoms inconsistently (the other half) had a seroconversion rate of 4.8 per 100 person-years over the course of approximately 12 thousand episodes of intercourse.6

Yet condoms have their detractors, too. “AIDS prevention organizations… speak confidently about ‘proven interventions,’ which refer to condoms… and treatment of sexually transmitted infections (STIs),” writes anthropologist Edward C. Green of Harvard University (2003b:3-4). But Green counters that condoms are not a proven intervention outside tightly controlled scenarios, such as those described above. Condom interventions are typically designed based on an understanding of AIDS in America in the mid-1980s, not heterosexual epidemics in the general population of developing countries today (2003b). The Thai situation resembles America in that AIDS is concentrated in a high risk group, not the general population. If condoms are targeted to that risk group, they may impact HIV transmission significantly. But this does not provide evidence that they will work in an epidemic where the disease is rampant in the general population, such as in sub-Saharan Africa.

Aside from demonstrating condoms’ potential effectiveness in a target group, De Vincenzi’s study also raises an experimental confound. Participating couples were not assigned to the condom group or the no-condom group; all were counseled about safe sexual practices,

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6 Almost half of all study participants ended their sexual relationships before the end of the research project, most often because of their partner’s illness or death. Those who continued for at least three months after enrollment were included in the computed statistical results. Thus, the 15 thousand episodes of intercourse (and potential for infection) are not spread evenly among all participants, and the self deselection of the most ill participants (and their partners) may skew the data toward representing those with minimal infectivity and viral shedding.
and couples decided for themselves whether they would use a condom or not. Thus, “even among repeatedly counseled European couples known to be exposed to HIV, nearly half continued to have unprotected intercourse” (Johnson 1994:391). Among those inconsistent condom users, there was an estimated 12.7% cumulative incidence after 24 months of exposure. Furthermore, De Vincenzi’s sample was chosen so as to control for the interference of other risk factors in the study. IV drug users, homosexuals, recipients of unscreened blood transfusions, those with multiple sexual partners, and those with partners from sub-Saharan Africa were specifically excluded. The results cannot, then, be extrapolated to a general situation where some people are monogamous, some are polygamous, some are prostitutes, and some are abstinent. Johnson concludes:

The difficulties of compliance with condom use, even in a cohort of research subjects, should make us pause and think about crusades for the supremacy of the condom in preventing the transmission of HIV. People need choices in reducing their risk of infection, but each method requires demonstration of its effectiveness. [1994:392]

This difficulty in achieving consistent condom use is not limited to Europeans in controlled studies. A study of HIV in the general population of Rakai district, Uganda, found that consistent condom use significantly reduced HIV incidence. However, only 4.4% of the study participants reported consistent condom use and 16.5% reported inconsistent use during the past year (Ahmed et al. 2001).

Indeed, consistency in condom use seems to be an elusive ideal in many parts of the world. And figures for condoms’ effectiveness even when used consistently are hotly debated. In the course of a lively, non-peer-reviewed debate hosted over several months on the AIDS and Anthropology Research Group list serve (AARG), Elizabeth Onjoro (a Kenyan who questions the effectiveness of condoms) confronted Douglas Feldman of SUNY Brockport (a prominent supporter of condoms) by asking, “While condoms may seem the next best thing in your mind,
the question is how will you convince/influence Africans to use them consistently and correctly 100% of the time in order to achieve 85% effectiveness?” (AIDS and Anthropology Research Group 2003).

How 85% effectiveness was calculated is unclear, but there are other studies similar to De Vincenzi’s yielding very different figures. Hearst and Chen (2004) suggest differences may arise from random variation, correctness of condom usage, and how correct usage was ascertained, among other confounders. In addition, if condom effectiveness is less than 100%, then that small proportion of risk will cumulatively add up over repeated exposures to infected individuals. Thus, it is meaningless to talk of condom effectiveness in terms of percentages unless number of exposures to HIV is specified (Mann et al. 2002; Green 2003b; AIDS and Anthropology Research Group 2003), and this may be an additional source of varying figures.

Several meta-analyses of available data have attempted to combine information from multiple studies such as De Vincenzi’s. Davis and Weller (1999) estimated a level of protection of approximately 87% and report a level of 80% in a later study (Weller and Davis 2002). Commissioned by UNAIDS to make sense of all the disparate reports, Hearst and Chen (2004) ran a search for all reports on condom effectiveness that appeared in peer-reviewed publications, professional conferences, and public media. The most rigorous studies and those substantiated by sufficient documentation provided an estimated condom effectiveness of 90% in preventing HIV transmission. What emerges from these reports is that condoms are highly effective for preventing transmission of HIV, but they are not fail-proof, even when used consistently and correctly. When used inconsistently and incorrectly, condom effectiveness plummets.

Aside from technical difficulties (leakage, breakage, and incorrect use), there are other barriers to condoms’ effectiveness. Weintraub pointed out in the AARG discussion that safe sex
condom campaigns have convinced people that risky kinds of sex are safe (anal, multipartner, etc.), which has minimized motivation to change behaviors (AIDS and Anthropology Research Group 2003). As with ARV’s, disinhibition causes some people to place undue confidence in condoms’ protective effects and to engage in even riskier sexual behaviors than they would otherwise, even to the point of canceling out condoms’ protective effects (Kajubi et al. 2005).

Additionally, there is marked reticence to accept and promote condoms in many parts of the developing world. Zambia recently banned condom distribution in schools (starting the day the U.S. initiated a program to hand them out) under the premise that doing so encourages sex among youth and goes against Christian values (Shacinda 2004). And Broomhall noted that use of condoms hasn’t significantly increased in Kenya because they haven’t been promoted heavily enough by local health workers, despite repeated training; health workers thought that clients wouldn’t be receptive, and some withheld condoms from groups that they thought would use them immorally (AIDS and Anthropology Research Group 2003). These barriers raise questions such as, Should reticent Africans be more aggressively targeted for condom marketing to overcome their reluctance? Or should Westerners be more willing to work with approaches that many Africans are already comfortable with, especially those approaches shown to be effective?

Some Westerners are reticent to dictate policy to Africa. Green reports that the founding chairman of the Kenya National AIDS Control Council, Muhammad Abdullah once told him, “I am sure you are aware that at times help comes with strings attached. We received US $10 million aid but it had to be only condoms. We had two options: to accept all the US $10 million worth of condoms or refuse” (AIDS and Anthropology Research Group 2003). Feldman agrees that dictating policy for Africa from the West is not appropriate but argues that “applied cultural anthropologists need to take the lead in finding out how to design culturally appropriate
interventions that would make proper condom use routine among all sexually active multipartnering males in sub-Saharan Africa” (2003:7). Is promoting routine condom use itself a form of policy dictation? Should condoms be a non-negotiable part of foreign aid in the fight against AIDS? Or can HIV prevention programs be responsibly tailored to local sensibilities – even if that precludes condoms in some cases? Because billions of donor dollars ride upon these policy questions, many African countries are caught in the unfortunate squeeze that Mr. Abdullah reported.

But addressing challenges such as these makes some uncomfortable. “[Some] have even questioned whether condoms are safe and effective,” Feldman wrote (2003:7). Remes, an AARG contributor, fretted that Africans are picking up on this argument and promoting it, saying that condoms can’t protect against disease and adding to other rumors already circulating about condoms (AIDS and Anthropology Research Group 2003). “I am very uneasy when talk of condoms being ineffective start circulating for fear the message will be twisted and re-interpreted in harmful ways,” added Broomhall (AIDS and Anthropology Research Group 2003). “Concern that facts might be ‘twisted’ is no reason to hide the truth from Africans,” countered Weintraub. “That’s an essentially colonialist attitude: Africans are children and if we tell them the facts about failure rates they'll become hopelessly muddled” (AIDS and Anthropology Research Group 2003).

Green points out that although there is wide consensus in the academic community that AIDS prevention (based predominantly on condom promotion) has not been very effective so far, many journal articles and the scholars who write those articles argue that condoms are the most effective way to prevent HIV transmission and that the solution to the problem of transmission is to redouble condom promotion efforts (2003b). For example, Broomhall writes,
“I firmly believe that the cumulative effect of condom promotion, HIV prevention education, voluntary HIV counseling and testing, and the increasing availability of ARVs, eventually will help to achieve a reduction in HIV/AIDS throughout [sub-Saharan Africa]” (AIDS and Anthropology Research Group 2003). Hearst and Chen, however, report that “The public health benefit of condom promotion in settings with widespread heterosexual transmission… remains unestablished” (2004:39). Despite a lack of supporting evidence for a condom-only approach and the presence of evidence questioning it, condom promotion is viewed by some as the only realistic option to consider.

Feldman acknowledges condom failure rates but argues that “if you don’t use condoms at all the failure rate is 100%!… We need to really try condom use in Africa before we say it doesn’t work… Condoms are the single most important thing Africans can do to reduce HIV transmission on the continent. The fact that only 4.6 condoms are available per person per year in Africa tells me that it hasn’t actually been tried” (AIDS and Anthropology Research Group 2003; cf. Feldman 2003:7). In fact, while Shelton and Johnston (2001) estimate an average of just 4.6 condoms per male aged 15-59 per year in sub-Saharan Africa, the rate varies widely across nations. In places where condoms have been widely distributed and promoted, AIDS rates are the highest and climbing (Hearst and Chen 2004; Allen and Heald 2004). For example, between 1993 and 2001, condom sales increased from one million to three million in Botswana, during which time HIV prevalence rose from 27 to 45%. At the same time in Cameroon, condom sales increased from 6 million to 15 million and HIV prevalence rose from three percent to nine percent (Hearst and Chen 2004). “Of course, prevalence might have risen even faster without increased condom use,” write Hearst and Chen, “but no clear examples have emerged
yet of a country that has turned back a generalized epidemic primarily by means of condom promotion” (2004:41).

It is curious, then, that condoms are such a popular remedy in Africa, almost to the exclusion of other strategies. It may partly be due to ease of monitoring; technological fixes are a tempting way to solve complex behavioral problems, not least because condoms and STD drugs can easily be counted. This is a great advantage when reporting the results of AIDS interventions to donors (Green 2003b). But is counting truly a measure of effectiveness? One might call an intervention successful if 5,000 condoms were distributed and 900 people were educated on how to use them properly. But if the incidence of AIDS does not go down as a result, would it still be considered a successful intervention? With donors demanding immediate reports (and making future funding contingent on those reports), it is tempting to rely on interventions that can be quickly counted and monitored, regardless of their ultimate impact.

Despite the critiques, condoms have an important role to play in HIV prevention. Lives have been saved by condoms. But they are not the panacea for AIDS prevention. The evidence calls for a multi-faceted approach. Moreover, it is unrealistic to imagine condoms as the only HIV prevention device for a population of some 890 million people, as in the case of Africa. The collective effect of multiple highly effective interventions has the potential to be greater than any single method alone. Because no single strategy is likely to be accepted by everyone, multi-faceted approaches have better potential for adoption and sustainability. The following section addresses approaches that combine multiple strategies.

**Multi-Faceted HIV Prevention Approaches**

Kelly (1995) has assessed what successful HIV interventions targeted to widely divergent risk groups have in common. All had similar conceptual foundations and similar intervention procedures; all exhibited cultural tailoring of prevention messages and methods; and all were
longer and more intense than less successful interventions. Green (2003b) has found that successful approaches to prevention worldwide share high-level government commitment, primary behavior change (PBC) strategies, and a multilevel response in common. Green writes that “PBC seems to be the natural response to concern over, or fear of, HIV infection” (2003b:278), indicating that even when PBC is not actively promoted, most people engage in it.

In many of the successful countries, PBC was manifested by a rise in age of sexual debut (increased abstinence) and a decrease in number of sexual partners. PBC may have other manifestations, too, but they can all be broken down into two main categories: risk avoidance and risk reduction. Risk avoidance includes complete abstinence and perfect mutual partner fidelity. For these two risk avoidance behaviors, exposure to sexually-transmitted HIV is reduced to zero. Risk reduction, by contrast, minimizes – but does not eliminate – exposure to HIV. The use of condoms, for example, is a risk reduction behavior. Risk reduction programs assume that people will never change their sexual behavior, so the best we can do is to protect people while they do what they want.

HIV peaked from 1982-84 among male homosexuals in England and Wales. Changes in sexual behavior (PBC) as early as 1983 brought about a prevalence decline from 1985 onward. Johnson and Gill write, “As the risk factors for AIDS emerged, the homosexual community mounted an impressive education campaign with three main messages for risk reduction: avoid unprotected, penetrative anal intercourse; reduce numbers of partners; and use condoms (1989:116).

However, Johnson and Gill warn that “behavioural risk reduction will only reduce the incidence of infection if it is of a magnitude sufficient to outweigh increased risk inherent in the rising prevalence” (1989:116). In other words, supposing 90% of homosexuals were HIV-
positive, then even selecting only one partner and sticking to him faithfully would be extremely risky. Exactly where the tipping point between risk reduction behaviors and rising prevalence lies is unknown, but evidence shows that multi-faceted behavioral modification made a difference early on within the homosexual community of England and Wales.

Uganda is another country that has implemented a strategy of primary behavior change to fight AIDS. Unlike England and Wales, however, the effort in Uganda was on a national level, and not just with one particular community. Uganda is the only African country to see a large drop in AIDS rates – from 20.6% in 1991 to 6.1% in 2000, according to one study (Green 2003b), or from around 15% in 1991 to 5% in 2001, according to another study (Hogle 2002) – and as such, it has been the center of an important debate among researchers trying to understand what brought about this dramatic prevalence decline. As a rare success story in Africa, Uganda has been studied and restudied and analyzed from many angles by scholars from many disciplines. To this day, the debate continues as to what exactly is responsible for Uganda’s remarkable success.

At the center of the debate is the ABC program, instituted by Uganda’s president Yoweri Museveni early in the epidemic. ABC stands for: A – be Abstinent as the first line of defense against HIV transmission; B – if you can’t be abstinent, then Be faithful to your sexual partner(s) of choice; C – if you simply cannot be abstinent or faithful, then use a Condom. This program is a multi-faceted approach, much like the one that developed spontaneously among homosexuals during the 1980s in England and Wales (Johnson and Gill 1989). But beyond being multi-faceted, the ABC program is also explicit about which groups should utilize which component(s). No single component is for everybody, and certain components are more
effective for specific types of people (condom promotion, for example, would have limited impact upon those who have chosen to be abstinent).

Multi-faceted disease prevention methods are well known outside of AIDS. Malaria in Africa is fought on several fronts which, curiously, somewhat parallel the components of the ABC model: prevent mosquitoes from feeding on people (avoidance of the vector altogether, analogous to sexual abstinence for AIDS prevention; or minimization of exposure to the vector via physical barriers, analogous to condom use); prevent or reduce mosquito breeding (reduce chances for exposure to the vector, analogous to partner reduction in AIDS prevention); destroy adult mosquitoes and eliminate malaria parasites from human hosts (attack the reservoirs of the disease within the population, analogous to the use of ARV’s) (MacCormack 1984). It has long made sense to take a multi-pronged approach to the prevention of any infectious disease; AIDS should be no different.

Thus, Uganda attacked AIDS on several fronts with remarkable success, including not only ABC promotion, but also high-level government commitment, reducing AIDS-related stigma (through social marketing programs by the government and NGO’s), advancing the status of women and youth, requiring a true partnership between Ugandan authorities and donors (enabling a collaborative but home-grown approach to emerge), using multiple media to blanket the country with AIDS messages, using fear arousal to avert risky behavior, promoting education about AIDS and sex in schools, involving faith-based organizations in prevention, making voluntary counseling and testing widely available, involving traditional healers in the fight, and targeting high-risk groups for special intervention (Green 2003b; Hogle 2002). However, Green cautions:

It must be remembered that many of the elements of Uganda’s response, namely, decentralized planning and multisectoral responses, do not impact HIV infection rates
directly. Behavior must change for this to happen… Although fighting stigma or bold political leadership at the highest levels might be cited as major contributing factors in Uganda’s success, it must be remembered that these are indirect factors. We must understand which behavior changed, and how and why they [sic] changed if a Uganda model of prevention is to be replicated elsewhere. [2003b:221-222]

This raises an important point, because some argue that it’s hard to separate out which factors had the most impact (see Remes in AIDS and Anthropology Research Group 2003, for example). Though they may be important, however, contributing factors are indirect factors only. They cannot prevent AIDS transmission alone; they are useful only insofar as they affect HIV transmitting behavior itself.

One way to test whether national ABC policies make any difference in HIV prevalence is to compare Uganda with other countries. A study of the Kagera region of Tanzania (which borders Uganda) suggests that since the beginning of the AIDS epidemic, “there have been significant changes in sexual behaviors, norms, values, and customs that are considered high-risk for HIV transmission” (Lugalla et al. 2004:185), including an increase in condom use, abstinence, zero grazing (sexual fidelity), and voluntary HIV testing, with a concurrent decrease in polygyny, levirate, excessive alcohol consumption, and sexual networking. The result has been a decline in both HIV prevalence and incidence (Lugalla et al. 2004).

On the other hand, Botswana and Uganda differ significantly – not only in HIV prevalence, but in approaches to HIV prevention. While both countries introduced AIDS awareness campaigns at the same time, have accepted external assistance, and have been open to international advice, Uganda has been successful while Botswana failed in HIV prevention. Allen and Heald (2004) argue that this is because the promotion of condoms at an early stage in Botswana was counterproductive (perhaps shutting down exploration of other strategies), whereas the lack of condoms in Uganda early on forced it to develop alternate strategies which (coupled with condoms later on) provided a successful, multi-faceted attack on AIDS. Likewise,
a comparison of the border region between Uganda and Kenya revealed that all Ugandan sentinel sites showed a decrease in HIV prevalence over time while all Kenyan sentinel sites showed an increase in HIV prevalence over time. With no prominent differences in ethnic groups and practices on both sides of the border, Moore and Hogg (2004:542) conclude that “decreasing HIV prevalence in Uganda is not due to the natural course of the epidemic but reflects real success in terms of HIV control policies.”

As is the case with condoms, there are skeptics about the effectiveness of the ABC approach. Feldman claims that the immediate (and short-term) reaction to AIDS was that Ugandans reduced their number of partners – which lowered HIV prevalence – and that this was sustained by condoms brought in en masse in the mid-1990s. Feldman’s concern about acknowledging and supporting A and B is that those who practice them will denigrate those who don’t. He asserts that abstinence and fidelity should not be parts of national HIV prevention policies for everyone, and that if it’s true that 95% of Ugandans had zero or one partners in 1995 (while only 6% reported using a condom at last sex), “then we are talking about a rather pathological condition in Uganda that should certainly not be used as a model anywhere else in Africa” (AIDS and Anthropology Research Group 2003).

Green counters, “My basic thesis is that we on the Western donor side need to move from consensus based to evidence-based AIDS prevention… There was a time when I thought our current approach of promoting the maximum number of condoms… would actually work. Look at the data in Africa and you will see otherwise” (AIDS and Anthropology Research Group 2003). The data point out that Uganda’s precipitous drop in HIV prevalence began well before condom social marketing and availability became widespread. Even after condoms began to be promoted their use remained low for a long time. By 2000, 93% of Ugandans aged 15-49
reported abstinence or partner fidelity, while only 8% reported condom use during last intercourse (the best available measure of regular use at the time). “It is difficult to conclude”, Green writes, “that a risk reduction behavior reported by 8% of the population is contributing more to HIV infection aversion than two risk avoidance behaviors reported by 93% of the population, even in 2000 when reported condom use is highest” (2003b:151). Regarding the ABC debate on the AARG list serve, Singer wrote:

   One of the issues under discussion is: do condoms really work in Uganda? This is an empirical question not a moral one. So far, the facts are in dispute. When facts are in dispute… it is easy for those engaged in debate to cite their favorite studies and data bases… we are generally blind to our own cultural assumptions. The culture in them is hidden to us, because they seem to make so much damn sense. And so we screw-up. [AIDS and Anthropology Research Group 2003]

   Green says that the bias in AIDS prevention circles against risk avoidance is a consequence of the American sexual revolution and the emergence of a cultural norm that favors protecting people from the risks of pregnancy or STD’s rather than asking them to change their behavior. In addition, those who have been promoting condoms for so long may have a hard time admitting that primary behavior change is an essential factor in fighting AIDS. “Professional reputations and egos are at stake,” Green writes. “People don’t want to admit that they may have completely missed something vitally important for years” (2003b:80).

   Finally, many who work in AIDS prevention have family planning backgrounds and are predisposed to think of contraceptives for STD prevention. They are wary of approaches that are religiously condoned, since some high-profile religious groups oppose contraception. Yet family planning experts know that the condom is one of the least effective methods of contraception. “How could the paradox have escaped them that the same method is considered the most
effective method of preventing HIV infection?” Green asks (2003b:78). Green also points out that AIDS prevention is a substantial industry in the United States:

It would be politically naïve to expect that those who profit from this industry would not be inclined to protect their interests. Those who work in condom promotion and STD treatment... do not want to lose market share, so to speak, and so they may go out of their way to ignore, disguise, or discredit findings that show something else is working to bring down HIV infection rates. [Green 2003b:79]

As a result, even though lip service is paid to balanced approaches, nearly all donor funds go into condom promotion alone. In addition, program indicators almost always focus entirely on condoms. Green calls such approaches Pattern I solutions for Pattern II problems (2003b).

Those who are wary of approaches that are religiously condoned often link ABC with religion. Feldman argues that “a commitment to abstinence and faithfulness, and the growth of fundamentalist religion” was not what turned the AIDS epidemic around in Uganda (2003:6), and asserts that:

trying to impose a sex-negative morality across all African cultures will not only fail to reduce HIV seroprevalence, but it will only bolster the rapidly growing danger of fundamentalist religion on the continent, and take Africa on a downward spiral into sexual repression and hostility... Foisting American religious fundamentalism and abstinence/fidelity messages on all of Africa as an excuse to control HIV is not the way to go. [AIDS and Anthropology Research Group 2003]

Schoepf believes that A and B should be promoted via any method other than religious NGO’s “because they are a) counter-productive with some population sub-groups and b) violate the US Constitution which mandates separation of churches and the state” (AIDS and Anthropology Research Group 2003). It is true that religion-based NGO’s may be ineffective

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7 This is not necessarily a paradox; it could be possible that condoms were the best for HIV prevention, even if they were not good for contraception. Pills, for example, are considered one of the best methods of contraception, but they are ineffective for HIV prevention.

8 It is encouraging to note that at least in the case of USAID (one of many organizations committed to fighting AIDS), the President’s Emergency Plan For AIDS Relief (PEPFAR) now aims to earmark funds equally for all three components of ABC – one-third of the funds for each part. This has not been historically so, however, and it is an encouraging break from the past.
with some population sub-groups, but the same can be said for secular organizations that try to promote behavior change among highly religious people. Nothing can be expected to appeal to everybody. Schoepf’s church-and-state argument assumes that AIDS control belongs to the state. In fact, most of the real, on-the-ground work against AIDS in many African countries is done by NGO’s. This is recognized by USAID, which has supported NGO’s, including religion-based NGO’s, like ADRA and World Vision, since at least 1991 in the fight against AIDS in developing countries.

Finally, Green reminds us that Africans are highly religious, and often begin meetings with prayer. “What should the participating-observing anthropologist do in such a situation? Disrupt the meeting and tell them they are violating the US constitution? Inform them that religion is the opium of the people?” He continues, “I am sorry if [A and B] are not behaviors many of us approve of because of American struggles with the religious right. But that’s what happened. Maybe its time for a little cultural relativism and acceptance that something happened that we did not anticipate” (AIDS and Anthropology Research Group 2003). He adds:

[Feldman] assumes that all religions found in Africa are fundamentalist and condemners of HIV+ people… the religious groups that worked in AIDS prevention in Uganda… Anglicans, Catholics and Muslims… are not terrorists missionary groups who just want to spoil fun; they are groups with great influence in Africa whether Doug and I like it or not… Don’t exclude A and B interventions as ‘missionary terrorism.’ [AIDS and Anthropology Research Group 2003]

Onjoro adds, “I guess our friend Doug is taking the stand that he knows more about Africans’ sex life and behavior than Africans themselves… As an African, I know that abstinence is built into many cultures as parts of rituals, and was not introduced by conservative Christians.” Onjoro said that her parents – not the church – taught her abstinence (for the sake of not getting pregnant) and that Africans don’t have hang-ups about religion getting mixed up with A and B (AIDS and Anthropology Research Group 2003).
Though A and B are not inherently religious, Africans often couch them in religious terms. “I sometimes put it this way,” Green writes. “It doesn’t matter if most of my Western colleagues and I happen to be urban, liberal, and secular; most Africans are rural, conservative, and religious. When we are designing and implementing programs in Africa, we must always remember where we are” (2003b:324). Research has shown that countries that have been successful in HIV prevention have tended to include faith-based organizations (FBO’s) in the fight against AIDS. Those organizations already have extensive networks in place with which to disseminate information, and they tend to have a natural inclination toward promoting A and B (Green 2003b). One way FBO’s can get involved in HIV prevention is through collaborative work where each actor performs according to their particular strengths (Smith et al. 2004). Why force FBO’s to promote condoms if they’re really good at promoting fidelity? Better to utilize their strengths and pair them up with other agencies that will fill in the gaps with their particular strengths.

Despite the fact that abstinence and monogamy promotion are not inherently religious, some still see a dangerous link between the two. Feldman writes:

Fundamentalist churches and mosques have dramatically grown in their social and political influence during the past decade, casting a pall over sexual freedom and expression across the African continent. The last thing that Africa needs now is an ineffective, culturally inappropriate HIV prevention program based upon a misinterpretation of the data that will further embolden these regressive religious organizations. [2003:6-7]

This excerpt makes clear that sexual freedom is an important part of the debate. Feldman supports what he calls ACCDGLMT: A (anti-discrimination), C (condoms), C (culturally-appropriate interventions), D (destigmatization), G (government involvement), L (less risky sex), M (media campaigns), and T (traditional healers) (AIDS and Anthropology Research Group 2003). Additionally, he supports getting elders to conduct initiations safely, encouraging masturbation among youth as an alternative to intercourse, and promoting acceptance of same-
sex sexual behavior (Feldman 2003:7). It is interesting to note that this approach expressly omits abstinence or fidelity, key components in Uganda’s struggle.

In another posting, Bailey writes, “Promoting condoms does not mean, and seldom ever meant, ignoring messages of faithfulness. Treating STI’s does not mean, and seldom ever meant, ignoring faithfulness or condoms” (AIDS and Anthropology Research Group 2003). In other words, there would be no issue about condoms versus abstinence versus fidelity versus STI treatment (ad infinitum) if each aspect of prevention were receiving all the funding it needed. Since funding is limited, if one approach is well-funded, then other approaches will face budget shortfalls. This may account for part of the vigor with which this debate is carried out.

And despite the utility of moving beyond ABC to include contributing factors, Green notes that his disagreement with Feldman boils down to the role of condoms and partner reduction (which cannot be reduced to “abstinence” and “shaming”). “Partner reduction has worked. Let’s not dismiss it as ‘abstinence and spreading stigma’ because some of us persist in seeing it though [sic] an American lens” (Green in AIDS and Anthropology Research Group 2003). This is an interesting point, because some who promote greatly expanded acronyms consider the ABC approach to not be multi-faceted enough. Because of the intensity of public debate in the United States over abstinence-only sex education, some mistakenly consider ABC to be an abstinence-only approach, too. Green recounts:

Many an AIDS expert has likewise told me that abstinence sounds wonderful, but of course, this is not a realistic option—especially in Africa. The unspoken assumption or implication here is that Africans are more sexual than the rest of the world and that they could never control their sexual behavior. If I point out that this is racial stereotyping and, in fact, at odds with existing data, my colleagues might say something like, Well, you know, in the tropics, in these little villages, there is little else to do but have sex. It’s all they have for recreation. If I mention the evidence about delay of debut or partner reduction, many immediately think this is a trick to weaken their critical judgment. Or it is a Trojan horse that will be used to slip abstinence-only programs through their defenses and into AIDS prevention. [2003b:87]
Despite strong opposition from some, ABC has now become part of PEPFAR – the President’s Emergency Plan for AIDS Relief. The worry seems to have been that ABC would translate into AB, but the document that provides guidance to implementers of PEPFAR states, “Implementing partners must not promote condoms in a way that implies that it is acceptable to engage in risky sex… Likewise, abstinence and faithfulness programs and messages must be medically sound and based on best practices that indicate effectiveness” (Tobias 2005:6). Thus, all three components are subject to full disclosure regarding effectiveness, without favoring any of the three.

It has been pointed out that abstinence and condom use have strong advocates, but that fidelity/partner reduction does not. Wilson writes, “As AIDS educators, we often publicly promote approaches that we would not countenance in our own personal lives, such as the notion that it is acceptable for our spouses or children to have multiple partners, provided condoms are used.” He continues, “Partner reduction is good epidemiology, not good ideology, and we must ensure that the ABC approach remains sufficiently scientifically grounded to withstand shifting ideological sands” (2004:848).

Some fear that findings about ABC may be used as a political tool to advance conservative causes. “I am concerned”, Pach writes to Green, “whether you have presented and clarified your reasonable and empirical views for the benefit of a wider, less informed, potentially more confused, yet powerful audience?” (AIDS and Anthropology Research Group 2003). Schoepf recommends avoiding situations where misinterpretations might arise, and encourages Green to clarify that though A and B are effective, they don’t work for everyone (AIDS and Anthropology Research Group 2003).
In response, Green says that just because an extremist may take some of his ideas and run with them doesn’t mean he should not state his centrist position in the highly polarized “abstinence versus condoms” debate. “I am sorry if conservatives like some of the data I have been bringing to light. I don't have control over the political use of empirical findings. All I can do is try to say the right thing myself… and move AIDS prevention in a more evidence-based direction” (AIDS and Anthropology Research Group 2003).

One issue that challenges the successful adoption of ABC is the empowerment of women to enforce it. If a woman cannot say “no” to her husband if she suspects he has become infected through infidelity, or if she cannot resist sexual advances from others, or if she is not in a position to mandate condom use with her partners, ABC can potentially fall apart. That’s why Uganda’s successful example of ABC implementation involved real structural changes that empowered women (greater education leading to economic sufficiency, and strong enforceable laws against the exploitation of women, for example).

A study in Kampala, Uganda noted that Baganda women typically adhere to cultural bans on sex outside of marriage (with a few key exceptions). However, they still fear contracting AIDS since their partners are not culturally required to avoid sex outside of marriage and they do not do so voluntarily (McGrath et al. 1992). This is a concern frequently brought up by those who question ABC, and it is a valid one. The effectiveness of B, for example, can be experienced even if only one partner is faithful, but it is most effective when practiced by everyone in a sexual network (either two faithful monogamous partners, or multiple polygamous partners who are exclusively faithful to each other). That is why ABC messages need to be widespread and targeted to multiple levels of society to work.
Finally, some question the validity of findings about ABC’s effectiveness based upon self-reported behaviors. For those wont to discredit data about A and B self-reporting, Green notes that self-reporting about C behaviors is subject to just as much unreliability as A and B (2003b). Consistency demands that anyone who discredits the possibility that self-reported A and B behavior is accurate would need to discredit the possibility that self-reported C behavior is accurate, too. This does not guarantee that self-reported A and B behaviors are not skewed, but they are not any more likely to be skewed than self-reported C behavior.

Conclusion

Despite its turbulent history, ABC’s effectiveness on a population-level epidemic as a multi-faceted, multi-level response is much better supported by available evidence than is condom use alone. Of course, no single intervention is likely to be adopted by everyone, but a multi-faceted offering of individually effective strategies allows people to choose which approach fits their circumstances the best. Still, there have been attempts to document cases where a condom-only approach might have worked. One example is a recent study from southwest Uganda.

In early 2005, reports of an unpublished study started leaking to the press. The study claimed to find that ABC was not responsible for HIV prevalence decline in Rakai district, Uganda, but that premature death from AIDS and increased condom use were. The unpublished paper was presented to the 12th Conference on Retroviruses and Opportunistic Infections in Boston with significant press coverage. According to the study, percentages of individuals practicing either abstinence or monogamy remained the same or decreased slightly during the period 1994-2003 – during which time AIDS prevalence dropped from 20% to 13%. Yet HIV incidence slightly increased during that time frame, while condom use increased significantly.
The conclusion was that Uganda’s much lauded success with fighting AIDS has little to do with abstinence and monogamy promotion (Kaiser Family Foundation 2005).

Until the study is published in a peer-reviewed journal, one can not endorse nor dismiss its findings. However, some concerns arise from the news report itself. First, Uganda’s prevalence decline began well before the mid-1990s – not from the mid-1990s to 2003 (Green 2003b); Hogle (2002) indicates that national HIV seroprevalence peaked in 1991, meaning that incidence peaked even earlier (Hogle estimates that it was some time in the late 1980s). Second, while rates may have dropped in the Rakai district during the study period, the decline began at the national level much earlier. Thus the Rakai study does not support the claim that abstinence and monogamy were not responsible for Uganda’s HIV decline as a whole. Since incidence of HIV remained low throughout the study without any significant increase, “the real cause of the success was a large reduction in new infections before the study began” (James 2004). It is quite possible (when looking at the full timeline) that even though fidelity and abstinence declined somewhat during the span of time studied, rates of both overall were still significantly higher than necessary to tilt the balance toward prevalence decline.

If anything, one should be concerned that during a time when the only thing that increased significantly was condom use, HIV incidence also increased slightly. The increase may still be low enough not to reverse prevalence decline, but one must not ignore the covariance of increased condom use and increased HIV incidence. The popular press may seize upon works and make claims that are not warranted, but this should not be taken as scientific support for the findings. Traditional scientific checks and balances of peer-review and publication are still needed to validate study findings.
The *British Medical Journal* (BMJ) took the unprecedented step of endorsing the study before publication, stating emphatically, “Use of condoms and death explain the substantial decline in the prevalence of HIV in Uganda in the past decade” (Roehr 2005:498). This move by the BMJ produced immediate reaction. One letter to the editor pointed out that an enormous amount of peer-reviewed literature has established that all three components of ABC were important in reducing HIV in Uganda and questioned the BMJ’s position. “Prof Edward Green,” the letter said, “predicted that many Western donors were determined to unpick the ABC strategy, rather than model future policy on it… This BMJ news item indicates that Professor Green is a true prophet” (Stammers 2005). “Unfortunately,” wrote another correspondent, “the BMJ article and others confuse incidence with prevalence. I’m afraid the current batch of news articles based on Dr. Wawer’s presentation [at the conference] represent more of the pointless A versus C debate” (Shelton 2005). Yet another wrote, “the only biologically plausible way the number of deaths could exceed the number of cases in a given year is if the HIV incidence in earlier years was much higher… and had declined to current levels” (Mosley 2005). Furthermore, “these findings do not support a conclusion that condom use can result in a reduction in HIV incidence (and prevalence), but rather that the combination of condoms with more sexual partners (behavioral disinhibition?) will only maintain incidence at a high and steady state” (Mosley 2005).

Though the debate rages on, it appears that multi-faceted ABC is gaining a following. Increasing numbers of researchers and experts are endorsing the ABC approach to AIDS prevention. In late 2004, a statement entitled “The time has come for common ground on preventing sexual transmission of HIV” was published in the British medical journal, the *Lancet*. Authored by Daniel Halperin, Edward Green, Norman Hearst and others, the statement included
a list of those who endorsed it – about 150 individuals, including influential AIDS thinkers such as Paul Farmer, Daniel Low-Beer, Yoweri Museveni, Rand Stoneburner, and Archbishop Desmond Tutu. The statement said:

Changing or maintaining of behaviors aimed at risk avoidance and risk reduction must remain the cornerstone of HIV prevention. We call for an end to polarising debate and urge the international community to unite around an inclusive evidence-based approach to slow the spread of sexually transmitted HIV. [Halperin et al. 2004:1913]

The statement acknowledges that the status quo in prevention is no longer acceptable. It urges that prevention should focus on programs that are locally-endorsed and relevant to the indigenous context, acknowledges that all three elements of ABC are essential to reducing HIV incidence, promotes a multisectoral approach to prevention, supports significant expansion of HIV testing and counseling services, and endorses the pursuit of medical interventions for AIDS in a way that does not impede adoption of preventive behaviors.

“Common ground” statements such as these are not likely to silence the debate once and for all. It will continue as long as there are competing interests with limited resources to fight AIDS worldwide. But in light of those limited resources, it only seems prudent to reserve limited funds for those approaches shown by evidence to be most effective for AIDS prevention. ABC may not be a panacea either, but it has repeatedly been shown by evidence to be the best approach for AIDS prevention so far.
Despite the preponderance of data suggesting the superiority of a multi-faceted approach to AIDS prevention and health promotion in general (see Valente 2002; Backer et al. 1992; Reardon 1989), mono-faceted approaches are still remarkably popular. This is partly because (as previously suggested) they are more easily monitored for impact. The most popular mono-faceted approach is education and information campaigns. Problems with condom use compliance? Educate people further. Can’t get gays to stop having risky sex? Instruct them in ways to have safer sex. The underlying assumption behind such an approach is that people aren’t avoiding AIDS because they don’t know how. Give them enough education and information and behavior will change automatically (Bernard 2002). This approach often doesn’t consider whether or not an intervention is compatible with the existing values of potential adopters, an important prerequisite to acceptance of the intervention itself, notwithstanding whether or not a new behavior is actually adopted (Rogers 2003).

Bernard (2002) calls this the educational model of social change (EMSC). The idea, according to Bernard, is that since the last thing that happens before an action is a thought, if you want people to engage in better actions, then give them better thoughts through education interventions. The EMSC is widespread throughout Western society and is the foundation for a major international industry. This chapter addresses the theoretical underpinnings of the EMSC, its manifestations in contemporary society, its ubiquity in AIDS prevention, and some of the weaknesses of relying on the EMSC alone as a mono-faceted AIDS prevention strategy.

Theoretical Considerations

The educational model of social change highlights the differences between an idealist and a materialist paradigm for explaining differences in human behavior across time and space.
Idealism, espoused by thinkers such as Claude Levi-Strauss and Edmund Leach, proceeds from the premise that reality (and its attendant behaviors) begins in the mind – that is, with ideas – and that behavior is influenced primarily by the way one thinks about the world. Thus, the best way to change behavior is to assess and then intervene in people’s thoughts about that behavior. Educational interventions, information campaigns, and persuasive speeches are the hallmarks of the idealist approach to behavior change.

The materialist perspective, advanced by theorists such as Karl Marx (1998) and Marvin Harris (1979), proceeds from the belief that behavior is primarily influenced by structural and infrastructural conditions. From the materialist perspective, behavior change is best effected by improving road systems (to make commodities more accessible), by boosting local economies (to increase purchasing power), and by changing laws and penalties (to provide tangible incentives/disincentives for certain behaviors).

In fact, idealism and materialism are both required to understand much behavior change, particularly in the short term; this is what Hornik et al. (2002:219) call a “match between intervention goals and structural opportunities for behavior change.” If all physical and financial barriers are removed from participation in immunization programs, for example, but no one knows about the programs and their utility, then no one will use them (see Zimicki et al. 2002). Conversely, if people are educated about the benefits of vaccinations but lack the financial or physical resources (like transport) to take advantage of them, then they will not. Valente concludes, “It is unwise to generate demand for products and services that cannot be supplied, and inappropriate to supply products for which there is no demand” (2002:50).

That the EMSC is ineffective at structural and infrastructural levels is a point that has been principally argued by Bernard (2002). “The closer a behavior is to the culture (or superstructure)
of society, the easier it is to intervene culturally,” Bernard writes. “But if people’s behavior is rooted in the structure or infrastructure of society, then forget about changing their behavior by educating them to have better attitudes” (2002:82). For example, unless a supply chain of vegetable delivery is established (involving transportation, price accessibility, etc.), no amount of educating Arctic peoples on the merits of vegetable consumption would induce them to adopt such a diet in a land where none could grow. A child who learns about the dangers of second-hand smoke in school (a superstructural intervention) is not in a position to move out of the house (structural constraint) if the parents do not quit smoking at home. Holtgrave et al. (1995:25) conclude that “at best, communication campaigns will cause people to make incremental movements toward behavior change.”

The Failure of the Educational Model of Social Change

Piotrow et al. (1997:26) write that “if knowledge and attitudes are observed to change within the period under study, the likelihood that behavior eventually will change, too, is increased.” Maibach and Cotton (1995:44-45) counter, “It takes little more than common sense to appreciate the fact that knowledge is a necessary precondition for behavior change. Conversely, although knowledge is necessary, it is not sufficient to motivate or activate behavior change.” Just ask cigarette smokers in America; 80-90% of adults are aware of various health risks associated with smoking, yet in the 1987 Great American Smoke-Out, only 11.5% of participants were able to quit for a full day, and only 7.3% maintained that for 1-3 days (McAlister et al. 1989). This seemingly obvious lesson turns out not to be so obvious. “The educational model,” Bernard writes (2002:33), “is the basis for one of the world’s biggest industries—social change and development.” The results of research and interventions based on the EMSC are reported in terms of how many people were educated, or how intentions, attitudes, and beliefs changed as a result of the intervention. Changes in actual behaviors are rarely
reported. Valente (2002) argues that this is an inappropriate method for evaluating the success of behavior change campaigns. Smith, suggesting best practices for educational interventions, writes:

The focus should be on behavior, not attitudes, knowledge, beliefs, or any other intermediate variable such as communication products, channel exposure, or public support. Although these intermediate variables can be indispensable as a means to influence the behavior, they should not be the focus for measuring success. [2002:334]

Yet all too often, intermediate variables are the measure of success. Raghubir and Menon (1998), for example, found that educational messages are taken to heart more thoroughly if they are linked to personal experience. Self-positivity bias (the belief that one is less likely to contract AIDS than others are) is reduced and attitudes and intentions regarding sexual behavior are swayed toward safer sex if people recall occasions when they have engaged in risky sex or know someone who has experienced the consequences of unsafe sex personally. All of this is good and useful information for designing better social marketing campaigns, but it does not tell us whether those campaigns will result in behavior change (not just superstructural change).

The industry to which Bernard refers – social change and development – depends on successful reports in order to receive future funding of projects from donors. This creates a bias toward reporting things that are easily measured – like how widely an educational intervention was implemented – rather than things like how successfully an intervention changed behavior.

Fitzgerald et al. (1999) administered an AIDS educational intervention to Namibian youth and then evaluated knowledge, attitudes, intentions, and risk behaviors of control versus intervention youth. In their own words, the study “demonstrates significant changes in knowledge, attitudes and intentions regarding HIV risk activities and marginally significant changes in risk behaviors” (Fitzgerald et al. 1999:60; see also McCombie et al. 2002 for an example of significant changes in knowledge with marginal changes in behavior). All of those
changed attitudes and intentions didn’t translate into significantly changed behaviors, but the educational intervention was considered a success, as evidenced by its publication in a peer-reviewed journal.

Apparently, the criterion for success in such projects is to produce better-informed HIV-positive people. And that is exactly what Desgrées du Loû (1999) found out. A group of World Health Organization (WHO) surveys conducted in 1995 in 15 developing countries found that public awareness of AIDS is closely linked to media and educational access. Somewhat paradoxically, sexual behavior was often found to be most risky among the best-informed individuals, suggesting that sexual behavior may be determined more by circumstantial factors than by rational health concerns (Desgrées du Loû 1999). It could also be that people who are better informed think that they are practicing safe sex when they are not.

The failure of education alone has been acknowledged by some preeminent agencies in the fight against AIDS. The Joint United Nations Programme on HIV/AIDS (UNAIDS) has stated succinctly, “research has proven numerous times that education alone is not sufficient to induce behavioural change among most individuals” (1999:5). Fineberg concurs, “educational efforts to date have succeeded more in raising awareness and knowledge about AIDS than in producing sufficient changes in behavior” (1988:592). Fineberg cites specific obstacles to effective education for AIDS prevention, such as the biological basis and social complexity of behaviors to be changed and “dual messages of reassurance and alarm from responsible officials” (1988:592). Maibach and Cotton (1995) contend that a lack of skills is one factor that impedes behavior change. And Agha suggests (based on research in Zambia) that programs that teach women to negotiate safer sex may not work as well as with men, “as they are likely to work only when women have control over decision-making” (1998:36). Lack of control is a significant
structural barrier for women that can subvert any potential positive effects of safe sex education (Hoffman et al. 2004).

Botswana is a sobering example of the limited power of education alone. In 1987, the national Ministry of Health and WHO jointly launched a campaign for public education, awareness, and prevention of AIDS, although a 1984 survey had found no cases of HIV seropositivity among the rural population. The campaign lost steam by 1989, since few had experienced AIDS personally; with no circumstantial motivation, education had limited effect. Despite the fact that 80% of Botswanans had heard of AIDS after the campaign, only 45% reported that they had changed their sexual behavior because of it. And of those 80% who had heard of AIDS, fully one-fifth knew nothing about the disease beyond its name (Ingstad 1990). Today, Botswana has one of the highest rates of HIV in the world. If the government’s educational intervention had coincided with circumstantial motivation of some kind, the campaign may not have ended prematurely and the outcome may have been very different.

The correlation between AIDS education level and HIV prevalence is not limited to Botswana. Caldwell (2000) reports that despite evidence of thorough educational campaigns (98% of Tanzanian men and 99% of Zambian and Kenyan men surveyed knew very simple basics about AIDS), AIDS is still out of control in sub-Saharan Africa. “A decade ago it was believed that such knowledge should be sufficient to contain the epidemic,” Caldwell writes. “In this sense the educational approach has failed” (2000:122).

The educational model of social change has failed outside of AIDS prevention, as well. The ultraviolet (UV) index was developed to describe how likely it is that a person can receive

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9 It is hard to say how many more of that 80% would have changed their behavior if they saw people that they knew dying from AIDS. It is safe to assume, however, that the educational campaign would have had far greater (and longer-lasting) effect in today’s context, provided that structural barriers to adopting interventions were not present.
sun damage to the skin on a given day. In response, it is hoped that individuals will take protective actions on days when the UV index is high. In Western Australia, the UV index is reported daily and awareness of the index is heavily promoted. However, Blunden et al. (2004) found that although 90% of respondents in Perth had heard of the UV index, only 5% had noticed the UV index forecast for that particular day. The authors concluded that a campaign to increase awareness of the UV index was unwarranted, but rather a campaign to change behavior might have more effect. However, Hill et al. (2002) reported that just such a program promoted throughout Australia produced inconclusive evidence that changes in knowledge, attitudes, and self-protecting behaviors were attributable to the education of the SunSmart campaign.

This was also found to be the case in a study of Ugandan adolescents and their behaviors, motivations, and perceptions of risk for pregnancy and disease in the context of sexual behavior. “The most important findings to emerge”, write the authors, “are that knowledge of safe-sex behavior and reported behavior have little in common and that the fundamental barriers to behavioral change lie within the economic and sociocultural context that molds the sexual politics of youth” (Hulton et al. 2000:35). In other words, structural barriers impede the successful implementation of superstructural interventions (safe-sex knowledge campaigns). They continue, “Young males’ lack of responsibility for the outcomes of their behavior is identified as an important barrier to improved sexual health” (2000:35). Unless and until circumstances compel young men to be responsible for the outcomes of their behavior (pregnancy, for example), it is unlikely that they will change them due to an information campaign.

Touchette (1985) found that although 90% of Bangladeshi women in a rehydration therapy program learned the salient points of using oral rehydration salts (ORS), only 8% of them
actually used ORS in treating diarrhea. Structural barriers to more widespread adoption of ORS included lack of access to a reliable source of ORS and disincentives such as the vomiting of ORS shortly after administration. Again, education as a mono-faceted intervention proved insufficient to engender behavior change. Smith (2002:332) concludes, “Communication works, but not if it attempts to substitute for needed structural changes.”

**Successful Education: A Multi-Faceted Paradigm**

Education does have its merits, though. There are cases where education has helped facilitate positive changes. Smith (2002) argues that to discredit education altogether on the basis of poorly executed campaigns would be analogous to discrediting surgery altogether if amateurs regularly practiced it for non-surgical illnesses (diabetes, food poisoning, etc.). “Clearly,” he writes, “in the practice of prevention, communication, and behavior change, skilled practitioners, adequate resources, and appropriate techniques are necessary in order to succeed” (Smith 2002:333). What are the conditions under which education can make a difference? Published examples can give us a clue.

Veverka et al. (2003) studied the impact of targeted information (delivered via the Internet) in encouraging U.S. Air Force enlisted men to adopt positive diet and exercise behaviors. Outcomes were assessed by fitness and health measures. The authors concluded that health measures related to diet (weight, body mass index [BMI], percent body fat) indicate that nutritional behaviors improved, but that exercise behaviors did not. They attribute the failure of the targeted exercise information to insufficient intensity of resultant workouts.

Before analyzing the results of the study, some methodological issues must be addressed. Why were outcomes measured by fitness and health changes? The study title (“Use of the stages of change model in improving nutrition and exercise habits in enlisted Air Force men”) indicated intent to assess behavior change (nutrition and exercise *habits*), not overall fitness and health.
But outcome measures referred to fitness and health. Perhaps this was considered a more reliable indicator of actual behavior change, as one can lie about improved exercise habits, but it’s impossible to hide body fat.

Methodological issues aside, two interesting points emerge from this study. The first is that specifically-targeted information has the potential to impact behavior, perhaps to a greater extent than general information (cf. Rogers 2003; Backer et al. 1992). This is underscored by Worden and Flynn (2002) who used targeted messages to reduce teen smoking rates by 35%, by Palmgreen et al. (2002) who did the same for marijuana use, and Hornik et al. (2002) who analyzed the effectiveness of targeted information to induce behavior change for vaccinations, use of oral rehydration salts for diarrhea, intake of vitamins, promotion of breastfeeding, and promotion of birth spacing in eight different countries around the world. Palmgreen et al. summarize it thus:

It should not be broadly concluded that “televised anti-drug PSAs [public service announcements] produce behavior change,” or that “PSAs alone are sufficient for prevention purposes.” The data do indicate that PSAs can affect drug behavior, but only in the context of carefully targeted campaigns that achieve high levels of reach and frequency, and with messages designed specifically for the target audience on the basis of social scientific theory and formative research. [2002:52; see also Backer et al. 1992]

The second point is that (as Veverka et al. 2003 concede, cf. Rogers 2003) the achievement of a specific overall outcome (such as fitness level) depends on the extent and complexity of the required behavior change. As they discovered, dietary health outcomes can be significantly impacted by relatively small behavior changes (regularly choosing chicken instead of steak for lunch can help you lose five pounds relatively easily), whereas fitness health outcomes require significantly more difficult behavior changes in order to be impacted (measurable cardiovascular improvements require sustained strenuous exercise over a long period of time).
This suggests that the EMSC can more easily impact outcomes involving relatively small (easy) behavior changes than outcomes requiring large (more difficult) behavior changes (Backer et al. 1992). Even a behavior with deeper structural implications (such as improvement of health) can be affected by educational input if the behavior is relatively easy and painless to implement. An educational campaign to wear sun block on the beach could be expected to be more successful than a campaign (on the same superstructural level) to promote vigorous exercise for 30–45 minutes five times a week.

Aside from targeted information and promoting small, easy changes, what other conditions can contribute to the success of educational interventions? Allen and Heald write, “Human behavior rarely changes because of health education alone. Change is facilitated when information is linked to procedures of compliance” (2004:1152). Snyder and Hamilton (2002) concur; in their meta-analysis of multiple individual case studies, they found that overall, 9% more people performed the promoted behavior after the campaign than before. When they controlled for campaigns using and not using enforcement, however, they found that campaigns without enforcement induced only a 5% behavior change, whereas campaigns with enforcement induced a 17% behavior change. Authority decisions (as Rogers [2003] calls them) generate the fastest rate of adoption of new behaviors.

One concrete example of the effectiveness of information linked with enforcement is a study of seat belt use in North Carolina. Despite knowledge about seat belt laws in North Carolina, seat belt use in the state was only 64% at baseline. After a campaign that combined information on the importance of seat belt use with rigid law enforcement (seat belt checkpoints, roving seat belt patrols, and high fines for nonuse), seat belt use in the state rose to 81% (Williams et al. 2002). “Follow up telephone surveys of the observed nonusers in North
Carolina indicated that many said they would respond to driver’s license points, but not higher fines,” report Williams, Wells, and Reinfurt (2002:95). To obtain further results, more intense procedures of compliance would be needed – not further education, as nonusers surveyed by telephone already knew about the laws. And it can be expected that any reduction in enforcement would be accompanied by a simultaneous reduction in compliance.

One of the principles Austin (1995) recommends for effective health campaigns with young audiences is to send consistent messages from a variety of sources for a long period of time. Backer et al. (1992) add that evaluating a program while it is in progress increases the likelihood of success. Koblin et al. (2004) found that intense, frequent education with good oversight and follow-up can produce at least a temporary positive effect in behavior change. Not only was the health outcome (reduction in HIV acquisition in homosexual men) achieved through targeted education (18.2% fewer infections in intervention than control group), but specific targeted sexual behaviors also changed (20.5% lower frequency of anal intercourse with unknown-status partners in intervention than control group), which likely influenced the ultimate outcome. Nevertheless, the effects were found to be strongest only during the 12-18 month period following the intervention. Extended oversight, however, (in the form of accountability partners or support groups throughout the duration of an intervention) can sustain campaign effects in people who quit smoking (McAlister et al. 1989).

Thus, even though targeted education campaigns can induce behavior change, the change does not appear to be permanent. This is confirmed by a study on vasectomy promotion for birth control in Brazil (Kincaid et al. 2002). During a media blitz promoting vasectomy to Brazilian men, calls and visits to clinics performing the surgery dramatically increased over pre-campaign levels. But for many clinics in the six month period following the campaign, call and visit levels
were at or below pre-campaign levels (although others reported higher levels). These mixed results led the authors to conclude:

This pattern of an initial increase in demand followed by a drop to a plateau higher than the original level is common in mass media promotions. When postcampaign levels drop below the original level, researchers usually presume that preexisting demand “bunched up” during the promotion period, and no net increase in performance will occur over the long term. [Kincaid et al. 2002:184]

Another way that the EMSC can change behavior is through “brand theory” (Bernard 2002). This theory says that education (advertising) can influence whether I buy a Toyota Land Cruiser or a Jeep, provided I was already intending to buy a four-wheel drive vehicle in the first place. In that sense, education (a superstructural intervention) can influence my brand selection (a superstructural choice). Hornik (1989:329) agrees that media information alone can influence behavior if it promotes objectives “reflecting the material possibilities for change.” But no amount of educational rhetoric will influence me to buy a car in the first place if I have no income (a structural constraint) or to give up driving if the nearest affordable housing to my job is 30 miles away and there is no public transportation system (an infrastructural constraint) (Bernard 2002). Although they do not use the term “brand theory”, Flora et al. (1989) concur that behavior change which depends primarily on an increase in knowledge (a superstructural choice) can be affected by mass media alone (a superstructural intervention), whereas change that aims to affect a deeper level (structural, infrastructural) must combine mass media with considerable interventions at the structural level.

One example of the brand theory in action is a report by Soumerai et al. (2002) on the effect of publicity in reducing aspirin use for childhood fevers. When a link was found between aspirin use in children and the development of Reye’s syndrome – an often fatal illness – both academic journal and mass media reports in the United States disseminated that information. This led to federally-mandated warning labels on aspirin bottles and a subsequent drop in both
childhood aspirin use and the incidence of Reye’s syndrome. Because other brands of equally-effective fever-reducers were already on the market, a superstructural brand switch was comparatively easy to make in response to superstructural information. According to brand theory, abandonment of aspirin for childhood fevers would have been much more difficult to achieve in the absence of any good alternatives.

Education can potentially influence behavior if prior motivation for change already exists (Backer et al. 1992). “Effective messages”, write Piotrow et al. (1997:36), “build on people’s current thoughts, feelings, and needs and do not disregard or contradict them.” Provided an individual was intending to make a large behavior change in the first place, education can persuade someone one way or another in the implementation of that change. If someone was planning to spend an expensive vacation in Florida to begin with, an infomercial might sway that person to stay in one resort over another. But a person without the intention (or finances) to vacation in Florida in the first place will probably not be moved to book a reservation based on an advertisement.

One example of the EMSC successfully influencing behavior is a hygiene promotion program in Burkina Faso (Curtis et al. 2001). The program was promoted for three years in Bobo-Dioulasso in an effort to change behaviors that spread diarrhea. The program was tailored to local customs using local communication channels. It also targeted specific behaviors. But most importantly, it built on people’s existing motivation for hygiene; that is, it didn’t have to create motivation for change in the first place, but simply had to influence that motivation in the right direction through education (the “brand theory”). Rogers (2003) calls this motivation “recognizing the relative advantage” of a new behavior, which speeds up its adoption.
Success was measured by proportion of targeted mothers who had been reached (three-quarters), proportion that could properly cite two main messages of the campaign (one-half), and – most importantly – actual behavior change: hand-washing with soap after cleaning a child’s bottom (an increase from 13% to 31%) and hand-washing after mothers themselves used the latrine (an increase from 1% to 17%). One targeted behavior change that did not occur to a large degree was the safe disposal of children’s stools (an increase of only four percentage points from 80% to 84%) (Curtis et al. 2001). According to brand theory, this might be explained by a lack of initial motivation for safer disposal of children’s stools.

In a step-by-step guide to developing health behavior change campaigns, Witte et al. (2001) contrasted early reports on the effectiveness of fear appeals (nearly all showed strong evidence of overwhelming efficacy) with later rejection of the method by health educators (nearly all balked at using it; see Geller 1989, for example). Upon discovery that earlier reporting had selectively favored successful outcomes – rather than reporting all results – the EPPM (Extended Parallel Process Model) was developed to explain in which cases fear appeals work, and in which ones they do not.

The first stage of the EPPM is a cognitive threat appraisal; when faced with information in a fear campaign, people first try to determine if they are at risk. If they feel that they are not, then they disregard the fear campaign. By contrast, if they feel that they are at risk, then they become fearful and the second stage of the EPPM kicks in: appraisal of the efficacy of the recommended response. If people determine that the recommended response is possible to implement and truly does reduce the risk they feel threatened by, then they take action to protect themselves (danger control response). If, however, people determine that the recommended response is impossible to implement (due to structural constraints) or does not impact the risk
they feel threatened by, then they take action to control their fear (denial, avoidance, development of conspiracy theories), as danger control appears useless. Thus, fear appeals can be successful if people correctly perceive their risk and perceive efficacy in controlling the danger and attendant anxiety (i.e. do not feel hampered by structural or infrastructural barriers to mitigating their risk) (Backer et al. 1992).

Altering one’s environment, providing access to resources, and removing or circumventing obstacles is a necessary prerequisite for successful behavior change (Maibach and Cotton 1995; Valente 2002; Backer et al. 1992; Adhikarya 1989; Reardon 1989). Valente calls this the ecological perspective, and argues that “these [environmental] contexts are often beyond personal control, yet they influence behavior. The ecological perspective shifts the emphasis from individuals to a broader understanding of the environmental and social context of behavior and in so doing sometimes identifies barriers to behavior change” (2002:45). Only the removal of a government hostile to capitalism allowed private enterprise to flourish in the former Soviet Union, though Soviet citizens were knowledgeable about capitalism long before the fall of communism. Similarly, if disincentives to change are replaced or overridden by large enough incentives, then that specific kind of barrier to change might be breached (Reardon 1989). Many people see disincentives in the use of condoms (reduced pleasure, implication of mistrust in a relationship, loss of clientele for sex workers), but some of those same people would use condoms if they were paid enough to do so each time they had sex. This would not mean that barriers to condom use didn’t exist anymore, but the incentives would supersede the disincentives. This is part of the method used by the Chinese government (tax incentives, child allowances, education, and job placement) to encourage families to limit themselves to one child only (Rice 1989). Realizing this principle, “some donors and other institutions are emphasizing
long-term structural changes intended to increase motivation for smaller families, especially more education, employment, and other opportunities for women,” write Piotrow et al. (1997:195).

Valente (2002) identified eight different health intervention strategies, some of which aim to increase knowledge (such as training local health providers, who in turn provide health care to the community) and others that aim to change behavior directly. One of the latter types of strategies is community-based distribution or outreach, which combines social learning theory (Bandura 1977) – which argues that people learn by copying role models – with what Rogers (2003) calls “trialability” – the opportunity for potential adopters to try new products or ideas before committing to behavior change. Community-based distribution or outreach is where agents of change personally approach members of the target population, identify with their clientele, and then encourage adoption of a new behavior, often passing out free samples of a product associated with that behavior (e.g. condoms, makeup products, or cigarettes). This strategy removes access barriers, not only for the products themselves, but also for contact with an actual practitioner of the new behavior who can answer adoptees’ questions and allay their fears of change. This strategy has been highly successful in the United States for companies such as Tupperware and Avon, and has also worked well for drug rehabilitation, when former users personally recruit their friends to the program that helped them kick the habit (Valente 2002).

Such an approach is based upon the diffusion of innovations theory (Rogers 2003; Valente 2002) which describes how new ideas and behaviors spread throughout a community, categorizes people by how early they adopt a new practice (innovators/pioneers, early adopters, the early majority, the late majority, and the laggards), and elucidates the stages individuals
undergo in the process of adoption (knowledge, persuasion, decision, implementation/trial, and confirmation/adoption). Diffusion of innovations theory also describes what is known as the KAP-gap (KAP stands for Knowledge, Attitudes, and Practice). “The percentage of the population aware of the innovation increases most rapidly,” writes Valente (2002:38). “It can take somewhat longer for that same percentage to have a positive attitude, and still longer for the same percentage to adopt it.” The KAP-gap partially explains why education by itself may increase knowledge, but not necessarily change behavior. To narrow the KAP-gap requires removal of structural inhibitions to adoption, as community-based distribution or outreach attempts to do. In addition, if the results of adopting a new behavior are readily visible to onlookers (Rogers 2003) and the early adopters are similar to their peers in beliefs, education, socioeconomic status, et cetera (known as “homophily”) (Rogers 2003; Backer et al. 1992), then the innovation is more likely to spread quickly.

Finally, a meta-analysis (Snyder and Hamilton 2002) was conducted on 48 health behavior campaigns, in order to generalize the results of multiple individual case studies. In addition to reinforcing the effectiveness of enforcement (combined with dissemination of information, as reported above) on behavior change compliance, the meta-analysis concludes that inclusion of a message that contains new information increases campaign effect size. In addition, the authors found that the wider the reach of a campaign, the larger the effect size.

Two of the most famous health behavior change campaigns that are repeatedly cited in the literature for their effectiveness are the North Karelia (Finland) and the Stanford (California) heart disease risk factor reduction programs. Though they predate most of the studies cited in this section (both started in the early 1970s), they are efficient summaries of the information presented above because of their comprehensiveness. In the highly successful North Karelia
(as reported by Backer et al. 1992), residents petitioned the government public health agency to assist them in developing strategies to reduce their heart disease risk; prior motivation was already present. Apart from a mass media campaign promoting the adoption of healthier behaviors (the educational component), other components of this seminal project included community participation and management, inclusion of a prestigious agency that could serve as a role model, integration of the project into the existing health service structure of the community, widespread promotion of the intervention, community-based outreach (using homophilous peers and opinion leaders), long-term investment in the project (with continuous oversight and follow-up for over 20 years), targeted information, and, perhaps most importantly, the removal of structural barriers to implementation (reliably stocking supermarkets with low-fat foods, for example). Similarly, the Stanford Heart Disease Prevention Program utilized not only mass media promotion, but also the networking of opinion leaders, bilingual approaches (tailoring the campaign to the audience), targeted information, incentives, and ongoing oversight and evaluation of the project (Flora et al. 1989; Backer et al. 1992).

Conclusions

Education for AIDS prevention must be multi-faceted and combined with strategies that eliminate structural and infrastructural barriers to successful implementation. Many developing nations and the NGO’s toiling within their borders are dedicated to ramping up the infrastructure and improving structures, as well. But must successful AIDS prevention wait for the structure and infrastructure to support it? What can one do in the meantime, while waiting for structural and infrastructural changes to occur? The answer is to identify indigenous practices and movements that are protective against AIDS and reinforce them. If an approach is homegrown, it is safe to assume that motivation for change is already present. And it is also likely that the approach must not be hampered by structural or infrastructural constraints, or else it wouldn’t
have arisen in the first place. If that energy can be channeled and supported, education may make a difference where it hasn’t before.

Many indigenous practices in West Africa do have protective effects for a variety of diseases. These practices have been documented and published for a wider audience, and many important principles can be drawn from the studies reporting them. The following chapter investigates ways that West Africans have developed homegrown approaches to public health in the absence of outside intervention.
Cultural evolution is an idea that never really died out. Popular in the latter part of the 19th century in anthropology, various iterations of the theory posited that all cultures pass through the same stages of development, so that one can ascertain how advanced a society is by looking for the presence or absence of certain traits or cultural markers. Early theorists in anthropology like Edward B. Tylor and Lewis Henry Morgan used the theory of unilineal cultural evolution to explain differences in customs, family structure, and material artifacts across societies. The most advanced societies were identified as those possessing the most cultural traits that were used as markers. Perhaps not surprisingly, the traits chosen as markers inevitably pointed to Western civilization as the most advanced society.

A great deal of thought and research went into the development of unilineal evolutionary theories. However, as time went on and more ethnographic data were collected, it became increasingly apparent that unilineal cultural evolution was a weak explanation for cultural variation.

At the turn of the 20th century, Franz Boas challenged the notion of cultural evolution with his dual emphases on historical particularism and cultural relativity. Insisting that anthropological theorists base their ideas on voluminous data collection instead of speculation and opinion, Boas argued that societies and their cultural traits are products of their particular history and circumstances. Each society has its own unique background, and this determines how and which traits each will develop. Because each society can only be fairly assessed on its own terms and in reference to its own particular background, one cannot judge the advancement of a society in reference to one’s own (cultural relativism), and one should not expect that
customs and adaptations developed in one society will necessarily prove adaptive and useful in another.

To a large degree, cultural relativism has prevailed over cultural evolution in contemporary anthropology. And yet, cultural evolution is an idea that has been repeatedly revived since the time of Boas in various new forms. Some of the practical problems of a cultural evolutionary orientation include appearing politically incorrect (it’s hard to be diplomatic when one is basically saying that another society is not as progressive as one’s own) and denying the ingenuity of indigenous adaptations to particular circumstances and environmental stressors. For example, a cultural evolutionist might consider a revolver to be a superior example of a gun over a blow-dart. After all, the projectile flies faster, is more destructive upon impact, and can be accurate over great distances. However, if one’s primary use for a gun is to hunt small birds and frogs in a forest, a blow-dart may prove more adaptive, as it is relatively silent, accurate at ranges close enough to see small animals, and does not obliterate one’s prey upon impact. The ethnographic record is replete with similar examples where a trait initially appearing maladaptive or primitive is actually more advanced than originally thought when placed in historical and environmental context (for more examples, visit the Human Relations Area Files online at http://ets.umdl.umich.edu/e/ehrafe/ and search using OCM subject code “178” for cultural evolution).

The same is true when assessing public health cross-culturally. Are Western models and approaches to disease prevention always better than indigenous ones? Given different environmental and historical contexts, can one make such a judgment objectively? Should anthropologists, public health practitioners, and outside experts trust indigenous wisdom? Cultural relativity would seem to suggest so. “Let us go beyond the ethnocentric assumption,”
writes Green (1999b:224), “that any health beliefs and practices that differ in substance and in idiom from ours is [sic] ipso facto deficient and something that stands [sic] in the way of progress.”

In studying the health of cultural others, it is instructive for anthropologists to consider not only the effects of Western interventions on wellbeing, but also the effects of indigenous approaches to public health. Which cultural taboos have beneficial effects on wellbeing? What is the role of religious prohibitions on the health of a population? Which behavior modifications positively impact the health of a society? Do some practices produce better health outcomes though better health was not their original intent?

This chapter focuses on how West Africans have developed strategies (outside the biomedical paradigm) to avoid numerous kinds of diseases, and have coped and adapted culturally to mitigate these diseases’ impacts on society, productivity, and public health. The focus is exclusively on disease prevention (and not treatment), and cases analyzed are largely (but not exclusively) limited to West Africa. The studies analyzed below demonstrate that the practice of indigenous disease prevention is widespread, multi-faceted, and has the potential to be quite effective in the absence of Western medical interventions.

**Background**

Inhorn and Brown (1990) have written an extensive review of the anthropology of infectious disease, highlighting many cases around the world where simple, indigenous strategies of disease avoidance resulted in significantly positive public health outcomes. As an example, they cite a report from J. M. May’s 1958 book, *The Ecology of Human Disease*, where it was observed that native hill peoples in North Vietnam had adjusted to the presence of malaria vectors in the area by building homes on stilts over ten feet high – the flight ceiling of the disease-carrying mosquito.
But, as Inhorn and Brown point out, not all behaviors that prevent disease are deliberate. They cite examples of malaria prevention that happened quite circumstantially, as in the use of alkaline laundry soaps that destroy mosquito breeding sites and the timing of shepherds in Sardinia moving their flocks to higher elevations for summer grazing – placing the shepherds out of harm’s way during peak malaria months. Similarly, Inhorn and Brown cite an unpublished manuscript by Linda Collier Jackson which hypothesizes that regular cassava consumption in Liberia might limit parasite development in humans because it contains minute amounts of cyanide (Inhorn and Brown 1990). And conventional wisdom in northwestern Benin holds that the consumption of pima (a small, very spicy red pepper used in abundance for cooking) is protective against meningitis.

Even if behaviors are deliberate, however, the rationales behind them are not necessarily biomedical. “These and other traditional behaviors”, Inhorn and Brown note in reference to malaria prevention, “based on the folk theory of miasma probably had preventive effects” (1990:101). This counteracts “the entrenched belief in the biomedical community that indigenous beliefs and practices are irrelevant to the problem at hand” (1990:104).

Cultural Taboos

The effect of cultural taboos upon public health can be great, both positively and negatively. Taboos that have an impact on health function primarily as prevention-by-avoidance – that is, distancing oneself from sources of disease transmission, either knowingly or unwittingly. Three studies from Nigeria shed light on the power of cultural taboos to promote health in the West African context.

The first study (Olusanya 1969) investigates attitudes toward birth control among the Yoruba. Children are not a disease to be prevented, per se, but family planning (namely, spacing children and limiting family size) has long been recognized in the West as a way to increase the
overall health of each family member and to make sure that resources are allocated sufficiently. The Yoruba have long practiced birth control, too, but it is “traditionally not regarded as a means of achieving a pre-meditated size of family or the spacing of births for economic reasons, but is closely linked with their belief system” (Olusanya 1969:14). Regardless of the reasons for practicing birth control in the first place, the positive effects of limited and controlled family size upon public health can still be enjoyed.

Olusanya mentions three indigenous methods of preventing conception: a charm (either a ring on the finger or a belt stuffed with charms) worn by a woman during sexual intercourse, drinking very salty water immediately after intercourse (on the woman’s part), or coitus interruptus. More common than prevention of conception are the traditional methods of abortion. These consist either of drinking mixtures of different substances (potash, lime juice, cactus juice, fresh eggs, gin) in various combinations, depending on the progression of the pregnancy, or the insertion of a vaginal suppository (made from locally-grown seeds and leaves) that destroys the fetus (Olusanya 1969).

But according to Olusanya, “traditionally, abstinence is the main method of birth control; it stems from the lactation taboo and has the effect of spacing out successive children born by a woman and consequently controlling the ultimate size of family” (1969:14-15). “Lactation taboo” refers to the belief that a nursing child will fall ill and die if the mother’s milk is made harmful by sexual intercourse. It is considered better to wait until the child is old enough not to depend on its mother’s milk anymore before resuming sexual intercourse, thereby lowering the lifetime number of pregnancies. Thus, this taboo is specifically geared toward promoting the health of a specific individual – the nursing child – and this ultimately affects the community as a whole, as children from any given family are spaced out more manageably.
Hughes (1976) also explores the role of cultural taboos for promoting public health in Nigeria. He discusses indigenous health practices among the Egba Yoruba, including disease prevention methods. Contagion of some sort is recognized as being the causative agent in smallpox, as well as in certain mental disorders. Consequently, the practice of quarantining an infected individual is well known among the Yoruba. The cultural taboo which isolates a sick person from human contact extends to contaminated objects, as well. Members of healing cults who have had smallpox themselves in the past (and are therefore immune) are appointed to remove the sick person’s clothing and personal belongings from general contact with the rest of society (Hughes 1976).

This emphasis on isolation of ill individuals is also highlighted in Oladepo and Sridhar’s 1987 discourse on public health practices in Nigeria. The authors examined traditional health practices of the Yorubas, Hausas, and Ibos in Nigeria through interviewing about four hundred persons in each ethnic group. They found that isolation is advocated for tuberculosis and cholera, and since those diseases are considered to be hereditary, a taboo against marriage between infected and uninfected families exists, as well. Thus, the isolation can extend beyond the individual and their immediate circumstances (Oladepo and Sridhar 1987). Isolation is practiced in Mozambique in the context of sexually-transmitted diseases, as well. Contaminated individuals are kept apart from other people until they have been ritually purified, which may also involve herbal medicines (Green 1999a). “Perhaps the isolation, avoidance, or social marginalization of people in polluted states serves to quarantine those who, in fact, could be a health threat to others because of their contagiousness” (Green 1999b:14).

Oladepo and Sridhar (1987) also mentioned taboos regarding water sanitation; respondents advocated not drinking from water sources that are used for sacrifice, children not being allowed
to collect rain water with their bare hands, menstruating women not being permitted to fetch water from the village stream, avoiding submerging wounds in a river, and avoiding collecting water simultaneously in large groups. From these examples, it appears that contamination of the water source is a major concern for many Nigerians, and these cultural taboos are geared toward protecting those sources to promote the general health of the public.

Regarding the sanitary disposal of human waste, Oladepe and Sridhar mention a taboo against defecating upon other people’s feces, which probably limits the collection of large amounts of sewage in one place (a potential public health hazard). It is believed that unsanitary conditions attract snakes and scorpions, and can cause leprosy. They also mention the prohibition amongst Muslims against using the right hand during anal cleaning with water (1987). This limits fecal-oral cycles since Muslims eat with the right hand. Oladepe and Sridhar also mention taboos whose health significance is not immediately apparent to a Western layperson: a pregnant woman cannot use a pit latrine or she’ll become barren, and if a child urinates in the mother’s food while she is eating it, she must not abandon it or the child will die (1987).

They next consider taboos relating to food handling, preparation and storage. For example, nobody should eat food that is stored under the bed of a female, and a woman should not cook or eat while braiding her hair. Pregnant women should avoid certain foods, such as snails, bush meat, and certain vegetables, but after delivery, they should eat okro and melon to improve digestion (Oladepe and Sridhar 1987).

These taboos are communicated and reinforced through parents educating their children on moonlit nights, during crises or community festivals, and during visits to traditional healers (Oladepe and Sridhar 1987). Thus, cultural taboos are numerous in the West African context,
and their knowledge is widespread. Their potential impact upon public health and disease prevention is great, and should not be overlooked by anthropologists attempting to understand how West Africans promote good health outside the biomedical context that so many of us are familiar and comfortable with.

**Behavioral Prevention Factors**

Behavioral responses to disease threats are a common method of disease prevention. Once risk factors are identified in disease transmission, people tend to engage in behaviors that minimize their association with those risk factors. It’s the law of common sense, if you will, and it is practiced to some degree by virtually all people worldwide in some form.

MacCormack (1984) relates how human behavior has facilitated the spread and intensification of malaria in sub-Saharan Africa, as inhabitants of sparsely-populated areas settled into ever larger groups adjacent to bodies of water. Cohen and Armelagos (1984), summarizing cross-regional comparisons, concur that infection, malnutrition, and episodic stress all increased and mean age at death decreased among populations that transitioned from hunting and gathering to agriculture. Caldwell and Caldwell (2003), however, argue that the transition was too slow to produce drastic changes in health status and claim that the evidence for Cohen and Armelagos’ conclusions is selective and sketchy. Nevertheless, MacCormack concludes that “first, we sometimes modify our environment to gain nutritional or convenience benefits to the detriment of our disease status; and second, we then adapt to the new disease risk” (1984:81). Adaptations can come in the form of official government programs administered by medical experts, or in the form of lay practices, which usually long precede bureaucratic efforts at disease control. These lay efforts are commonly based on technologies that are accessible to almost every household – a key factor in their sustainability and reproducibility (MacCormack 1984).
First of all, physical barriers to prevent mosquitoes from feeding on humans have been
developed by various peoples across the continent. In many parts of rural Africa, tight-fitting
doors and window shutters are closed as the evening descends. Prior to the colonial period, the
Fulani people were known to sleep under fine-mesh mats that permitted air circulation while
blocking mosquito access to their skin. In swampy coastal Sierra Leone, children who are
weaned sleep on the floor outside their mother’s bed net, and are thus susceptible to mosquito
bites. Consequently, many children completely envelop themselves in thick cotton cloth that is
locally woven. Tests have demonstrated that this cloth is too thick for mosquitoes to penetrate.
Similar practices have been observed in northern Nigeria, where cool nights cause the thick cloth
coverings to render double duty – warmth and mosquito blockage (MacCormack 1984).

Repellents are also used, though they are not the kind found emanating from an aerosol
can. Rural south Sudanese mix cow dung ash and cow’s urine and apply it to the skin in the
evening to ward off mosquito bites. Smoky fires can also keep mosquitoes at bay – especially
cow dung fires, which are purported to keep even snakes away in Kenya. Cow dung is also used
to plaster the inside walls of houses in an effort to repel mosquitoes (MacCormack 1984).

Hughes (1976) highlighted not only cultural taboos, but also addressed behavioral disease
prevention factors. He discussed healing cults among the Yoruba, specifically in regard to the
smallpox god, Shopona. These cults developed indigenous practices of vaccination, which have
been practiced for a long time both by these groups and others throughout West Africa.
Unfortunately, Hughes did not go into further detail to describe what type of vaccinations were
implemented (subcutaneous, oral, or otherwise), but it is apparent nonetheless that concepts of
behavioral interventions to increase immunity and prevent disease are not unknown in West
Africa.
Hughes also discussed hygienic behaviors practiced among the Yoruba that promote good health and prevent disease. He wrote that “sanitation in villages is generally adequate, and the Yoruba themselves live by standards of personal cleanliness which, considering the supply of water and cleansing materials are rather remarkable” (1976:17). Hughes also mentioned the common practice throughout West Africa of chewing on a fibrous stick to promote good dental hygiene, a behavioral preventive measure that sustains the relative health of many people’s teeth absent the services of Western dental interventions.

Indigenous responses to AIDS and other STD’s have recently stolen the limelight of studies focused on behavioral disease prevention activities. Because AIDS in Africa is most highly concentrated primarily in the southeast portion of the continent, there are more studies dealing with AIDS in those contexts than in West Africa. But the lessons learned about indigenous responses to AIDS can apply elsewhere continent-wide.

In an extensive study of STD’s in Mozambique, Green (1999a) discussed the role of traditional healers in preventing widespread outbreaks of illness. When treating those who came to them with STD’s, some healers reported seeking out and treating recent sexual partners of the diseased patient, which is itself a preventive measure (considering that those former partners may also be infected – though still asymptomatic – and may pass it on to others if the sickness is not nipped in the bud). Thus, proactive aggressive treatment is a behavior that is used to prevent disease transmission. In addition, traditional medicines are available that are said to always be effective for STD prevention if taken just prior to sexual intercourse with an infected individual (Green 1999a). Thus, traditional medicines are said to have a preventive effect – not just a curative one.
Green also notes that several other behavioral methods of STD prevention exist in the traditional medicine paradigm. These include avoiding adultery, avoiding sexual intercourse with strangers, and avoiding sexual intercourse during menstruation (1999a). These preventive behaviors focus on disease avoidance, rather than risk reduction, such as the use of preventive traditional medicines while still exposing oneself to an infected individual.

Stoneburner and Low-Beer (2004) represent only two of literally hundreds of researchers who have investigated which behavioral disease prevention practices played the biggest role in explaining Uganda’s steep HIV prevalence decline in the late 1980s and 1990s. The jury seems to still be out on a definitive answer, as consensus appears to be elusive amongst the various academic and practitioner players with AIDS research expertise. Nonetheless, Ugandans have demonstrated several indigenous response strategies – regardless of the magnitude each strategy played (or Westerners’ reluctance to acknowledge them) – which have unquestionably impacted the AIDS epidemic.

As cited in Stoneburner and Low-Beer 2004, Ugandans increased the average age of their sexual debut before the arrival of Western intervention, a strategy which ultimately leads to fewer lifetime partners and a consequent reduction in risk of exposure to a potentially HIV-infected individual. Those who had already made their sexual debut appear to have reduced the number of their casual partnerships, and there seems to have been an increase in condom use. Of these three, the first two can rightly be viewed as indigenous behavioral responses for the purpose of disease prevention – as they appeared before Western interventions really got underway in Uganda – whereas the last is non-indigenous, having been introduced from the outside. This demonstrates that, even in the face of a new and “modern” disease, Africans have
the ability to generate indigenous responses that can be effective in promoting and maintaining good public health.

A rise in sexual debut is a form of prolonging one’s abstinence, which fits well into the African concept of specific abstinences, such as abstinence while pregnant and abstinence while lactating. There is much disagreement as to how long any of the various types of abstinence can be maintained – or whether they can be practiced at all – but abstinence as a mode of disease avoidance is hardly a new idea; it is simply a long-standing cultural tradition (or taboo, if you will) that has been recycled in some cases to combat the scourge of AIDS.

In Guinea, abstinence until an accepted age for sexual debut has been seen as a way to avoid weakness or illness that can spring from starting intercourse too early (Görgen et al. 1998). The view was also expressed that if young men started having sex too early, they would use up their available sperm before siring children. However, young women have been encouraged to marry early (especially if they are not in school) in order to reduce the financial burden of care upon the parents. This has the effect of causing a significant number of early sexual debuts to be marriage-related, which reduces the number of casual pre-marital partners a girl is likely to have. Early marriage, then, is an indirect strategy of reducing a girl’s exposure to many partners (which could be a health risk).

Görgen et al. (1998) also discuss Guineans’ avoidance of great age differences between partners. Whereas older, wealthier men are considered attractive for purposes of acquiring financial support, girls typically do not want an older man for a regular partner, unless he is not more than a few years older than she:

Young women accept a few years’ age difference, but they do not want their partner to be much older, for fear that such a relationship will endanger their health, destroy their youth and contribute to early aging. Young men try to avoid contact with older women. They believe that a relationship with an older woman makes a young man grow old or causes
diseases or even an early death, while it rejuvenates the woman and makes her more beautiful. [1998:68]

Thus, health is an important consideration for young people in Guinea when choosing a sexual partner. Spouse selection behavior based upon age differences between partners is directly tied to perceptions of health risk and disease avoidance. The indigenous strategy of spouse selection is specifically geared toward promotion of well-being.

Pre-marital pregnancy is considered to be a significant threat to a young woman’s well-being in Guinea. This is discouraged through a system that ostracizes unmarried pregnant young women, but also demands (through the agency of the girl’s father) that the girl’s partner acknowledges his paternity and takes at least some financial responsibility for it. This indigenous response to a threat to well-being encourages behavior change that minimizes risk-taking for both young men and young women (Görgen et al. 1998).

**The Role of Tangential Practices in Disease Prevention**

Finally, it is important to consider the role of practices which may have a public health outcome, though that may not have been their original intent. A prime example of this is Etkin and Ross’ 1982 report on foods normally consumed by the Hausa of northern Nigeria which happen to have disease prevention qualities, as well. “While therapeutic value is ascribed by the Hausa to a wide range of species,” Etkin and Ross write, “their consumption of these plants is not necessarily limited to a medical context” (1982:1560). Instead, plants that have gastrointestinal therapeutic qualities are often eaten as snacks throughout the day, or as relishes accompanying grain-based dishes in regular meals that are shared by all in the household. It is only when these plants are specifically consumed for their medical purposes that they are restricted to consumption by the ill person alone (Etkin and Ross 1982).
Though these plants are acknowledged medically for their curative qualities, they also have preventive effects in warding off gastrointestinal distress that is common among the Hausa when consumed in the course of everyday meals or snacks. For example, tannins and astringents have the protective effect of coating the alimentary tract, protecting inflamed mucous membranes and minimizing the absorption of toxic substances. Gum resins and mucilages also create a physical barrier that prevents damage to the gastrointestinal tract by certain bacteria. Fixed and volatile oils can stimulate pancreatic secretions and gastric fluids, as well as salivation, generally promoting smoother digestion. Sulphur-containing volatile oils are antimicrobial and inhibit fermentation in the stomach, warding off gastric discomfort and bacterial disease. Various other components of common Hausa food items have mild laxative effects, are effective against amoebae and protozoa, exhibit antifungal characteristics, inhibit intestinal worms, alleviate acidity, and restore electrolyte balance (Etkin and Ross 1982).

That these foods and their components do have preventive effects on gastrointestinal diseases is demonstrated by the fact that, as certain foods become available or unavailable due to seasonal rainfall fluctuations, specific diseases wax and wane in tandem with the availability of the specific plant food items that protect against them. “On the other hand,” write Etkin and Ross, “environmental factors important in the transmission and development of the other intestinal disorders remain relatively constant over the course of the year” (1982:1571). This demonstrates, then, that plants long praised for their curative qualities can have preventive effects, as well. In addition, this study demonstrates that tangential practices of West Africans can have as much of an effect on disease prevention as intentional practices.

**Conclusion**

West Africans (like many other anthropological “others” around the world) have established well-developed indigenous systems of disease prevention that are effective,
culturally-acceptable, and easy to implement (since they use readily available resources). Cultural taboos such as the lactation taboo, isolation taboo, and various water, human waste, and food taboos can have preventive effects that protect adherents from disease. Behavioral measures, such as the erection of physical barriers to malaria-carrying mosquitoes, development of mosquito repellents, indigenous vaccinations, hygienic practices, aggressive STD treatment, and sexual behavior change also have preventive effects against disease transmission. And tangential practices – whose original intent was not necessarily disease prevention – can also protect individuals from the onset of various diseases, as in the case of Hausa utilization of medicinal plants for everyday food.

The implications of these examples for AIDS research and practice are great. Western anthropologists (and other AIDS practitioners) need to seriously consider the possibility that our research subjects may have come up with indigenous solutions to AIDS prevention that we have overlooked. They may have developed modalities that are well-suited to their cultural context, are easy to implement, and are highly effective. We must not limit our inquiry to the effects of biomedical interventions that were developed in the Western cultural context, far removed from the reality on the ground in AIDS-ravaged sub-Saharan Africa. If we are to make any inroads into understanding and defeating this disease, we need to take African stakeholders seriously, and treat them as partners in prevention efforts.

This literature review of indigenous methods of disease prevention is by no means exhaustive. But it is sufficient to demonstrate the depth and breadth of indigenous wisdom and of the potential for non-Western, non-biomedical models of disease prevention to significantly and positively impact public health. As historical particularism has predicted, West Africans are
quite capable of developing customs, practices, and technologies that fit their historical context and are adaptive to environmental constraints and possibilities.
CHAPTER 6
RESULTS AND ANALYSIS OF DATA COLLECTED IN THE BOURÉ

Condoms are at the forefront of many Westerners’ minds when they think of AIDS prevention, even though there is no documented case where condoms have brought down a population-level AIDS rate. Where condoms have made a noticeable impact on AIDS rates is among specific, targeted high-risk groups, such as prostitutes in Thailand (Green 2003b) and male homosexuals in the United States and Europe. Thus, condoms deserve consideration for the role that they may have played in keeping AIDS infection rates low thus far among the high-risk migrant mining communities of Guinea. In order for condoms to have played a major contributing role in this stasis, at least three conditions must have been met: (1) condoms must be available in mining communities in sufficient quantity to be used in most high-risk sexual encounters; (2) understanding of the proper use of condoms must be high among both men and women; and (3) women must be able to enforce proper condom use by their male sexual partners.

Undoubtedly there are additional factors for successful AIDS risk reduction using condoms, but these three are particularly significant because a default in any one of them would severely reduce the effectiveness of the other two. For example, if there was insufficient availability to meet demand, that would undercut the condom explanation regardless of whether or not understanding of proper use was strong or enforceability by women was high. Availability considers issues such as distribution (are large stashes of condoms locked in a warehouse?), convenience (can people find condoms when they need them?), and price accessibility. Knowledge of proper condom use is also critically important because the best estimates place condom efficacy for AIDS prevention at 90% when used correctly (figures range from 80% to 90%) (Weller and Davis 2002; Hearst and Chen 2004; Davis and Weller 1999).
That means that one out of every ten sexual encounters using a condom will result in a compromised condom which exposes one of the partners to HIV if the other is infected, *even if the condom is used properly*. If condoms are used improperly, effectiveness plummets. Depending on the circumstances, condom effectiveness could drop to zero percent in a given encounter, but even a ten percent failure rate is cause for concern when dealing with a disease that is, at present, incurable.

To test the three principle factors (availability, knowledge of use, and women’s agency), 460 randomly selected respondents were interviewed in the villages of Fatoya, Boukariah, Balato, and Kintinian (collectively called the Bouré) near Siguiri, Upper Guinea. In addition, 16 health centers and pharmacies were visited to gain an understanding of the role they played in assisting people in their pursuit of protection from HIV/AIDS. Some of the best methods of random sampling (using a random number generator with a census list, drawing names from a hat/bowl) were impossible to use in the Bouré due to its remote location and poor infrastructure and the transient nature of respondents interviewed. A variation of the space sampling method (Lang et al. 2004; Bernard 2000; Duranleau 1999; Handwerker 1993, 1999; and Mukhopadhyay 1999) proved most appropriate; research assistants independently walked in a randomly chosen straight line toward the edge of the village, interviewing every \( n \)th person encountered, whether walking in the street, cooking in the courtyard, or sitting at a vendor’s stand (where \( n \) is a randomly chosen integer between 5 and 20 drawn from a hat each day). When they reached the edge of the village, assistants chose a new trajectory and continued in the same manner, crisscrossing the village at all angles and directions. This produced a sample ranging in age from 18-62 years (mean = 32.8); 49.8% female, 50.2% male; 81.3% married, 16.5% single, 0.652% widowed (3 respondents out of 460), 0.217% divorced (one respondent), with six respondents
not reporting marital status at all; education ranging from 0 years of schooling to 16 years (mean = 2.30); and respondents hailing from as close as the Bouré itself to as far away as Abidjan, Côte d’Ivoire with professions as diverse as mining, housekeeping, teaching, truck driving, governmental administrating, blacksmithing, tailoring, farming, traditional healing, photographing, hairdressing, and artistic painting.

For the prefecture of Siguiri as a whole (which includes the Bouré), the average age is 20.5, and the median age (for rural populations) is 14.5 (Direction Nationale de la Statistique 2005b), indicating a population significantly skewed toward youth. Our sample mean is different than this reported figure because we excluded respondents under age 18. As with age, proportions of our sample’s marital status and years of education are likely to be different than figures calculated for all residents of the prefecture of Siguiri because respondents under age 18 were specifically excluded. However, proportions of gender are not as susceptible to the influence of age as other demographic characteristics may be. According to the Direction Nationale de la Statistique (2005b), males account for 50.7% of the population of the prefecture of Siguiri, and females for 49.3%. In this regard, our sample’s proportions resemble the population as a whole. Since the sample was randomly chosen and represents a cross-section of those present in the Bouré at any given time, then there’s a well understood chance that the results can be validly extrapolated to the population of those older than 18 and present in the Bouré during the mining season.

**Condom Availability**

In a 2001 study, it was estimated that there were an average of 4.6 condoms per man (aged 15-59) per year available in all of sub-Saharan Africa (Shelton and Johnston). While this average is low, the same 2001 study indicated that condom availability is nearly as high as 17 per man per year in some countries, indicating that there is great variability in condom availability
from one country to another. Likewise, there may be even greater variability within regions of a
given country such that large supplies of condoms cluster around urban or industrial centers.

To address condom availability in the Bouré, the sample of 16 pharmacies and health
centers was visited regularly to count how many condoms were in stock. Condom tracking
enabled not only an estimate of the sufficiency of supply, but also determination if any condoms
that were available were actually being bought (and, by extrapolation, used). The results are
shown in Figure 6-1.

Given that the population estimates for each village varied from around five thousand to
eight thousand (with no exact figures available) and given that it is impossible to know precisely
how many sources for condoms there are in any given village, it is difficult to exactly determine
sufficiency of condom supply. However, supposing that the figures for Boukariah are
representative of average condom outlets in that village, one could say that condoms would be
hard to come by if there was any demand for them. By the same token, if the figures for
Kintinian are representative of average condom outlets in that village, one could say that
condoms are probably readily available if there is a demand for them.

The issue then centers on whether these samples of condom outlets are representative of all
condom sources in each village or not. Given the small average number of outlets visited in each
village on a regular basis (16 outlets divided by 4 villages = an average of 4 outlets per village),
this sample may not be statistically representative. However, it is representative by virtue of the
method of selection. Before beginning any research in each village, the chief was visited and he
appointed one of his aides to guide the research team to the main condom outlets. In addition to
this personal endorsement, condom vendors identified by the chief were asked to point out their
colleagues, too. In this way, major condom vendors were identified through social networking.
Secondary sources not known by the chief and the vendors he identified are probably not primary outlets. Pharmacies and health centers appeared to be the main sources of condoms, yet many identified pharmacies did not carry them at all, either. Pharmacies which did not carry condoms at all and didn’t intend to begin doing so were discarded from the sample in order to avoid tracking outlets that would record a “0” each week. Thus, if anything, the sample is skewed toward representing the villages as more thoroughly stocked with condoms than they really are.

When considering the information in Figure 6-1, it is important to note the variance around the mean. For example, condom outlets visited in Fatoya during the first observation period reported an average of 275.33 condoms in stock. Yet the standard deviation was 573.16, and the range in actual values was 0 to 1,440. In fact, three out of the six condom outlets monitored at that time in Fatoya reported zero condoms available, even though they identified themselves as usually having condoms in stock and intending to sell them in the future (which allowed them to be included in the sample). Thus, availability aside, distribution throughout the village is grossly disproportionate. If one lives in a neighborhood where none of the nearest pharmacies carry condoms on a given week, will they go out of their way to the pharmacy in another neighborhood which is carrying 1,440? Will they even know that that pharmacy is carrying 1,440 condoms that week? Given that this enormous variance about the mean is common for nearly all of the villages monitored at each observation, it appears that condom distribution is uneven across the board throughout the villages in the Bouré.

For most of the villages, overall condom supply seemed to stay relatively stable, either indicating that no one is buying condoms, or outlets that sell a lot of condoms are reliably restocked. The one major exception to the stability rule is Kintinian, which plummets from an
average of 402.67 condoms at observation 3 (standard deviation: 335.05) to a mere 75 condoms at observation 4 (s.d. 35.36). This is another thing that the tremendous variance about the mean hides. One out of the three outlets observed on a regular basis in Kintinian is responsible for some 800 condoms at every observation. At the fourth observation, however, this one outlet reported only 50 condoms. This either implies that this outlet sold some 750 condoms in one week (an extreme outlier when compared to the change in stock from every other observation in every other village) or there was a measurement error for the fourth observation. But since the averages are at the mercy of few observation points in each village, one outlet can make an enormous difference in the calculated means.

Boukariah’s low condom counts appear to be representative of the village as a whole; the research team had by far the most difficulty identifying any condom outlets whatsoever in this village. Following the same protocol as the other villages (visiting outlets identified by the chief, visiting networked outlets, discarding those that never carry condoms), nearly every pharmacy visited was discarded from the sample due to widespread lack of intention to ever carry condoms. The three outlets finally selected for the sample were the only three outlets found carrying condoms at all in Boukariah after a far more extensive search effort than was required in any of the other villages. Perhaps this is why Boukariah has a reputation for promiscuity amongst the other villages of the Bouré; neighboring villagers avoid taking brides from Boukariah if at all possible.

Another important observation about Figure 6-1 is that means hide fluctuations of individual outlets. In Balato’s case, one sole outlet was responsible for the only condoms reported at all for observation 1 (116 condoms; the others all had 0 in stock). By observation 2, that same outlet dropped to only 5 in stock, and at observations 3 and 4, this one outlet had 0
condoms left. By observations 3 and 4, however, a different outlet had picked up the entire slack while the rest (including the original well-stocked outlet) had 0 in stock. Thus, the average jumped back up at observations 3 and 4 to levels similar to observation 1, but it was a different outlet entirely that was responsible for the rebound in average. This inconsistency in individual outlets’ stock may discourage people who have come to rely on a single trusted source for their condom needs.\(^\text{10}\)

These individual complexities for each observation in every village make it difficult to generalize about condom availability across the board. Nonetheless, certain key conclusions can be drawn to some degree. Across the board, condom availability depends to a large extent on which mining village you live in. Even in villages that are well-stocked, supply may vary greatly from pharmacy to pharmacy (poor distribution). And certain condom outlets’ supplies are not dependably stable. Nevertheless, if a villager is persistent enough and condom usage is important enough to them, condoms are technically available in the Bouré.

An important question to address is why condom stock fluctuates so much. Why isn’t there a consistent supply? Though this research project did not directly address this question, three potential answers emerged in the course of informal conversations with condom vendors.

First of all, many vendors get their stock directly from Conakry (a 12 to 14 hour drive away) instead of Siguiri (a one hour drive, at most) because bulk condoms are cheaper in Conakry and the profit margin for resale is larger. Several outlets went for weeks with no

\(^{10}\) There seems to be a certain level of shame associated with condom use. Euphemisms such as “boubou” (a traditional full-body-length robe) are used by buyers to refer to condoms, as in, “I’d like to buy two boubous, please” (when addressing a pharmacist whom they know full well does not sell clothing). Other pharmacists, aware of their customers’ discomfort with talking about condoms at all, place large boxes of condoms in prominent displays, so that customers can surreptitiously point to the boxes and mutter, “I want one of those.” This embarrassment suggests that some people don’t want their condom use to become common knowledge, and therefore perhaps visit the same vendor repeatedly, to minimize the pool of people “in the know” (many vendors reported repeat customers). If a given vendor runs out of condoms, their repeat customers might have to risk exposing their secret to another vendor in order to meet their needs.
condoms in stock while waiting for a shipment from Conakry rather than restock their supply from Siguiri. This could indicate apathy toward carrying condoms (they just don’t care), reflect low demand (why prioritize stocking what people aren’t buying?), or simply stem from extreme poverty (if you can save even a few francs by buying the cheapest condoms available, not much will be able to entice you to buy more expensive condoms in Siguiri and decrease your profit margin).

Secondly, development projects that provide condoms are inconsistent. At least two specific development projects were named by pharmacists and health center directors as having supplied condoms in the past; these were run by PRISM (affiliated with Johns Hopkins University) and ADRA (Adventist Development and Relief Agency). Whereas it’s helpful to have a steady supply of condoms while projects are up and running, they are unsustainable if they do not create pathways wherein condom vendors can continue restocking their supply once the funds run out and projects close. So vendors alternate between feast and famine over the course of time if they depend heavily upon development projects as their source for condoms.

Thirdly, pharmacists buy condoms from each other and mark them up a bit. This is a common way of supplementing one’s supply while waiting for a shipment or providing a customer with an item one does not normally carry (rather than referring a customer to a competitor). This makes it difficult to know how much of a decrease in stock from a previous observation is due to actual sales to end users and how much is simply selling to each other. An outlet that appears to be moving a good number of condoms each week may simply be selling them off to smaller suppliers (not included in the study) who may or may not have any luck passing them on to end users. There is no way to know this without further investigation, which is outside the parameters of the current study.
Two additional important considerations are price availability and the influence of SAG, the industrial mining operation nearby. Condoms are sold in units of one, two, or three per package; when you calculate the price per condom (not per package), the price runs anywhere from 25 GNF to 170 GNF apiece (about half a cent to 3.5 cents each at an exchange rate of roughly 4,600 GNF = 1 USD). In the regional capital of Siguiri (estimated population: 50 thousand), salaries vary greatly by profession, but a skilled laborer (carpenter, plumber, etc.) can command up to 15,000 GNF on a good day, whereas a housekeeper can make approximately 7,000 GNF per day (personal observation). It is unknown how much parity exists between Siguiri salaries and village salaries near the mines, although the latter is probably somewhat lower. Gold sells for about 70,000 GNF per gram in the villages; traditional miners might find a gram once or twice a month (divided by 30 days, 70,000 GNF comes out to about 2,300 GNF per day on average). In the city, an average street vendor meal can be bought for between 1,000 and 3,000 GNF. Simply eating can wipe out a person’s daily cash supply, not to mention additional expenses that daily life accrues. The Direction Nationale de la Statistique (2005b) reports that 76.0% of men and 71.9% of women use their gold revenues for food before anything else. For both men and women, this includes food for the family, and not only for themselves. Men are not typically expected to provide food for the family outside of their own crop harvests, so it is likely that they are referring to fertilizers which aid in growing food. The bottom line is that condom prices are a minute fraction of what a person can earn (between 1.09% and 7.39% of a 2,300 GNF daily wage for one condom), but the cost of everyday living (and supporting a family) may all but obliterate any income so that even 25 GNF for a condom may be too much to ask. It all depends on one’s earning power, meaning that the poorest of the poor probably do not have access to condoms from an affordability standpoint.
SAG is an industrial mining consortium that is Ghanaian/South African owned and operated (see chapter 1 for more details). SAG runs an enormous operation in a well-guarded, fenced-in, high-producing zone in the center of the Bouré. The four principal villages researched in this study cluster around the periphery of SAG’s private property. Though SAG’s gold production far exceeds that of the four villages combined (one Learjet full of SAG gold flies out daily from Siguiri to Accra), the number of traditional miners tempting their luck in the villages far exceeds the number of SAG employees during peak mining season. This is because SAG depends far more on massive earth-moving machinery than on manpower; 122 respondents in the sample (26.5%) work in the mining industry (95% confidence interval [CI] = [22.5, 30.5]), yet only 18 of those work for SAG or its subcontractors (14.8%, or a ratio of almost seven traditional miners for every SAG employee; 95% CI = [8.5, 21.1]).

Yet despite its comparatively smaller number of employees, SAG’s influence in the region is huge (not least in terms of the environmental impacts of gouging tons of topsoil from the raw earth every day). In addition to providing employment for a small percentage of Bouré villagers, SAG provides free condoms for each of those employees every payday. Depending on how many condoms this represents, this could be a significant source of condoms in the villages surrounding the industrial mine. Whenever a SAG employee was encountered in the course of research, they were asked about this policy. The answers given were so varied as to suggest random guesswork. Some said that a fixed number of condoms are given to each employee in their paycheck envelope. Others said that there is a big bin full of condoms near the exit on payday, and employees can help themselves to as many as they think they need. Some reported that their colleagues’ embarrassment to be seen accepting condoms (it all but announces to onlookers that you’re planning to have risky sex) leads them to make ostentatious displays of
throwing away great handfuls of condoms as they exit the building, all while concealing a personal stash in their coat pockets.

So, how many condoms does each employee get? Five packets per month (15 condoms); 50 condoms per month; 1 box per month (60 condoms); 5-10 condoms per month (three respondents concurred on this figure); 4 packets per month (12 condoms)... even employees themselves (who have presumably observed it first-hand) don’t agree. Without having spoken directly to SAG management, it’s impossible to get an exact figure of condoms distributed per employee. It is possible that condoms are handed out capriciously, with no fixed number or policy guiding SAG. What is clear is that free condom distribution is limited to SAG employees directly. However, what complicates matters further is that SAG employees have been known to turn right around and sell the condoms they got for free to make extra cash. This means that some SAG miners aren’t using the free condoms themselves (though price availability and accessibility aren’t issues in this case), and pharmacists have an additional potential source of condom resupply that cannot be easily monitored.

The tremendous number of variables influencing condom supply and availability make it an extremely difficult factor to account for. The results are at best ambiguous: we cannot definitively say either way whether or not condoms are widely available overall in the Bouré. What we can say is that specific subgroups may be locked out of condom access due to financial or logistical limitations.

**Condom Knowledge**

Before posing questions relating to knowledge of proper condom use, open-ended free lists were elicited from respondents on how one can become infected with AIDS and how one can avoid AIDS infection. The intent was to determine (before any prompting by subsequent items on the questionnaire) whether respondents understood the sexually transmitted nature of HIV and
which avoidance methods were at the forefront of respondents’ minds. Because these were open-ended questions, non-sexual transmission and avoidance methods were listed alongside sexual ones.

Out of the total of 460 respondents, 413 were able to list at least one correct method of HIV transmission (89.8%, with a 95% CI of [87.0, 92.6]); of those, 412 respondents mentioned sexual transmission as one of the possible modes of infection. The figure for those mentioning any correct mode of transmission (not necessarily sexual) may be even higher than 413, but it is impossible to determine some cases because their responses were ambiguous (e.g. “Sharp or dirty objects”; sharp objects alone do not transmit HIV by virtue of their sharpness, nor do dirty objects alone transmit HIV by virtue of their dirtiness – unless they are dirtied by body fluids containing HIV – but many who listed “sharp” or “dirty” objects did not specify if they meant “dirtied with body fluids” or simply “dirty with soil”). Despite these possibly higher figures, we can safely say that almost 90% of Bouré residents know at least one correct form of HIV transmission and nearly all of those are aware that sex is one of the possible transmission methods.

It does appear, however, that there is a significant difference in knowledge about AIDS transmission between men and women. When comparing the mean number of correct answers between the groups, we find that men know 2.15 correct answers on average and women know 1.23 correct answers on average. The difference between those means is –0.924 (95% CI of [–1.101, –0.748]), and the significance of the t-test for equality of means is \( p < .001 \). Education, however, does not have practical significance in improving knowledge of AIDS transmission. Using linear regression to predict the number of correct answers by years of school completed yields a beta value of 0.112 (\( p < .001 \)). Whereas this is statistically significant, and there is a
definite positive relationship between education and AIDS transmission knowledge, in practical terms it means that for every nine years of education obtained, only one more correct answer is predicted \((9 \times 0.112 = 1.008)\). Investing in general education to increase knowledge about AIDS transmission yields low returns. The relationship may be nonlinear, with a take-off effect for college education, but only 0.02% of the sample (9 out of 460 respondents) had any schooling beyond 12 years, so nonlinearity is not determinable with the present sample.

But knowing at least one correct transmission method didn’t exempt some people from believing incorrect methods, too; 79 respondents mentioned incorrect modes of HIV transmission (17.2%, with a 95% CI of \([13.8, 20.6]\)), meaning that there was some overlap with those who also mentioned correct transmission methods. Incorrect transmission methods mentioned were infection by mosquitoes, public toilets, food and drink, toothbrushes, underwear, sitting in an infected person’s chair, stepping barefoot in an infected person’s urine or feces, washing with an infected person’s sponge or washcloth, sharing clothes with an infected person, exposure to cold, hugging, sleeping in the same bed (non-sexually) with a victim, contact with rusty metal, not washing oneself often enough, touching an AIDS victim, rubbing against an AIDS victim’s sweat, lingering in a hospital waiting room, transmission through the air, cooking with Maggi (bouillon) cubes, transmission via the *Lain* fly, coming into contact with garbage piles, sharing cigarettes with an infected person, injuring oneself with iron, and using a condom (implying that using a condom itself *causes* AIDS, not necessarily only when having sex with an infected person. One man made the observation that “people talk about condoms, but I don’t have confidence in them, because condoms are everywhere, but there is still AIDS.” Another agreed, “I don’t have confidence in condoms; since I used one I have had lesions.” Though it is
fair to question how effectively condoms prevent AIDS [as this research has done], this is not the same as claiming that they cause AIDS, as the above comments seem to suggest).

Forty-six people claimed to know nothing at all about HIV transmission and did not attempt to answer the question (10.0%, with a 95% CI of [7.3, 12.7]) (one said in so many words, “I don’t know, and I’m not interested in finding out, either”). This category combined with the 89.8% who knew at least one correct mode of transmission accounts for virtually the entire sample. This means that practically all who listed incorrect methods also listed correct methods. Whereas it is heartening that some 90% of respondents knew at least one correct method, it is apparent that a significant number believe a mixture of both correct and incorrect methods when it comes to infection modes.

Perhaps one reason knowledge of transmission methods is so high is because AIDS is not the first sexually-transmitted wasting disease to strike the area. One traditional healer explained:

We didn’t know about AIDS before. The main killer disease was called Nörö. This disease could last for a long time without being healed. Sexual relations were also responsible for causing this disease. Female victims gave birth with this disease. If a man happened to marry such a woman, one could see wasting symptoms show up on the man’s body. Then different illnesses accumulated in the man. Physically, the man lost all his energy. As for AIDS, we have had a lot of difficulty treating it. Thus our remedies are ineffectual.

A farmer concurred, “Before 1960 there was no AIDS, but people with the same conditions that we call AIDS today still died.” He continued skeptically:

For me, AIDS is imaginary… The whole world talks about and agrees that AIDS exists, but I have a different view. Every disease that kills is AIDS… They say an AIDS widow shouldn’t remarry so she doesn’t infect her new husband, but I lost a friend to AIDS (or so people say) and his widow is remarried. She continues to have children (2) and the last child of her ex-husband is still alive.

Perhaps in some people’s minds, AIDS is simply a new modern name for a disease that existed long before. Whether or not Nörö and AIDS are one and the same, modes of
transmission and prevention are likely to be similar if both diseases are sex-based. This may account for high receptivity of AIDS information and consequent knowledge.

Switching the question from transmission to prevention, we find similar results; 429 respondents (out of 460 total) knew at least one correct HIV prevention method (93.3%, with a 95% CI of [91.0, 95.6]), and all 429 also cited at least one mode of sexual prevention in their list. Again, as with AIDS transmission, significant differences in knowledge about AIDS prevention between men and women show up. When comparing the mean number of correct answers between the groups, we find that men know 2.52 correct answers on average and women know 1.81 correct answers on average. The difference between those means is –0.703 (95% CI of [–0.875, –0.531]), and the significance of the t-test for equality of means is $p < .001$.

Twenty individuals cited incorrect methods of HIV prevention (4.35%, with a 95% CI of [2.49, 6.21]) such as spraying bedrooms against mosquitoes, using impregnated mosquito nets, watching the food one eats in the company of strangers/AIDS victims, not sharing clothes with other people, not sharing bath sponges with others, not sharing toothbrushes with anyone, cutting off all friendship with AIDS victims (which actually could be protective, but is not necessary or recommended), verifying with doctors and clinics who is HIV-positive and denouncing them, personal hygiene/cleanliness, taking preventive medications/vaccinations (which don’t yet exist, for the most part), avoiding rusty metal, and avoiding injury with iron. Finally, 30 respondents said they simply didn’t know how to prevent HIV transmission (6.52%, with a 95% CI of [4.26, 8.78]) (several exclaimed, “Only God can save us from AIDS, since if it’s sexually transmitted, you may be serious [faithful] but your partner might not be”). Again, we see that the sum of those knowing nothing about prevention plus those knowing correct modes of prevention equals nearly the entire sample; therefore, virtually all respondents giving incorrect answers for
prevention methods were also some of the same people who listed correct prevention methods. Some people, it appears, have good information mixed with bad.

Because so much Western attention is currently focused on sexual behaviors such as abstinence, fidelity, and condom use, it is pertinent to break down the 429 correct responses according to those three categories. Out of the 429 respondents giving correct answers for HIV prevention, 244 mentioned abstinence in their lists (56.9%, with a 95% CI of [52.2, 61.6]); 342 listed fidelity to one’s sexual partner (79.7%, with a 95% CI of [75.9, 83.5]); and 309 listed condom use for HIV prevention (72.0%, with a 95% CI of [67.8, 76.2]). In addition, we find that 127 respondents listed all three components of ABC simultaneously (29.6%, with a 95% CI of [25.3, 33.9]; see Figure 6-2). This may suggest that ABC education has reached Upper Guinea, but it may also indicate people using common sense to figure out that a disease driven primarily by sexual contact can be avoided either by shunning sex altogether, limiting exposure to multiple sexual partners, or using a physical barrier to block exposure to the disease.

Out of this context, we understand that, for the most part, knowledge of sexual transmission and prevention of HIV is high in the Bouré, and that the majority of residents are aware that condoms are one possible way of minimizing one’s risk of exposure. But do they know how to use them properly? This was addressed by asking the full sample of 460 respondents, “How should one use a condom? What are the steps to use a condom properly?”

There are dozens of lists circulating the Internet and AIDS education manuals enumerating the proper steps for condom usage. But to be fair in assessing local knowledge, we chose a condom education curriculum that is used to train public health animators for many different agencies working in the area (Legrain and Delvoye 1994) as our benchmark; it is likely the only source local residents would have had available to them to learn how to use a condom properly.
According to this curriculum, the steps of proper condom use are: (1) Use a condom for each sexual encounter; (2) Unroll the condom onto the erect penis before beginning intercourse; (3) Don’t put the condom directly onto the tip of the penis: leave a little space (one to two centimeters) to gather the semen (certain condoms have a nipple that serves to gather semen); (4) Unroll the condom all the way to the base of the penis; (5) After ejaculation, withdraw the still-erect penis while firmly holding the base of the condom, to avoid any leakage of semen; (6) Use a new condom for every encounter; (7) Throw condoms away after use (out of reach of children); (8) If one wishes to use a lubricant, choose one that is water-based, such as contraceptive jelly. Lubricants that are petroleum- or Vaseline-based can damage condoms; (9) Store condoms in a dry, cool place; (10) Don’t use sticky, broken, or damaged condoms.

It is impossible to quantify exactly how much condom effectiveness is compromised with each step that is neglected; one couldn’t say that effectiveness goes down one-tenth for each missed step, because the weight of each step is different. For example, the impairment of condom efficacy is probably greater for the elimination of step 10 (using a sticky, broken, or damaged condom) than for step 7 (throwing away the condom after use). But one can’t specify how much more dangerous it is to ignore step 10 than to ignore step 7. That said, it is still possible to get a general idea of how well people know the proper steps for condom use and to notice trends in the data.

After asking each respondent to list all the steps of proper condom use that they could think of, the responses were sorted into four categories: (1) Correct answers that are found on the Legrain and Delvoye 1994 list – respondents properly named all key points for a given answer; for example, if they mentioned step 10, it was marked as a correct answer only if they warned against all three listed types of defects (sticky, broken, and damaged condoms); (2) Correct
answers that are not found on the list – respondents mentioned a partially complete answer from the list (e.g. they mentioned not using broken condoms for step 10, but failed to mention sticky or damaged condoms) or they listed a step not on the list, though correct (such as, “tear open the package carefully to avoid ripping the condom”); (3) Incorrect answers – responses that were blatantly wrong (such as “roll the condom halfway down the penis” or “wash the condom after use and store for next time”); (4) Null answers – respondents couldn’t name even one proper step for using a condom (whether on the official list or not), and didn’t attempt to do so.

Because there are ten correct answers (from the list), innumerable correct answers not from the list, and an equally uncountable possibility of incorrect answers, the sum of answers from each of the first three categories could potentially far exceed the total number of respondents; for that reason, Figure 6-3 reports the number of people who got at least one correct answer from the list, at least one correct answer not from the list, and at least one incorrect answer for the first three categories, respectively.

Because a given respondent can potentially list several correct answers (from the list), several correct answers (not from the list), and several incorrect answers, these categories are not mutually exclusive; the numbers of respondents who got at least one from each of those categories combined with the null exceeds 460 (the total number of respondents altogether). However, the “null” category is mutually exclusive to the other categories, so we can safely calculate that 54.6% (251 out of 460) of respondents knew absolutely nothing about the proper steps of condom use (95% CI [50.1, 59.1]). Of the remaining people, we find that 164 out of 460 knew at least one proper step from the list (35.7%, with a 95% CI of [31.3, 40.1]), 163 out of 460 knew at least one proper step not from the list (35.4%, with a 95% CI of [31.0, 39.8]), and only 9 people listed an incorrect answer (1.96%, with a 95% CI of [0.69, 3.23]). Because these are not
mutually exclusive categories, there is a large overlap; 72.6% of those who listed at least one correct step from the list also listed at least one correct step not from the list (95% CI [65.8, 79.4]). If we combine the two categories (sum of people who listed a correct answer from the list and/or a correct answer not from the list), we get 208 persons out of 460, which is 45.2% (95% CI [40.7, 49.7]).

There are some problems, however, with joining those who mentioned answers not from the list with those who mentioned answers from the list. One problem is that it is even harder to quantify the importance of steps not on the list than to do so for steps from the list itself. That is, if we had difficulty saying exactly how much more important step 10 is than step 7 (both from the list) because one cannot easily quantify the stickiness, brokenness and damaged-ness of condoms (step 10) or the amount of protection conferred by throwing a condom away after use (step 7), then we have even more difficulty quantifying the importance of correct answers not from the list (potentially ranking an infinite possibility of responses, as opposed to ranking ten possible responses from the list). Another problem is that the category “correct answers not from the list” covers a wide spectrum of responses, which range from the dubious (yet technically correct) step “wear the condom before beginning sexual intercourse” (of course, but does that really tell us much?) to the significantly important “after sex, remove the condom gently so it doesn’t tear” (one wonders why answers like these aren’t on the list). Because it’s so hard to rank an infinite number of answers that range from dubious to significant, it’s probably safest to report condom knowledge as a range: at best, 45.2% of respondents know at least one proper step for using a condom; at worst, only 35.7% do (those who mentioned listed steps).

That’s the good news. The bad news is that of that 35.7-45.2% of people who know at least one step for properly using a condom, most know only one step (see Figure 6-4). If we
look, for example, at the 164 people who knew at least one step from the list, 98 knew only one step (59.8%, with a 95% CI of [52.3, 67.3]), 51 knew only two steps (31.1%, with a 95% CI of [24.0, 38.2]), 11 knew three steps (6.71%, with a 95% CI of [2.88, 10.54]), and 4 knew four steps (2.44%, with a 95% CI of [0.08, 4.80]). Nobody surveyed knew any more than four proper steps for condom use. Thus, the absolutely best informed respondents were only able to name four out of ten proper steps for condom use from the list (only 40% of the list). There does not appear to be any difference between men and women on knowledge of proper condom use. The average man (within the group of 164 respondents who could name one proper step from the list) named 1.58 steps, and the average woman listed 1.40. That’s a mean difference of only –0.18 (95% CI [–0.41, 0.06]) with a significance of \( p = .142 \).

The most commonly listed step out of the 10 possible was step 7: “Throw condoms away after use (out of reach of children)” (listed by 117 people out of 164, or 71.3%, with a 95% CI of [64.4, 78.2]). Whereas that is very important to reduce the risk of transmission of HIV to other people, that step by itself provides no protection to the individual using the condom himself or herself. (See Figure 6-5 for the number of people who cited each step).

The most correct non-listed steps that anybody could name were three. Even in the most forgiving best-case scenario, one would have to conclude that condom knowledge is not very thorough or widespread in the mining community, and that lack of knowledge would seriously cut into the effectiveness of condoms themselves.

**Condom Enforceability**

As a summary so far, we find that availability of condoms in the Bouré is ambiguous, and knowledge of proper condom usage is deficient. These facts alone are sufficient evidence that condoms have probably not played a major role in keeping HIV rates low among the mining community near Siguiri. But there is still one more factor to look at: whether or not women have
the agency to be able to enforce condom usage with their partners. Even in a best-case scenario where condom availability was high and knowledge was sufficient, it would all be for naught if men refused to use condoms and women were unable to insist that they do so.

The full sample of 460 respondents was asked whether or not women have the right to require condom use by their partners, and if so, in which cases. One hundred seventy-eight people (38.7%, with a 95% CI of [34.2, 43.2]) said that women do not have that right; 210 people said that women do have that right (45.7%, with a 95% CI of [41.1, 50.3]); and 72 people said that they did not know (15.7%, with a 95% CI of [12.4, 19.0]). This seems fairly evenly split down the middle, especially since the confidence intervals for “yes” and “no” overlap, which means that there does not seem to be consensus (or even a majority opinion) on whether or not women can enforce condom use. Sorting by gender, however, clarifies things: of the 178 people who said that women did not have the right to insist on condom use, 128 were women (71.9%, with a 95% CI of [65.3, 78.5]), whereas of the 210 people who said that women do indeed have that right, 145 were men (69.0%, with a 95% CI of [62.7, 75.3]). The Pearson Chi-Square test of independence for the 2x2 contingency table of gender by opinion on women’s agency yields a $p$-value of < .001 (test statistic = 64.647). There is strong evidence of a difference of opinion between men and women. That is, most women believe that they do not have the right to insist on condom use with their partners, whereas most men believe that women do (See Figure 6-6).

We also attempted to sort by profession, to see if that explained things more clearly than gender. Professions were collapsed into the binary categories of “mining-related” and “non-mining-related” (the former including not only miners themselves but also gold traders, machine maintenance workers at the industrial mine, and so forth). Sorting by profession, we found that
non-miners were about 50—50 split over whether women have the right to insist on condom use (48.9% said “no”, with a 95% CI of [43.1, 54.8] and 51.1% said “yes”, with a 95% CI of [45.2, 56.9]), whereas miners were much more charitable to women (36.2% said “no”, with a 95% CI of [27.2, 46.3] and 63.8% said “yes”, with a 95% CI of [53.7, 72.8]). Chi-square was 4.616 and \( p = .032 \). Profession is a statistically significant predictor, but not as significant as gender. If there are more male miners than female, and men have a more charitable view, then obviously more miners would have a charitable view. But it wouldn’t necessarily be on account of their profession, but perhaps more on account of their gender. Running a Chi-square on sex predicting whether one was a miner or not revealed that 38.8% of men in my sample were miners (95% CI of [32.7, 45.2]), whereas only 15.1% of women were (95% CI of [11.0, 20.5]), with a Chi-square value of 31.362 and \( p < .001 \). Gender predicts opinion on women’s status most clearly.

Finally, comparing knowledge of AIDS transmission with opinion on women’s rights, we get a beta of 0.539 with \( p < .001 \); having greater knowledge of AIDS transmission modes strongly predicts that one will support women’s rights to bear condoms. We already know that gender predicts opinions on women’s rights, but we don’t know which is the better predictor. Running a logistic regression with both gender and transmission knowledge as predictors reveals that only gender is statistically significant (\( p < .001 \)); one variable is subsumed by the other. So we tested whether there are differences in knowledge/education between women and men. Men know an average of 0.924 more correct answers about AIDS transmission than women (\( p < .001 \)), and men have an average of 2.961 more years of education than women (\( p < .001 \)). So both gender and AIDS transmission knowledge influence opinion on women’s status, though we don’t know which causes which.
What does this mean? Do women really have the right to insist on condoms in this culture?
This is not an easy question to answer. First of all, there may not be an across-the-board reality. Secondly, even if there were, people are more likely to act from their perceptions than from reality. That is, even if it were generally acceptable across the board for a woman to insist on condom use, if a woman perceived that she would get in trouble for doing so, she would likely refrain from insisting. So the practical outcome of this disparity in perceptions is that most women likely refrain from insisting on condom use, whether or not their particular partner would actually restrict them. Indeed, most reasons given by women for perceiving that they are powerless to insist on condom use centered on fear: “Husbands will be angry, since they didn’t marry us in order to wear a condom”; “The man will beat or force [rape] his partner if she insists”; “We don’t dare do so”; “You’d better not insist, especially with your husband”; “If you insist on a condom, you risk losing your home”; “Our husbands married us to make children, not limit them”; “We are slaves to our husbands”; “Men won’t accept [our assertiveness]”; “If you insist, your partner will say you don’t trust him”; “Insisting on condoms leads to divorce”; “Condoms cause diseases/AIDS”; “Our religion condemns condom use”; “It’s the man who makes the decisions about sexuality”; “Women just don’t have that right”.

That women feel powerless over their sexuality is not surprising, given their early childhood experiences. Boys are circumcised at a prescribed time; society dictates that this should be around ten years of age. The timing of girls’ excision, however, is more subjectively determined. In times past, girls were excised shortly before marriage, but today, they are excised as early as five years old. Even though a community-appointed woman actually performs the excision, the timing is entirely controlled by the male head of household (Direction Nationale de
From an early age, then, girls are raised with a sense that their sexuality is controlled by men. Heemskerk confirms that men are dominant in mining communities in Suriname, too. She writes, “The internalization of gender ideology, and the dependence of women on men, prevents women from challenging existing gender roles and power structures in society” (2000:1).

Regarding women’s ability to enforce condom use, an even more telling nuance is that many responses (on both sides of the spectrum) were qualified. That is, many of the men who said that women could insist on condom use specified that this is the case only under certain limited circumstances; otherwise, women cannot insist: “A concubine or prostitute may insist to avoid sickness and pregnancy, but a wife cannot”; “A condom can be insisted upon only to space children”; “Some modern women can and do insist, but my wife cannot”; “A condom can be used only for family planning”; “If she knows she’s promiscuous or HIV-positive and doesn’t want to pass it on to her partner”; “Condoms can be insisted upon only in short-term marriages”; “When nursing so the child will not become sick from sexual relations”; “Only for a breastfeeding mom to avoid another pregnancy too soon while still satisfying her partner sexually”; “If a woman doesn’t love you, she can insist on condom use”; “When a student doesn’t want to get pregnant”.

Very few men said that women across the board under any circumstances may insist on condom use. Interestingly enough, the inverse is true for women’s responses. Many who said that they cannot insist on condom use qualified their negative response by listing specific exceptions that mirrored the circumstances that men listed (only for family planning, only when...
breastfeeding, etc.). This seems to indicate that there are indeed a set of limited scenarios that both men and women agree upon as acceptable for women to insist on condom use. But this does not necessarily overturn the initial results. Though it may temper somewhat the overwhelming initial negative response that women gave, it does not increase women’s overall agency to insist on condom use. Being able to insist on condom use when breastfeeding, for example, means that one’s insistence (and men’s acceptance of it) is more a function of extenuating circumstances, and not of a real increase in women’s agency. Once a woman who got away with insisting on condom use while breastfeeding stops nursing, her ability to insist on continued condom use will likely decline.

It is hard to precisely quantify how many people gave across-the-board answers (on either end of the spectrum) and how many conceded that there are limited circumstances where women’s insistence is acceptable. What is clear is that very few people gave women universal rights to insist on condom use under any circumstances; the majority either denied women those rights across-the-board, or allowed those rights only under restricted terms. Thus, barring occasional circumstantial privileges, women do not appear to have universal rights to insist upon condom use with their partners.

These are, at best, ambiguous results, and at worst, negative results. Combined with the ambiguous results of condom availability and the negative results of condom knowledge, one can safely conclude that condoms are probably not responsible for miners’ low HIV rates in the Bouré near Siguiri, Guinea so far.

**Actual Condom Usage**

Like predictors in hypotheses, the three factors analyzed above (condom availability, condom knowledge, and condom enforceability) are imperfect methods of determining actual condom use, though they are often the best available way to understand certain behaviors
(especially sexual ones). It is impossible to observe couples having sex in order to record condom use, but it is possible to ask people directly about their condom use. Self-reporting of actual condom use is subject to the same potential for misleading answers as the three predictors are, but it is an improvement in that it moves beyond the hypothetical to the real. It asks people, in essence, “Does all of this availability, knowledge, and enforceability make an actual difference in your habits and sexual behaviors?”

Before being asked specifically about their condom use, respondents were asked to identify which HIV prevention method(s) they practice. This prevented answers from being skewed toward condom use, which may have happened if the question was posed after a detailed discussion of condoms. The open-ended question about HIV prevention methods used by respondents was a subset of the first two questions posed on the survey and analyzed above (“How can one become infected with AIDS?” and “How can one avoid becoming infected with AIDS?” These were immediately followed with “Of the AIDS avoidance methods you just mentioned, which ones do you practice?”).

Three hundred fifty-nine people responded to the question; however, because respondents could identify more than one HIV prevention method that they practice, the sum of the tallies of the different methods exceeds the size of the respondent subset. Again, abstinence, faithfulness, and condom use were the most commonly cited means that people reported practicing regularly. Of the 359 respondents who answered the question, 38 reported abstinence (10.6%, with a 95% CI of [7.4, 13.8]); 232 reported faithfulness to their partner (64.6%, with a 95% CI of [59.7, 69.5]); and 94 reported condom use (26.2%, with a 95% CI of [21.7, 30.7]). Only 12 individuals (3.34%, with a 95% CI of [1.48, 5.20]) reported any practices outside of the ABC’s that they personally use to avoid AIDS infection; the correct methods reported were to avoid sharing a
razor (three respondents), get an HIV test to learn one’s status (two respondents), insist on sterilized instruments (one respondent) and avoid fights that draw blood (one respondent), while the incorrect methods reported were cleanliness (two respondents), avoid mosquitoes (one respondent), watch what food you eat (one respondent), and be careful not to share clothes with an infected person (one respondent). (See Figure 6-7).

It is interesting to note the relationship between education and reported AIDS avoidance behaviors. The educational model of social change predicts that higher levels of knowledge should be associated with higher levels of AIDS prevention practices (positive association). Table 6-1 shows the logistic regression Beta values and probabilities for the influence of (1) general educational attainment (measured in years of school completed); (2) numbers of correct answers free listed for ways that AIDS is transmitted; and (3) numbers of correct answers free listed for ways that AIDS can be avoided upon (1) whether one practices abstinence for AIDS avoidance (yes/no); (2) whether one practices being faithful to one’s partner(s) for AIDS avoidance (yes/no); and (3) whether one practices condom use for AIDS avoidance (yes/no). Out of nine possible combinations (predictor + outcome), only three are statistically significant at the .05 level. The other six are not statistically significant, meaning that using level of education/knowledge to predict one’s practice of a given AIDS avoidance strategy does not significantly improve outcomes over random guesswork in those six cases. Of the three combinations that are statistically significant, one (influence of general education level upon whether one practices being faithful or not) is a negative association: the more years of schooling completed, the less likely one is to practice fidelity to avoid AIDS. In only two cases do we see a statistically significant positive association: the more years of schooling completed, the more likely one is to use a condom to avoid AIDS; and the more methods of AIDS transmission one is
able to cite, the more likely one is to use a condom to avoid AIDS. Ironically, however, being able to cite multiple AIDS avoidance strategies does not significantly improve prediction of whether one will use a condom or not over random guesswork.

The results of Table 6-1 suggest either that education (general or domain-specific) does not influence one’s adoption of AIDS avoidance behaviors (for the most part), or that educational interventions focus on condoms to the neglect of abstinence or faithfulness (given that general education and transmission knowledge do appear to be associated with higher condom use, whereas avoidance knowledge is not). Why does education appear not to influence behavior in this case? One possible explanation is that the target population is already saturated with safe sex practices. As recorded previously, 10.6% of respondents practice abstinence, 64.6% practice fidelity, and 26.2% practice condom use. At best, if all three categories were mutually exclusive (respondents practice only one of the three), then 101.4% of respondents would be practicing at least one safe sex method (implying that there’s at least some overlap). At worst, if all condom users were also faithful and all those reporting abstinence meant that they abstain when away from their regular partners (collapsing A and C into B), then 64.6% of respondents are practicing at least one safe sex method. If everyone (or nearly everyone) is already practicing safe sex, then it would be impossible to detect any factors that are influential in encouraging adoption of safe sex methods.

But there is another possibility, linked with the educational model of social change. What structural factors might mitigate any positive effects of education upon adoption of safe sexual practices? Increased education is associated with increased income worldwide. With increased income, people have more access to sex, either through direct payment (commercial sex workers) or through increased attractiveness and popularity (polygamy or polypartnering). So an
increase in general education can dispose people toward engaging in riskier sexual practices than before (Green 2003b, Vandemoortele and Delamonica 2000, Smith et al. 1999). Though some have hypothesized that this effect is temporary – manifesting primarily in young epidemics (Vandemoortele and Delamonica 2000) – others insist that it holds true in mature epidemics, as well (Green 2003b, cf. Smith et al. 1999). Targeted HIV education (which alone may not increase one’s income) might have more merit than general education for AIDS prevention, but a structural-materialist explanation would hold that any educational activity that increases one’s wealth will lower the barrier of possibility for engagement in risky sex, and that this structural incentive may prove more powerful than any educational disincentive.

For the self-reported behaviors (illustrated in Figure 6-7), the abstinence category includes some unmarried individuals: “I have chosen abstinence, especially because I’m afraid of that disease,” said a single 26-year-old man. “I prefer to wait until my marriage.” But some married people are also included in the ranks of the abstinent. A married farmer/healer turned miner explains: “I am faithful to my wife when I come to the mines; if it’s six to eight months, I abstain. When I return, I make love to my wife.”

But abstinence while away from home is not the only way to avoid AIDS infection. At least one miner (a 35-year-old from Côte d’Ivoire) reported, “Whenever I travel for more than a month, I bring my wife with me.” Indeed, fidelity was by far the most commonly reported strategy for AIDS avoidance (nearly two-and-a-half times more respondents use this strategy than the second most popular: condoms). Yet most migrants can’t afford to bring their families with them, much less leave their home unattended during the mining season. Perhaps some migrants who reported fidelity mean that they abstain while away from home. This would indicate somewhat of an overlap with the abstinence category.
Table 6-2, Table 6-3, and Table 6-4 break down responses on self-reported AIDS avoidance behaviors by three binary categories. A Chi-Square test of independence was performed for each contingency table, with a cutoff value of .05 for statistical significance. Totals may exceed 100% because the categories are not mutually exclusive (one could practice fidelity but also use a condom as an added precaution).

All differences between married and unmarried respondents were flagged as statistically significant. Reported abstinence and condom use are both significantly higher among the unmarried than the married, and faithfulness to one’s partner(s) is significantly higher among married respondents than unmarried. This indicates that abstinence and condom use are being practiced by those most likely to have multiple extramarital partners: single people (since, by definition, faithful married spouses are unlikely to have extramarital partners).

When self-reported ABC behaviors are broken down by sex, there is no significant difference between men and women for abstinence. But both faithfulness and condom use are statistically significant in their differences between men and women. The difference in percentage points between men and women for each category (B and C), however, is approximately the same (between 21.6 and 22.5). Assuming approximately even population distribution for each sex, we can conclude that about 22% of husbands of faithful wives are not themselves being faithful. Yet there is also a 22% difference between the proportion of women and men reporting condom use. Perhaps it is that same cohort of unfaithful husbands who are using condoms when not with their wives.

Out-of-towners and locals display a remarkable uniformity in the practice of ABC behaviors; this likely indicates that they come from the same cultural group (the Malinke people are found not only in the Bouré but also throughout Upper Guinea and in neighboring Mali and
Côte d’Ivoire, which supply the bulk of out-of-town miners) or that out-of-towners quickly conform to the norms of their host society. Alternatively, it could mean that labor migrants don’t change their behavior all that much when they come to the mines.

When asked about their chosen AIDS prevention strategies, about one quarter of the full sample claimed condom use as their regular method of choice. After answering subsequent questions about condoms, a sub-sample of 282 respondents were asked, “Think about the last time you had sex. Did you use a condom? Why, or why not?” This question asked about a specific event, rather than a general prevention strategy of choice. A specific event is easier to recall than remembering if one has used a condom during every encounter during a specified period of time. Two hundred thirty people said that they did not use a condom at last sex (81.6%, with a 95% CI of [77.1, 86.1]), while only 52 people said that they did (18.4%, with a 95% CI of [13.9, 22.9]). The proportion of people reporting condom use at last sex is 29.8% lower than the percentage of people reporting condom use as a regular strategy. Those proportions may not represent the same people, however, since many respondents answered one question but not the other. When we examine only those cases where respondents answered both questions, however, we find that 51.9% of those who say they regularly use condoms did not actually do so during last intercourse. Though the sample size of those who answered both questions is small (n = 54) compared to the total research sample, it is abundantly evident that “regular” use (as reported) is not all that regular for a number of people.

Sorting by gender, less than half as many women (proportionally) as men used a condom at last sex; 12.1% of women reported using one, while 24.8% of men did. The Chi-Square test shows this difference to be significant at the .05 level (p = .006). Sorting by marital status instead, we find that 46.3% of unmarried respondents used a condom at last sex, whereas only
13.4% of married respondents did so. The Chi-Square test shows this difference also to be significant at the .05 level ($p < .001$). Married women are least likely to have used a condom at last sex, whereas unmarried men are most likely to have done so. And finally, sorting by profession, we find that 24.7% of miners used a condom at last sex, while 15.8% of non-miners did (Chi-Square = 2.887), but this difference is not statistically significant ($p = .089$).

The most commonly cited reasons for not using a condom were: “[I/my partner] don’t know what a condom is”; “I’ve never used a condom”; “My partner doesn’t want to use it”; “I have confidence in my partner”; “We are faithful to each other”; “Because I don’t want to”; “We’re trying to get pregnant, and we wouldn’t be able to if we used a condom”; “Because my last encounter was with my spouse/fiancé/regular partner”; “I don’t see the advantage in using one”; “I don’t know how to use one”; “Using a condom is morally wrong/adultery”; “We’ve been tested and know each other to be HIV-negative”; “I didn’t have a condom readily available at the moment of last intercourse.” The most commonly cited reasons for using a condom were: “[I’m afraid of/to protect me from] AIDS or other STD’s”; “To space the birth of our children”; “I always use a condom”; “I wasn’t with my spouse at the last encounter”; “To avoid unwanted pregnancy outside of marriage”; “Because I doubted my partner’s fidelity.”

In order to find out which of these reasons correlated most strongly with condom use or the lack thereof, each statement was turned into a question, and a new sample of 62 people were administered the binary questionnaire (e.g. “Do you know what a condom is?” yes/no; “Have you ever used a condom?” yes/no; “Does your partner want to use condoms?” yes/no; etc…). In addition to asking about each of these factors, the new sample was also asked whether or not they used a condom at last sex. Since the latter is also a binary question, it is possible to compare which factor(s) most frequently correlate with actual condom use.
Perhaps not surprisingly (given that it’s a fundamentally basic answer), availability correlated most strongly with condom use. That is, 100% of those who did not have a condom readily available at last sex didn’t end up using one, whereas 85.7% of those who did have one readily available actually used it; that’s an overall average of only 3.28% error. No other factor had nearly as strong a correlation as the availability factor did. At the most basic level, this means that neither information campaigns, nor fear of AIDS, knowing one’s partner’s HIV status – or even availability of condoms in the village, knowledge of how to use one, or women’s empowerment – none of these factors influences actual condom use more than simple proximity. The most educated, progressive people in the village will not likely use a condom if there is none available at the precise moment of intercourse. All of the knowledge and education and fear in the world will not cause them to stop in mid-embrace, run to the nearest pharmacy, and procure a condom to finish out the encounter with. Convenience is everything. Proximity trumps knowledge (Ryan and Bernard 2006).

Because one can only negligibly improve upon a one-factor model with 96.72% accuracy (100% minus 3.28% error), we were unable to branch downward in order to build our model (as recommended by Ryan and Bernard 2006). So we looked instead for precursors to proximity. The question then becomes, “What influences proximity?” What causes people to have condoms readily available for sexual encounters in the first place? The second and third best predictors for actual condom use were having sex with someone who is not one’s spouse (91.5% of those who had last sex with their spouse did not use a condom; 57.1% of those who had last sex with their spouse did not use a condom; 57.1% of those who had last sex with a

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12 We are building a model to predict which factor correlates most strongly with actual condom use. In the case of availability, our model predicts that none of those who don’t have a condom available will use one, whereas all of those who have one available will use it. Using this model, we go back and look at our data. If we find cases where those without a condom available used one anyway, or where those with a condom available didn’t use it, those are marked as errors in prediction. Overall percent error is calculated by the total number of errors across both groups divided by the total number of respondents in both groups, multiplied by 100. The factor with the lowest percent error indicates the highest correlation.
non-spouse used a condom; 16.4% overall error) and having confidence in one’s partner’s fidelity (45% of those who had confidence in their partner’s fidelity didn’t use a condom; 91.9% of those who didn’t have confidence in their partner’s fidelity used a condom at last sex; 24.6% overall error). Those factors had the second and third lowest overall errors, and so they were chosen as the precursors to proximity. That is, having confidence in one’s partner’s fidelity and having sex with one’s spouse decreases the likelihood that a condom will have been procured for the event, and that lack of immediate proximity of a condom predicts that a condom will not be used in that given encounter. Conversely, not having confidence in one’s partner’s fidelity and having sex with someone who is not one’s spouse increases the likelihood that a condom will be made readily available for that encounter, and that immediate proximity of a condom predicts that it will be used in that particular sexual act.

In addition to this informal method, we also attempted to run logistic regression, entering all of the predictors into the equation to see if any significantly improved prediction of condom use at last sex over the model with no predictors. Perhaps because there were so many predictors relative to the sample size (16 predictors, \( n = 62 \)), none of the predictors showed statistical significance, and the standard errors were on the order of tens of thousands. So instead of running all predictors simultaneously into one equation, we ran Chi-Squared tests of independence for each separate predictor of condom use at last sex. The results are shown in Table 6-5. Any of the statistically significant factors could have been included in the final model, but we stuck with the original three we identified as having the smallest percentage of

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13 There is no formalized process for decision-model building. One can go with gut impressions, or one can attempt to approach it systematically, as we have done here. The true litmus test of the reliability of a model to explain a phenomenon is to test it against an independent sample separate from the sample it was built upon.
errors because they were the first three factors that passed both tests of significance (the informal “least errors” procedure described above plus the formal Chi-Squared test).

The decision model (also known as a decision tree) displayed in Figure 6-8 shows how many original respondents answered “true” or “false” for each stage, as well as the final number of errors in prediction (at terminal branches). The question about having sex with someone who is not one’s spouse was eliminated from the left side of the decision tree because virtually all who had confidence in their partner’s fidelity were also faithful themselves (did not have sex with someone who was not their spouse). Inserting an additional branch on the left side (having sex with a non-spouse) would not provide much more useful information than what was already gleaned from the first branch.

As can be expected, the model pretty well predicts the data it was built from (3.51% overall error, or 2 errors out of 57 predictions). If it did not, the model would have been adjusted so that it did. But decision models must be tested on decisions made by persons outside the original dataset, and so the model was tested on a new, entirely independent sample of 85 respondents. Informants were asked a series of questions guided by which responses they gave at each branch of the decision tree. For example, those who responded that they did have confidence in their partner’s fidelity (the first question) were subsequently asked the next question on the left branch of the decision tree (the last time you had sex, was a condom readily available?). Questioning continued until respondents reached one of the terminuses of the decision tree, and their actual use or non-use of a condom at last sex was recorded. The results are displayed in Figure 6-9.

When the model was tested on an independent sample, it resulted in a 7.06% overall error (6 errors out of 85 predictions). Though this is higher than the overall error for the original data,
it is still a very good prediction rate (approximately 93%) for testing the model on independent data. As in the original model, the largest error occurs in the farthest left branch of the decision tree (those who have confidence in their partner’s fidelity, had a condom available at last sex, but didn’t use it). Perhaps this error warrants adjusting the model to better predict those cases. On the other hand, it could simply indicate that those who are confident in their partner’s fidelity feel no need to use a condom, even if it’s readily available.

Also of note is that 62.4% (53 out of 85) of respondents (95% CI [52.1, 72.7]) have confidence in their partner’s fidelity, didn’t have a condom available at last sex, and consequently didn’t use one. This is strongly indicative that higher rates of confidence in partner fidelity are inversely related with condom use. It also underscores the point that fidelity is the most widely practiced of the three ABC AIDS prevention strategies in the Bouré (only 14 out of 85 – or, 16.5% – of respondents in the new independent sample used a condom at all at last sex, with a 95% CI of [8.6, 24.4]; this concurs very closely with the 18.4% of respondents in the original sample who did so).

**Foudoukoudouni (Short-Term Marriage)**

As we saw in Figure 6-7, 64.6% of respondents reported that they practice fidelity as an AIDS avoidance strategy. In addition, 62.4% of those sampled in Figure 6-9 have confidence in their partner’s fidelity. Out of the total sample of 460 respondents, 10 did not report their place of origin. Of the 450 that did, however, 292 were from out of town (64.9%, with a 95% CI of [60.5, 69.3]). Anecdotal reports from year-round residents indicate that Bouré population figures do indeed double during peak mining season, as not only miners, but also enterprising

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14 “Out of town” is defined as a place of origin other than Balato, Boukariah, Fatoya, Kintinian, or Siguiri. Villages beyond these are more than walking or biking distance away, necessitating the use of bush taxis. From Siguiri to Kankan (1.5 hours away) costs 50,000 GNF one way. Typical miners make only 70,000 GNF per month. Thus, even out-of-towners from nearby probably spend several months away from home. They cannot commute daily.
merchants swoop into the region to capitalize on the influx of humanity and cash. As is the case in the Brazilian Amazon gold mining regions (Schmink and Wood 1992), miners and merchants’ economic stimulus to the region extends far beyond migrant workers alone. Seasonal fluctuations in the population in mining towns are also characteristic of Amazonian mining, due to the timing of the rainy and dry seasons. Thus, it is not unlikely that the majority of the out-of-towners in the sample are temporary labor migrants, and not simply permanent residents of the Bouré who originally hail from another region. These figures indicate a significant overlap between those reporting fidelity and those from out of town. Many temporary labor migrants are also reporting fidelity – not just local residents with access to their regular partners. How this is accomplished is worth investigating further.

Some migrants remain faithful by bringing their spouses along with them (like the Ivoirian miner quoted above), but that is not likely to be a widespread practice given the comparatively large numbers of children typically born to African families (unless they all came along, too, who would watch them while their parents were away?) and the heavy labor load sustained at home by subsistence living (someone has to maintain the home). Others practice fidelity through abstinence – that is, abstinence from all sexual relations until they return to their spouse (like the farmer/healer also quoted above).

But a third, indigenous option is also practiced in the Bouré, and it successfully minimizes contact with multiple sexual partners while providing sexual satisfaction to workers away from home. *Foudoukoudouni*, or short-term marriage, is a contractual relationship for a specified duration (usually the entire mining season) with certain rights and responsibilities mirroring those of traditional marriage. It may have arisen from the context of this largely Muslim society – 85% of Guineans identify Islam as their primary religion (Central Intelligence Agency 2006).
Islam strongly condemns marital infidelity, but also allows a man to marry up to four wives. Perhaps short-term marriage rose out of the need to stay biologically satisfied even while attempting to avoid the social and religious ostracism promiscuity would engender. Though short-term marriage is looked down upon by many (including all religious leaders interviewed), it is not on account of its temporary or illegitimate nature, but rather because married women are drawn into it by greed (Direction Nationale de la Statistique 2005b). One respondent reported, “We don’t customarily have sexual relations with a woman unless a marriage is celebrated amongst us. Therefore many practice this method of short-term marriage.”

From an AIDS transmission standpoint, limiting oneself to one partner outside of marriage would be much more protective than sleeping with multiple prostitutes, as is commonly practiced in other mining regions of sub-Saharan Africa. Overt prostitution is forbidden in strongly Muslim societies. *Foudoukoudouni*, though sometimes referred to as prostitution, is much more hidden; if one sticks to a single partner, it can be hard to detect. Many respondents acknowledged its widespread existence, but were hard-pressed to identify exactly who practices it. Thus, there is an incentive for partner reduction that does not exist in societies where prostitution is not strongly condemned. In this sense, miners in Guinea may have, on average, fewer sexual partners than those in non-Muslim areas of sub-Saharan Africa. This is an empirical question, of course. Though The Johns Hopkins University Center for Communication Programs reports that in Siguiri itself, prostitutes offer their clients the option of sex with a condom (US $1.00) or sex without a condom, referred to as “direct contact” (US $2.50) (Johns Hopkins University 2004), no evidence was found of commercial prostitution in the Bouré.

Short-term marriage is not unknown elsewhere in the world. Shiite Islam incorporates a form of short-term marriage known as *mutah*, which can last anywhere from several hours to
many months. *Mutah*, primarily practiced in Iran, is known to have existed at least as early as 1900, and is expressly intended for sexual enjoyment, rather than procreation. It is ratified by clergy and endorsed by society as a more moral alternative to the free sex of the West (Haeri 1989; Williams 1900). Several types of Islam exist in Guinea (from the mystic Sufism of Senegal to the fundamentalist Wahabbism of Saudi Arabia), yet Shiite Islam does not appear to be predominant. Thus, even though *foudoukoudouni* may not be officially religiously sanctioned, people may still personally perceive it to be more sanctified than promiscuity. At any rate, polygamy enjoys widespread acceptance across many branches of Islam, and some practitioners of *foudoukoudouni* may simply rationalize that short-term spouses are one of the additional wives that are religiously permitted (particularly those who repeat *foudoukoudouni* with the same person year after year). In other parts of Africa, mobile men sometimes have a village wife and a city wife, and spend parts of the year with each. It is not known whether this is common practice in Guinea or not.

What is known about traditional marriage in Guinea is that the man is dominant in the relationship. If he is also the oldest male in the family compound, he is chief over the whole extended family living within the compound, which can number up to 95 persons. Residence after marriage is patrilocal, which often means living in the husband’s father’s compound. Children belong to the father’s lineage, and in cases of separation, the father retains custody. Marriage is seen as a way of forging and strengthening familial alliances; most women (83%) and slightly less than half of the men (44%) in one survey reported that they did not choose their spouse (Direction Nationale de la Statistique 2005b).

Husbands’ families must pay a bride price of money or livestock to wives’ families. The time and effort required to accumulate a sufficient bride price means that men marry at a
comparatively greater age than women, whose main reproductive role can commence after the onset of puberty. To propose marriage, the girl’s oldest brother is approached by a male representative of her suitor’s family, who offers 10 kola nuts. The girl’s uncles and brothers determine if she is old enough to marry, and if so, an imam performs the religious ceremony (Direction Nationale de la Statistique 2005b).

In urban areas, however, these norms are rarely followed. In one survey, some 40% of urban residents were found to be first generation migrants to the city. Crowded living conditions limit the ability of an extended family to live in the same compound, so brothers separate and form their own compounds when they marry (Direction Nationale de la Statistique 2005b). This weakens family ties and limits intergenerational support and enforcement of family norms. This may account for the higher HIV prevalence in the Conakry metropolitan area than in any other region of the country, except for the Forest Region. Upper Guinea’s largely rural population may indicate higher adherence to traditional family norms and power structures than urban regions, which in turn would limit exploration into risky aberrant sexual behaviors. This may account for the fact that Upper Guinea has the lowest HIV prevalence of all regions in the country.

Short-term marriage in Guinea is closely linked with the mining system; it is not well-known in non-mining zones of Guinea. Traditional mining is a group effort involving some 10-12 people equally divided between the sexes (Direction Nationale de la Statistique 2005b). Some team members dig a vertical hole into the ground some 30 feet deep (10 meters or so), others dig several tunnels horizontally at the bottom of the pit, others haul up the dirt, and still others take the dirt to a river or pond nearby to wash and sift it and see if any gold granules settle to the bottom of the calabash gourd. Men typically do the digging, while women do the hauling,
washing and sifting. This is similar to the organization of gold mining in the Amazon (Schmink and Wood 1992), although women were expelled from the area by military labor organizers. Some miners dig pits, others haul dirt out of the pit, and still others carry the dirt away to be examined for gold. This division of labor appears to be the most efficient, having evolved separately in two different regions of the world in parallel fashion.

In the Bouré, men arrive first at the worksite each morning, digging new pits or tunnels. As they dig, they keep the largest gold nuggets they find before sending the dirt up to be finely sifted. After finishing their household work for the morning, women join the men at the worksite. While some women haul up new dirt, others wash and sift. For every three buckets hauled up, women get the gold found in the third, while gold found in the first two goes to the men and owners of any rented equipment. Thus, men get gold not only from two-thirds of the buckets sent up, but also first pick of the biggest nuggets encountered while still in the pit (Direction Nationale de la Statistique 2005b). Those doing the most dangerous work get a bigger cut than the rest. Thus, the only way for women to get the raw materials to work with is to ally themselves with some men who are already digging. In virtually all cases, this teamwork includes expectations of sexual involvement. Women unwilling to be involved sexually with their colleagues face an extremely difficult challenge finding teams willing to take them on.

As is the case in the Amazon (Schmink and Wood 1992), migrant miners in the Bouré are typically subsistence farmers during the wet season, but during the agriculturally unproductive months of the dry season they bolster the family’s income by digging for gold while one spouse (most often the wife) stays home to keep things running smoothly. Upon arriving at the mines, migrant miners pair up with a new “spouse” who provides both sexual release and a working partnership in the gold mines. Both partners understand that the contract marriage will be
dissolved at the end of the mining season. But if one has sexual relations outside of their short-term marriage, they risk losing the work partnership with their “spouse”, as well as the stigma of appearing loose. Often the spouse back home knows that their partner will probably engage in short-term marriage while away at the mines, but asks no questions when the migrant spouse returns, as long as they bring back good money.

Women who engage in short-term marriages may also be migrant workers, but many are local residents. The gold found in the Bouré is some of the purest in the world; the quantity of gold is much less than some other mining regions, but the high purity means that it sells for a higher price per gram. Still, some men from the Bouré are drawn to work in the Malian mines in Sikasso where a much greater quantity of less pure gold can be found. While these men are away, their wives sometimes engage in short-term marriage with migrant workers, hiding it from their families as much as possible. As the gold mines are practically on their doorstep (literally, in some cases – gold can be found by sweeping one’s courtyard and sifting the dirt), these local women can engage in mining operations without leaving their home unattended. Thus, while their husbands are away mining in Mali (and possibly sleeping with prostitutes, as foudoukoudouni is said to be practiced only in Guinea), some local women are also engaging in extramarital sex, albeit in a much less risky form for AIDS transmission. That doesn’t mean, however, that the system doesn’t have its own pitfalls. “I once practiced short-term marriage,” a 25-year-old housewife admitted. “I did it because I was curious to see gold in my own hands and to have lots of money. But unfortunately, I didn’t get a lot of money and I regret it very much today. I even had a baby in this marriage. I ended up divorcing my real husband.”

In the artisanal mines of the Bouré, the kaladiantigi have the most dangerous job of all. These men are the ones who descend to the bottom of the pit and tunnel horizontally, filling
buckets full of dirt to be sent back to the surface. They often work all day in darkness, never seeing any sunlight. In the artisanal mines, there isn’t much affordable technology available to reinforce pits beyond stiff liana rope hoops that are spaced out like ribs down the side of a hole (natural resources, such as tree trunks and palm leaves, are also used for pit reinforcement in Amazonian gold mining areas [Schmink and Wood 1992]). Nevertheless, it is not uncommon for old pits to suddenly collapse, burying the kaladiantigi alive. Aside from this mortal risk, kaladiantigi also have the hardest job, using manpower to dislodge tons of dirt in near darkness with little fresh air for most of the day. Yet kaladiantigi are vital to mining operations, because without someone supplying dirt in the first place, there is no work for the haulers, washers, and sifters. Thus, kaladiantigi are often able to command up to half of the gold found in a given pit as their percentage of the profit. More demanding positions in Amazonian mining camps also command a larger percentage of the profit (Schmink and Wood 1992); it is a trade-off that is driven purely by materialist economic concerns.

With that kind of pay, there is always somebody willing to take the job, despite the risks and difficulty inherent in the work.15 Alternatively, Heemskerk (2004) suggests that perhaps mining is less risky than many other options available to people from an economic and health standpoint, and that is why some engage in it. Relatively little is invested in traditional mining, with potentially large economic returns (Schmink and Wood 1992), and personal economic conditions are the deciding factor for most people to join mining work (Heemskerk 2002). As for health and well-being, there is less violent crime in mining areas (where everyone is preoccupied with working as hard as they can) than in large cities – the location most likely to

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15 Locals report that it is most often outsiders who take up the kaladiantigi work. Perhaps they are most willing to do it because as newcomers, they are ignorant of the dangers involved.
offer other employment beyond mining (Heemskerk 2004). And so it could be that miners in general (and kaladiantigi in particular) perceive less risk in mining work than other alternatives.

Staring death in the face every day and earning lots of money in compensation is a potent incentive to use stimulants and hallucinogens that make one courageous enough to descend into the pits every day (kaladiantigi are the only ones who can afford such drugs). In addition, kaladiantigi are able to afford foudoukoudouni more often than other miners, as it is the husband in the relationship that must pay the wife for her work. “The whole Bouré is involved in this kind of marriage,” a 44-year-old miner told me. “I myself am a kaladiantigi and we are the ones who know this marriage better than anyone else. I estimate that I know about 30 couples involved in this (some 60 people)... the minute I suspect that my partner is with another man, I’ll back out on her.”

Limiting oneself to a single partner for one mining season greatly reduces possibilities for exposure to HIV, but returning to the same partner the following mining season could be additionally protective (limiting the total number of lifetime sexual partners). Repeat pairing does occur for some kaladiantigi if their working relationship with their partner during the previous season was productive. Some women reserve productive partners for the following year by supporting them financially during the hungry season (after rains have started so they can’t mine, but before crops have ripened). Since contract husbands financially support their contract wives at the mines, the wives are in a better position to return the support later on. A contract wife who is unmarried back home might move near to the husband she wants to retain for the next season; he finds lodging for her near his home (hidden from his family) and she provides financial support to him until the crops ripen. The Direction Nationale de la Statistique (2005b) reports that some women are able to save their profits. These women set aside their
portion of dirt buckets in a corner of their kitchen to be sifted later during the hungry season. Then, as needed, they sift and sell the gold to pay for their own needs, as well as those of the husband they want to retain for next mining season. Only those well-off enough not to dig into their savings are able to hold onto them for any period of time. The poorest women use up their gold as soon as they get it, minimizing their savings abilities. Only the richest get richer.

To explore how widespread *foudoukoudouni* is, as well as how much expectation of fidelity there is within these relationships, the same sample of 460 respondents was surveyed. Many said that *foudoukoudouni* exists to satisfy the woman financially and the man biologically, and they often spoke of it disdainfully (“Its only purpose is to reinforce debauchery!”). Even while trying to satisfy social norms, there appears to be a measure of shame and stigma attached to *foudoukoudouni* by some. “There is no end to those who practice it in the mines,” went one typical answer. “May God keep me from practicing that method.” “As for me, I pray the good Lord that I may never get the idea of committing adultery,” another exclaimed. Still another intoned, “I detest this manner of doing things. I used to do it. But I have distanced myself from this kind of marriage for 11 years. I still regret having done it.” A young, single, female student stated flatly, “I have never done it; my parents would kick me out/disown me [if I did].” This sentiment of family honor was echoed by another: “Short-term marriage is practiced by outsiders; those who are really from here don’t do it. When those from here do it, it’s an embarrassment for their parents.” And a traditional healer expressed fear for his job: “I don’t keep track of that kind of thing; my work doesn’t let me. I’ll never do it myself. If I add adultery to my program, I risk losing credibility in my profession, which I love so much.” Knowing that certain of one’s contemporaries detest *foudoukoudouni* might skew responses toward denying having practiced it. But at the very least, those who admit having practiced it
probably really have, and this can be taken as a minimum figure in an unknown range of possibilities.

Each respondent was asked whether or not they had ever practiced *foudoukoudouni*, as well as how many people they personally knew who had practiced it. Out of the 460 respondents, 42 reported having practiced *foudoukoudouni* themselves (9.13%, with a 95% CI of [6.50, 11.76]). There is no significant difference between the proportion of men and women admitting to having engaged in *foudoukoudouni*: it is 11.3% and 7.0% respectively, but the *p*-value of the Chi-Squared test statistic (.112) suggests that the difference likely isn’t reflected in the population as a whole (test statistic = 2.525). Likewise, there is no significant difference between the proportion of out-of-towners (7.9%) and locals (10.8%) having engaged in the practice (*p* = .305), suggesting that labor migrants are contracting marriage with local people (Chi-Squared test statistic = 1.052).

The actual figure of ever practitioners may be higher, as suggested by the fact that although only 9.13% of respondents admit to it themselves, 42.2% claim to know at least one other person involved in it (173 out of 410 who were asked that question, 95% CI [37.4, 47.0]). In fact, of those who claimed to know others involved in short-term marriage, they each knew (on average) ten people (10.2) engaged in the practice. When the number of acquaintances engaged in the practice is averaged over all 410 respondents (including those that knew nobody practicing it), it still comes out to an average of four acquaintances per respondent (4.04) that practice *foudoukoudouni* (provided that there is no overlap between acquaintances engaged in short-term marriage). Overall, there is a strong association between having engaged in *foudoukoudouni* yourself and knowing somebody else who has (74.3%, as compared to 39.2% of non-practitioners who are acquainted with a practitioner [Chi-Square = 16.157, *p* < .001]). There is
no relationship, however, between condom use and acquaintance with practitioners of 
*foudoukoudouni* (Chi-Square = 0.005, *p* = .946).

It is impossible to say with certainty how many people have actually practiced 
*foudoukoudouni*, but we can be fairly certain that the figure is at least 9.13%, and possibly more. If the remainder of those reporting fidelity (64.6% overall – 9.13% *foudoukoudouni* practitioners = 55.5%) are all practicing abstinence while away from home as a strategy of faithfulness to their spouses, or have brought their spouses with them to the field, then the figure for those practicing *foudoukoudouni* (though small) represents precisely those who need it most. That is, if you are not going to remain sexually abstinent while away from home, then you are precisely the one who needs to practice *foudoukoudouni* (extramarital partner minimization) more than anybody else. Just as gays in the United States were initially bombarded with condoms and condom messages at the onset of AIDS, they were precisely the people most at risk, though they represented a small proportion of the overall population. Condoms didn’t have to blanket every U.S. household to make a dramatic difference in HIV transmission, because they were targeted at those who needed them most. Likewise, though *foudoukoudouni* appears to represent only a small proportion of respondents, it seems that it is being used by the right people, and that can make a dramatic difference in HIV transmission.

Aside from the prevalence of *foudoukoudouni*, it is equally important to understand how much faithfulness there is in this marriage. Is it simply a cover, a social sanction that people use for an image of legitimacy while they engage in sex with whomever they want to? Or is there a real expectation of fidelity within this marriage? In conversations with respondents, comments were made (such as the one from the *kaladiantigi* quoted above) that “the minute I suspect that my partner is with another man, I’ll back out on her.” But when asked directly, “Is short-term
married monogamous and faithful?”, many respondents were confused. Since some see no difference between short-term marriage and adultery, they cannot conceptualize faithfulness within short-term marriage. “How can [fidelity] be possible if short-term marriage is nothing but mutual dishonesty in the first place?” one respondent asked. “It’s difficult to talk of fidelity or monogamy in these conditions,” another opined, “because he or she who has agreed to engage in short-term marriage could not have done a worse thing than that.” Another said, “[Fidelity] is not possible because it’s a flawed pact; there are no kolas between you.”¹⁶ Out of the first 50 respondents asked about the fidelity of *foudoukdouni*, only two said that short-term marriage might possibly be monogamous and faithful, but they added that it might just as well not be. One of those two, a 20-year-old lady, said, “[Short-term marriage] is monogamous only if the partners don’t have great financial means.” Of course, this describes most of the miners in the first place, since if they were well-off financially, they wouldn’t need to engage in dangerous mining work.

Because the question was intended to assess expectations of fidelity within short-term marriage – regardless of whether a practitioner was being faithful to a primary spouse or not – and because respondents could not conceptualize monogamy and fidelity within the context of short-term marriage, the question was altered to read, “Within those short-term marriages that you know or have heard of, is there an expectation of fidelity between the two parties?” That is, do people enter short-term marriage expecting that the contract will be violated, or is there real hope that it will remain sexually exclusive? Speaking of expectations in the context of real cases respondents were acquainted with was intended to help them move beyond semantic mental blocks to answer the question. But because questions were conceptualized in English, presented

¹⁶ A 34-year-old miner explains, “Religiously, you must present the ten kola nuts to officially have a woman.”
to the research team in French, and then translated into Malinke, certain nuances may still have been lost. The results, however, are still revealing.

A sample of 410 respondents answered the revised question about short-term marriage fidelity. Out of these 410 people, 8.29% (34 people, 95% CI [5.62, 10.96]) said that there was definitely an expectation of fidelity within the short-term marriages they had heard of. A 33-year-old miner who admitted to having engaged in short-term marriage himself exclaimed, “Yes! There is faithfulness resembling a legal monogamous marriage.” A 20-year-old migrant merchant woman recounted, “In the short-term marriage that I knew, there was hope that the partners would guard themselves for each other only.” “I would think that for the short time they are together, each one would do whatever it takes so that their partner doesn’t lose confidence for fear of losing all of the ‘advantages’ connected to this marriage,” explained a 21-year-old migrant miner. “Some women come to the mines when they’ve been divorced from their husbands,” said a 36-year-old Liberian blacksmith. “Most often, this short-term marriage can be transformed into a long-term marriage. There can be faithfulness between the two.” “There is faithfulness in this dishonesty,” added a 31-year-old male merchant. “It’s almost monogamy, really, because they are jealous of each other, so their chances of sneaking out elsewhere are very restricted.”

And yet 53.7% (220 individuals, 95% CI [48.9, 58.5]) were adamant that there could be no faithfulness or expectations thereof in the short-term marriages they had heard of. “There is no fidelity at all, because there can be a woman who has two or three other men,” a 30-year-old merchant said. “Men can do the same.” A 39-year-old tailor explained, “Those who are committing adultery can never be faithful to each other.” “No faithfulness!” a 35-year-old man told me. “I’m an officer of the district here; we deal with plenty of cases here relating to this
marriage.” A 57-year-old retired administrator lamented, “There is no such thing as faithfulness. Even a legitimate marital union doesn’t follow faithfulness.”

Aside from these two polarized views, there were also those who were split down the middle. They said that in some cases there is an expectation of fidelity, but that in others there isn’t. This group accounted for 3.90% of the answers (16 respondents, 95% CI [2.03, 5.77]). “If it’s with a young girl, one can hope for faithfulness and sometimes it even ends up in marriage,” a 28-year-old teacher told me. “It’s also the same with a boy who’s not married. But [it’s not the case] with those who are legitimately married back home before coming to the mines.” A 21-year-old student put it more bluntly: “If the man you have hooked up with can satisfy your needs, you’ll stay faithful to him; if not, you can’t keep yourself reserved for him alone.”

The fourth and final group of respondents consisted of those who either declined to speak about something they knew nothing about, or who simply didn’t answer the question but instead used it as a platform for voicing their opinions about foudoukoudouni: “A curse comes upon those who do it if they don’t repent and abandon it before their death; otherwise, their final resting place will be hell.” “There is nothing but regret in this marriage. You are not right socially with your fellow man nor with the good Lord.” “The money that you will spend to engage a woman [in short-term marriage] can help you to do other works in this world that will be profitable in the hereafter.” These null respondents accounted for 34.1% of the sample (140 people, 95% CI [29.5, 38.7]). (See Figure 6-10).

Figure 6-10 indicates that of all the short-term marriages known by respondents, more than half the cases did not have an expectation of fidelity – more than the yes, maybe, and null categories combined. But when beliefs about foudoukoudouni’s faithfulness were correlated with those who practiced it or were acquainted with those who do, a surprising result emerged.
Of those who had said that the cases of *foudoukoudouni* they knew of had no expectation of fidelity, nearly half (99/220) *didn’t* know any cases at all (never practiced it themselves and didn’t know practitioners). Conversely, only 11.8% (4/34) of those who reported an expectation of fidelity in the cases they knew didn’t actually know any cases at all, either. It appears that when respondents didn’t know any specific cases themselves, they tried to answer the question anyway (as evidenced by some of the generalist comments quoted above; these people probably should have declined to answer, putting themselves in the “null” category).¹⁷ Such responses should probably be invalidated, as speculation by those who know of no real cases of *foudoukoudouni* may skew results intended to report on confirmed cases. Reassigning those responses from “yes”, “no”, and “maybe” that should have been “null” adjusts Figure 6-10 significantly (See Figure 6-11).

Removing the null cases from the total leaves 163 respondents who knew of or practiced *foudoukoudouni*. Of these 163 respondents, we still find that in the majority of known cases (74.2%, with a 95% CI of [67.5, 80.9]), respondents reported that the partners did not expect mutual faithfulness. In 18.4% of the cases, respondents reported that fidelity was expected (95% CI [12.5, 24.3]), and in 7.36% of the cases, respondents reported that fidelity might have been expected (95% CI [3.35, 11.37]). There does not appear to be any relationship between opinion on women’s rights to insist on condom use and opinion on whether or not *foudoukoudouni* is faithful (Chi-Square = 1.721, *p* = .190).

It appears that most respondents believe that *foudoukoudouni* is not exclusive. Yet because of the strong Muslim presence, overt prostitution is not practiced, either. Most

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¹⁷ The question was not about people’s opinions or feelings about *foudoukoudouni* in general, but about specific concrete cases. This was to avoid giving people a platform to vent their biases on a topic that they might have actually been ignorant about.
practitioners of *foudoukoudouni*, therefore, probably fall somewhere between those two marginal extremes. They are not faithful to their short-term spouse, but neither are they approaching the number of partners a typical prostitute sleeps with. Thus, it is probably most accurate to refer to *foudoukoudouni* as a partner reduction strategy. Partner reduction acknowledges that although some people will not stick to one partner alone, they’re still better off with only two or three partners than with fifteen or twenty. Thus, partner reduction is sometimes combined with faithfulness when describing and promoting AIDS prevention strategies (see Green 2003b, for example).

This does not mean that *foudoukoudouni* is the savior of migrant miners. Some people, however, engage in short-term marriage fully hoping for, expecting, and intending to remain faithful to their partner while others do not. The take-home message is that fidelity is the most widespread practice for AIDS prevention in the Bouré (nearly 2.5 times more common than its nearest competitor: condoms), and that fidelity is understood and practiced in culturally-appropriate ways. Some are faithful to one spouse (the typical Western understanding of fidelity), while others are faithful to their multiple wives, others abstain when away from home for an extended period of time, and still others select one single extramarital partner to take care of their needs on the road. Not all of these adaptations would be familiar to the average Westerner, but that’s not what counts. Evidence shows that when a concept is indigenized, it is far more wholeheartedly embraced than when it is not. The indigenous adaptations of fidelity and the attendant high adherence to these practices are the messages from the Bouré worth repeating.
Figure 6-1. Average condom count

Figure 6-2. Breakdown of correct responses
Figure 6-3. How to use a condom properly
Figure 6-4. Number of correct responses

Figure 6-5. Distribution of correct responses
Figure 6-6. Women’s empowerment sorted by gender

Men - 28.1%
Women - 71.9%

Men - 69.0%
Women - 31.0%

Percent who say women cannot insist on condoms

Percent who say women can insist on condoms

Figure 6-7. Self-reported AIDS avoidance methods
Table 6-1. Influence of education/knowledge upon practice of ABC behaviors

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>B = – 0.025</td>
<td>B = – 0.102</td>
<td>B = 0.115</td>
</tr>
<tr>
<td></td>
<td>p = .559</td>
<td>†p &lt; .001</td>
<td>†p &lt; .001</td>
</tr>
<tr>
<td>Transmission Knowledge</td>
<td>B = – 0.206</td>
<td>B = – 0.151</td>
<td>B = 0.289</td>
</tr>
<tr>
<td></td>
<td>p = .259</td>
<td>p = .152</td>
<td>†p = .010</td>
</tr>
<tr>
<td>Avoidance Knowledge</td>
<td>B = – 0.360</td>
<td>B = 0.098</td>
<td>B = 0.173</td>
</tr>
<tr>
<td></td>
<td>p = .112</td>
<td>p = .473</td>
<td>p = .237</td>
</tr>
</tbody>
</table>

†Statistically significant predictors

Table 6-2. Marital status and practice of ABC behaviors

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unmarried</td>
<td>†30.5%</td>
<td>†6.8%</td>
<td>†62.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Married</td>
<td>†6.5%</td>
<td>†76.7%</td>
<td>†18.8%</td>
<td>102.0%</td>
</tr>
</tbody>
</table>

†Statistically significant differences

Table 6-3. Sex and practice of ABC behaviors

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>8.3%</td>
<td>†76.2%</td>
<td>†15.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Male</td>
<td>12.6%</td>
<td>†53.7%</td>
<td>†37.1%</td>
<td>103.4%</td>
</tr>
</tbody>
</table>

†Statistically significant differences

Table 6-4. Place of origin and practice of ABC behaviors

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out of Town</td>
<td>10.2%</td>
<td>66.4%</td>
<td>25.2%</td>
<td>101.8%</td>
</tr>
<tr>
<td>Local</td>
<td>9.7%</td>
<td>64.5%</td>
<td>27.4%</td>
<td>101.6%</td>
</tr>
</tbody>
</table>
Table 6-5. Influence of predictors upon condom use at last sex

<table>
<thead>
<tr>
<th>Predictor of Condom Use at Last Sex</th>
<th>$\chi^2$</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you know what a condom is?</td>
<td>.026†</td>
<td></td>
</tr>
<tr>
<td>2. Does your partner know what a condom is?</td>
<td>.006†</td>
<td></td>
</tr>
<tr>
<td>3. Do you know how to properly use a condom?</td>
<td>.001†</td>
<td></td>
</tr>
<tr>
<td>4. Do you have sex with someone who is not your spouse?</td>
<td>.000†</td>
<td></td>
</tr>
<tr>
<td>5. The last time you had sex, was a condom readily available?</td>
<td>.000†</td>
<td></td>
</tr>
<tr>
<td>6. How often do you use a condom?‡</td>
<td>.000†</td>
<td></td>
</tr>
<tr>
<td>7. Do you have confidence in your partner’s fidelity?*</td>
<td>.001†</td>
<td></td>
</tr>
<tr>
<td>8. Are you afraid of contracting AIDS or other STD’s?</td>
<td>.384</td>
<td></td>
</tr>
<tr>
<td>9. Do you like using condoms?</td>
<td>.002†</td>
<td></td>
</tr>
<tr>
<td>10. Does your partner like using condoms?</td>
<td>.000†</td>
<td></td>
</tr>
<tr>
<td>11. Do you want to control the number of births with your partner?</td>
<td>.305</td>
<td></td>
</tr>
<tr>
<td>12. Are you trying to have a child?*</td>
<td>.793</td>
<td></td>
</tr>
<tr>
<td>13. Are you or your partner breastfeeding a child right now?</td>
<td>.708</td>
<td></td>
</tr>
<tr>
<td>14. Do you see an advantage in using a condom?</td>
<td>.006†</td>
<td></td>
</tr>
<tr>
<td>15. Do you believe that using a condom is morally wrong?</td>
<td>.153</td>
<td></td>
</tr>
<tr>
<td>16. Do you know your and your partner’s HIV serostatus?**</td>
<td>.464</td>
<td></td>
</tr>
</tbody>
</table>

* These predictors are inverse; that is, a success in the predictor predicts a failure in the outcome and vice versa.
† Statistically significant predictors
‡ Question 6 has three ordinal levels – never, sometimes, and always – and aims to account for the influence of habitual use (or disuse) of a condom in explaining actual use at last sex.
Figure 6-8. Decision modeling tree for condom use
Figure 6-9. Decision modeling tree for condom use
Figure 6-10. Is foudoukoudouni faithful?

Figure 6-11. Revised faithfulness chart
CHAPTER 7
DISCUSSION AND CONCLUSIONS

In chapter 6 (Results and Analysis), it was determined that condom availability is uncertain in the Bouré, condom knowledge is severely limited, and condom enforceability by women is ambiguous. In addition, only a small minority reported using condoms regularly as an AIDS prevention strategy, and an even smaller proportion used a condom during their last sexual encounter. Therefore, condoms are not likely to have played a major part in keeping HIV rates low thus far in the region. Instead, fidelity to one’s sexual partner was the most commonly listed AIDS prevention strategy, and that includes some indigenous approaches to faithfulness and partner reduction, such as *foudoukoudouni*. Though none of these factors analyzed are true hypotheses, per se (HIV testing was not performed on the sample of people questioned, making it impossible to correlate responses directly with HIV rates), it seems reasonable to assert that they relate to miners having the lowest HIV rate of all other risk groups (4.7%), residents of Haute Guinée having the lowest HIV rate of any other region in the country (2.1%), and Guinea having one of the lowest HIV rates on the continent (between 1.5% and 3.2%).

These low figures are an anomaly in a region that typically follows Pattern II for HIV infection (heterosexual general-population-level transmission). As was argued in chapter 2 (Anthropological Perspectives on HIV/AIDS), throwing out patterns altogether in an effort to make everyone feel equally at risk (as advocated by some) is unwarranted. Patterns are still valid. Documented African homosexuality is rare in the literature (the general population in Haute Guinée doesn’t even know such a thing exists, and there is no word for it in Malinke [Direction Nationale de la Statistique 2005b]), and in the Guinean mining context, only *kaladiantigi* can afford drugs, so Pattern I transmission is definitely not the norm.
Perhaps proximity to North Africa (Pattern III – few cases imported by travelers) may partly explain Guinea’s low AIDS rates. It may be that it’s part of the general low pattern exhibited by its neighbors to the north, and doesn’t belong to Pattern II of its neighbors to the south. Yet it is socially and culturally much more similar to other sub-Saharan African countries than to North African countries. So it may truly be an example of a Pattern II country that has successfully kept AIDS in check, and that makes its prevention strategies worth studying.

C or ABC?

Actual condom use data from the Bouré concur with the Ahmed et al. (2001) study (which reported 4.4% consistent use and 16.5% inconsistent use) and Green 2003b:151 (8% condom use), both reporting on Uganda. A representative sample of people in the Bouré report using condoms as a regular AIDS prevention strategy in 26.2% of cases, but this number drops to 18.4% of respondents when asked about condom use at last sex. Given the low knowledge level about correct condom use, it is safe to conclude that condoms are not the first line of defense against AIDS for most people in the Bouré, mirroring the pattern reported for Uganda. Whatever fraction of protection condoms provide against AIDS, that fraction would be increased were residents of the Bouré to learn more about correct condom use. But for the time being, low knowledge alone doesn’t seem to have caused the disease to spiral out of control.

There are several explanations for low condom use in the Bouré. Condom social marketing campaigns may not have hit full swing there as they have elsewhere in Africa. Structural barriers to availability and access (factors which this study does not establish) also may prevent widespread adoption of condoms. But a key factor seems to be simple reticence to accept condoms, such as was reported in Zambia and Kenya (Shacinda 2004; Broomhall in AIDS and Anthropology Research Group 2003). In the Bouré, condoms are generally associated with promiscuity, immorality, and decreased pleasure – factors that fuel apathy toward condom
use. From the data, it is not necessary, however, to overcome reticence about condom use to keep AIDS in check – at least among those practicing other methods of protection. In other words, doing nothing about AIDS is dangerous, but doing nothing is not the only alternative to using condoms.

Data from informal interviews during participant-observation also do not support concerns that questioning condoms’ effectiveness will lead to misinformation. Only a small fraction of respondents reported completely misinformed beliefs about condoms (such as condoms causing lesions or the idea of condoms causing AIDS), even though quite a few acknowledged condoms’ real shortcomings (that they do not always work in every circumstance). Nevertheless, a good number also claimed that condoms constitute “safe sex”, and not “safer sex” which may indicate that they thought condoms are foolproof.

Again and again in this study, the data demonstrate the superiority of a multi-faceted approach (A, B, and C, in any order) over a uni-faceted approach (C alone) for AIDS prevention. Without it being officially promoted, residents of the Bouré have taken this multi-faceted approach themselves. Women in the Bouré don’t perceive that they have much control over sexual decision-making (which is the equivalent of not having actual control, as far as behavioral outcomes are concerned), but AIDS is not skyrocketing in the Bouré. Apparently, many men remain faithful to their wife or wives and when they don’t, they often use condoms. It is not a given that men’s behavior is irresponsible when it comes to AIDS, that women have to control it to make a real difference. In conversations with men in the Bouré over the course of fieldwork, men reported fear of AIDS, religious prohibition of immoral behavior, societal pressure condemning unfaithfulness, and faithful polygyny or serial monogamy (both of which reduce the
chances that men won’t have a regular partner available) as factors or motivations for acting sexually responsible.

In addition, some men reported that they are abstinent or faithful because their parents want them to be, and they don’t want to bring shame upon their elders. In fact, adults in the Bouré reported that they have not traveled to pursue job opportunities, have not married whom they wished, and have avoided short-term marriages – all due to their parents’ objections. Perhaps targeting parents and elders with HIV prevention messages would be an effective way of transmitting the information to youth who are most at risk.

Finally, some may choose abstinence and fidelity simply because it’s the norm. The Direction Nationale de la Statistique in Guinea reports that 95.5% of urban men and 74.6% of urban women think that young men should wait until marriage to have sexual relations. In addition, 94.9% of rural men and 85.2% of rural women report this attitude. On whether young women should remain abstinent before marriage, 96% of urban men agree, 78.4% of urban women agree, 94.9% of rural men agree, and 86.6% of rural women agree. When asked about fidelity, 99.5% of urban men say that married men should have sexual relations only with their spouses, while 75.4% of urban women do. In addition, 99% of rural men and 91.9% of rural women agree. When asked if the same rules applied to women, 99.5% of urban men agreed that women should have sexual relations only with their spouses, while 88.8% of urban women agreed. In addition, 99% of rural men and 95.3% of rural women agreed (Direction Nationale de la Statistique 2005b). It is interesting to note that more men than women (both rural and urban) support abstinence and fidelity. Explaining this difference of opinion is outside the parameters of the current study. We do not know what fraction of those who reported this attitude in the national survey actually practice premarital abstinence and marital fidelity, but it is not
surprising that the majority of both men and women in my study agree, even in the absence of women’s agency to insist upon condom use. If the reports reflect behavior at all, then increasing women’s power to enforce condom use will not have much impact on HIV prevalence rates.

Reinforcing efficient AIDS prevention practices that are already in place is easier than introducing concepts and technologies that require heavy marketing over a long time in order to establish their effectiveness. This is part of the reason for the hierarchy of the ABC strategy of AIDS prevention in Uganda. If most people adopt A or B and never get to around to needing C, then the target market is smaller, more focused, and more likely to respond to condom social marketing, as they are precisely the ones who need condoms the most. In Uganda, abstinence and fidelity were practices that were already familiar to the local people before the ABC program was introduced and were promoted first as a reinforcement of good practices. Guinea also has traditions of abstinence and fidelity within the culture (abstinence after childbirth and societal condemnation of sexual partnerships not endorsed with the exchange of kola nuts, for example) so these are not foreign concepts, and perhaps explain their popularity in practice.

**Beyond ABC**

Beyond ABC, there are the indirect factors that influence which (if any) of the ABC behaviors people will adopt (Kelly 1995; Green 2003b; Johnson and Gill 1989; Lugalla et al. 2004). In common with other nations successful at HIV prevention and reduction, we find in the Bouré:

- A multisectoral, multilevel response (involving religious leaders and faith-based organizations in the fight, as well as traditional healers and local health workers)
- Using multiple media to communicate AIDS messages
- Promoting AIDS and sex education in schools
- Targeting high-risk groups for special intervention (posters seen at health clinics target students and miners)
But we don’t find evidence of the majority of contributing factors present in successful countries in the context of the Bouré:

- High-level government commitment (there is an AIDS branch within the Ministry of Health, but it is not visibly active in the Bouré)
- True partnership between authorities and donors (donors still largely set the AIDS prevention agenda)
- The promotion of multiple interventions (residents of the Bouré practice multiple strategies on their own, but condoms are by and large the only intervention promoted)
- Cultural tailoring of prevention messages and methods (it was undetermined whether cultural tailoring extended beyond simple translation of prevention materials)
- Decrease in polygyny, levirate, or excessive alcohol consumption (which were outside the scope of this study)
- Reduction of AIDS-related stigma
- Advancing the status of women and youth
- Using fear arousal to avert risky behavior (though plenty are fearful on their own)
- Making voluntary counseling and testing widely available (the nearest testing center is a 30-minute drive from the Bouré – a daunting distance without a car or excess cash to spend on a bush taxi)

Stigma has been identified as contributing to the spread of HIV, since HIV-positive people may be reluctant to disclose their serostatus to sexual partners (Academy for Educational Development 2007). But its influence may be salutary if it prevents people from having sex with HIV-positive others. What is problematic is the inappropriate extension of that stigma beyond what is necessary to prevent disease transmission. Better education would help people realize in what ways it’s appropriate to avoid contact (sexual, blood, etc.) and which forms of avoidance or stigma are unnecessary (not eating with an infected individual, not touching an infected individual, etc.). This would redirect stigma in appropriate directions so that it is protective for the community at large without ostracizing the sick.
We cannot determine from the data in this study if respondents fear being stigmatized because their serostatus is unknown. It is clear that some respondents would ostracize infected individuals unnecessarily (through avoiding touch, contact with their clothing, eating with them, or sharing the same bed non-sexually with them), believing that these taboos would have protective effects. In addition to potential ignorance-related excessive stigma of HIV-positive individuals, condoms and *foudoukoudouni* are stigmatized by some. However, nobody seems to stigmatize abstinence or fidelity.

One of the four contributing factors present in the Bouré is the targeting of high-risk groups for special intervention. Caldwell and Caldwell labeled the “everyone is at risk” approach as “self-defeating” (1993:817), and there does not seem to be reticence to identify high-risk groups in the Bouré, which may partially explain its success so far in keeping AIDS rates down. But is defining miners as a risk group in Guinea simply importing classifications from the West? If migrant miners really are practicing fidelity as widely as they report, then perhaps their risk level is negligible compared to the rest of society. Might there be a better way of classifying those at risk in the Bouré?

As Prohaska et al. (1990) found, those with perceived risk responded to targeted interventions just as if they were really at high risk, and those who did not perceive their risk did not respond. Perhaps the real risk group in this context is the women who perceive powerlessness to negotiate safe sex. If they are targeted with interventions – and not just informational campaigns educating them to be more assertive, but real structural changes in laws and rights – then perhaps AIDS can drop even further in the Bouré. Heemskerk (2003), however, cautions against measuring an increase in women’s empowerment by a narrow definition. Some have argued that giving women jobs that pay cash (such as mining) could make
women more self-sufficient and empowered to make decisions about their own sexuality. But placing women in a mining context may increase their vulnerability to sexual exploitation and adverse health situations, as well. So the entire social and cultural context must be taken into account when promoting women’s rights.

**The Educational Model of Social Change in the Bouré**

Like Farmer’s focus on structural inequality as a catalyst for AIDS transmission (1992), we find that women in “power-down” positions (or, at least, who perceive themselves as powerless) have less agency to enforce responsible behaviors in their partners. Rather than castigating people for irresponsible behaviors, perhaps focusing efforts on external factors that inhibit responsible responses can engender more successful results. Lecturing people to change their behaviors (the educational model of social change) has been proven to have limited effectiveness in the face of structural inequalities. Empowerment of women would help raise perceptions of self-efficacy (like Uganda did) and bolstering the justice system would help create an environment where ABC could be practiced by all from both sides of the relationship.

Similarly, if one wanted to increase condom use among those who need it most, structural barriers would have to be addressed, since knowledge about condom use alone is not sufficient to engender more condom use. The fact that some vendors stopped carrying condoms when PRISM and ADRA ran out or closed their projects also demonstrates that knowledge about the importance of carrying condoms is not enough.

Attitudes about sex are part of the superstructure, but sexual behavior is not. Education campaigns can increase brand recognition – people use the words “condom” and “Prudence+” (the brand name marketed in the Bouré) interchangeably – but, as Bernard (2006) makes clear, brand choice is an intervention in the superstructure. It cannot affect the structural conditions that produce behaviors we would like to change – in this case, inconsistent and unreliable use of
condoms. To do this in the Bouré requires improving distribution channels (delivery supply chains), boosting the local economy to increase buying power, and instituting incentives that outweigh the disincentives for condom use. The 100% condom policy in place for Thailand’s commercial sex workers would not be enforceable in the Bouré.

In chapter 4, the educational model of social change was demonstrated to be effective under certain circumstances. Many of these circumstances are lacking in the Bouré. For example, it was argued that relatively small changes are more likely to be adopted than large changes (Veverka et al. 2003). Condom use is a big change (not simply by virtue of sexual position or timing, but because of having to procure a relatively rare commodity which decreases sexual pleasure – the whole point of sex for most people), so it’s less likely to be enthusiastically adopted than a smaller behavior change might be. Procedures of compliance have also been argued to increase acceptance of change (Allen and Heald 2004), but there are no procedures of compliance in place in the Bouré (there is no enforceable law mandating condom use) so condom social marketing isn’t likely to have much of an impact on behavior. Good oversight and follow-up after an intervention increase adherence (Koblin et al. 2004), but due to the nature of development projects, when the project is completed and the donor report has been submitted, there is no longer any profitability in follow-up unless an additional grant is obtained for that purpose (which is rare). Thus, lack of oversight and follow-up limits the sustainability of an educational intervention in the Bouré. And condoms are mostly promoted alone, without any complementary behaviors, in the Bouré. Posters in health centers, for example, contain singular messages that promote the use of condoms and NGO interventions adhere to the international norm of promoting condoms alone. Virtually no one (and this includes faith-based NGO’s) is
willing to step out of the mold and try anything different. This may also explain condoms’ limited effectiveness.

Finally, prior motivation, resulting from structural or infrastructural changes, makes any newly-promoted behavior more likely to be adopted (Bernard 2006; Curtis et al. 2001). In the Bouré, as in much of Africa (which still relies strongly on traditional medicine for many ailments), there appears to be no prior motivation to adopt Western technological fixes for health problems. This too, mitigates the acceptance of condoms. In fact, there might be actual demotivation to turn to the West because of historical animosity between Guinea and industrialized Western nations. In addition, because AIDS rates are not high in Guinea, few have experienced or witnessed the effects of the disease (compared to southern Africa). Why change behavior if AIDS isn’t a large problem? There is also the risk that promoting condoms strongly before motivation is present might backfire, as Allen and Heald argue happened in Botswana (2004).

One woman interviewed informally – a health center director – understood the problem clearly. For condom promotion to be successful, she said, one has to move beyond simple information campaigns. She reported that when she worked at the Guinea—Mali border (about an hour’s drive northeast of Siguiri), they required everyone crossing the border (both ways) to purchase some condoms before being allowed to pass. This practice, which has since been discontinued, particularly targeted truck drivers, a well-known risk group that has an HIV rate of 7.3% in Guinea (Lartigue 2001; Direction Nationale de la Statistique 2005b). Since retiring from the border-crossing job and beginning work at a health center in the Bouré, this director has taken it upon herself to personally distribute condoms at baptisms and at Friday prayers at the local mosque. This personal campaign overcomes structural barriers of availability and
inconvenience, and as a result, a few more people in the Bouré have a condom available at the moment of intercourse – the factor demonstrated by the decision model to most strongly predict actual use.

As the decision model also demonstrated, however, availability itself is influenced by other factors, such as fidelity to one’s partner and confidence in one’s partner’s fidelity. Education alone would not be sufficient to induce faithful people to use condoms. In fact, the model predicts that in order to make real changes in condom use, one would not only have to make condoms more immediately available for every sexual encounter, but one would also have to induce regular sexual partners to increasingly doubt each others’ fidelity. Why would one want to do that? If mutual fidelity is even more protective than condom use, why would one want to decrease it (or the perception of it) just to increase condom use? Of course, in cases where infidelity really exists, but is not acknowledged, it would be beneficial to increase suspicion of infidelity for the sake of increased condom use. Thus, unless Bouré residents begin to mistrust their partners more often (and to become less trustworthy themselves), there is likely little that can be done to significantly increase condom use as it currently stands.

**Primary Factors in the Bouré’s Success**

There is, however, a concept that agencies fighting AIDS in Guinea can seize upon: fidelity. A large majority of Bouré residents already recognize it as an AIDS prevention strategy and report practicing it. Promoting a reduction in the number of sexual partners and promoting fidelity to those partners one does have is a broad enough concept to be embraced by many categories of people, from monogamous spouses, to the man who stays faithful to his four wives, to the migrant worker engaged in short-term marriage. These disparate definitions of fidelity and partner reduction nonetheless have this in common: they all provide more protection from AIDS infection than do infidelity and sporadic condom use. Each category of person can practice this
idea of fidelity as they understand it (one man, when asked if he’s ever engaged in
foudoukoudouni replied, “I’ve never practiced it; I’m married to four wives. I can’t even keep
them satisfied!”).

Fidelity is supported and encouraged by Islam for moral reasons. Could religious support
for fidelity be a tangential practice that happens to also protect from AIDS transmission? It need
not be intentionally targeted for AIDS prevention to be effective. Rather than preaching, “Here’s
how to prevent AIDS, and here’s the product that’s going to save you”, a more effective message
might be, “Here are some behaviors you’re already practicing that are protecting you from
AIDS; keep it up, because now there are additional good reasons to do so.” Imams encountered
in this study seemed zealous to promote fidelity, and they have influence over the 85% of the
population that adheres to Islam. It would be tragic for Western AIDS experts not to take
advantage of this information channel because it promotes an effective strategy we may not like.
The potential contributions of faith-based organizations are enormous and should not be
overlooked (Green 2003a).

Aside from religious support for fidelity, homemade AIDS prevention strategies may
simply be carryovers from Nörö prevention strategies (Nörö is the disease mentioned by a
traditional healer that predates AIDS yet is similar to it in both manifestation and transmission).
The existence of Nörö has not been empirically verified, but if a disease with similar
transmission modalities and similar symptoms to AIDS really exists (or existed), and if it has
been around for a long time, then people can be expected to have learned to live with its presence
and mitigate its transmission. Practices based on the prevention of Nörö might be tangentially
effective against AIDS.
Indigenous responses for disease prevention which fit into the normal cultural framework (such as behavior changes to protect against Nörö) are abundant in the Bouré. Abstinence is practiced via the lactation taboo and the postpartum sex taboo, in order to increase the health of subsequent children. The Muslim taboo against cleaning the anus with the right hand reduces the number of fecal-oral cycles, since food is eaten with the right hand. Similarly, a religion-based taboo against infidelity prevents AIDS transmission. Why is the latter taboo more unacceptable to Westerners than the others?

There is a real risk that Westerners may not recognize indigenous disease prevention methods because they are so foreign-looking to us. For example, the average Westerner walking into a hut with cow dung plastered to the wall would probably not recognize it as a mosquito repellent method. But it is. Researchers must not assume that there is no disease-prevention going on simply because they don’t recognize any of the methods.

In chapter 4, it was noted that Desgrées du Loû (1999) found that the most well-informed and educated individuals engaged in the most risky sexual behaviors. Conversely, this study found that Bouré residents, 74.6% of whom had no schooling at all and most of whom are ignorant of condom use, don’t engage in risky behaviors requiring use of a condom. In some parts of Africa, the promotion of condoms is suspected of actually increasing risky behavior as people come to feel a false sense of protection (Kajubi et al. 2005). When left their own devices, people come up with ingenious ways of taking care of themselves, and these methods should not be ignored or dismissed.

Indigenous methods of information transmission are additionally important to take into consideration. In the West African context, Oladepo and Sridhar (1987) indicated that traditions are passed on through parents educating their children on moonlit nights, during crises or
community festivals, and during visits to traditional healers. Are condom social marketing campaigns missing out on these traditional channels? Would it be possible to get parents to pass on condom information to their children? Would it be possible for communities to advocate condoms during crises or festivals? Or for traditional healers to start promoting condoms, too? Or might one find more success communicating AIDS prevention messages through methods that these traditional avenues already espouse and agree with? Indigenous methods of AIDS prevention go hand-in-hand with indigenous methods of information transmission. Linking indigenous methods of information transmission with foreign messages may seem more incongruous to people than reinforcing homegrown approaches.

There is no single solution for the spread of AIDS prevention – not abstinence alone, not fidelity alone, not condoms alone – and the case of Guinea reinforces this. At present, condoms do not play a major role in AIDS prevention in the Bouré (though they may do so in the future, if distribution channels are improved and costs are reduced); fidelity apparently does play a major role right now. The best way that outside agencies can impact AIDS prevention is through supporting local initiatives, enabling and encouraging practices that are already in place that protect against the transmission of HIV.

Guinea’s historical context – specifically why it’s so poor (due to infrastructure damage at independence and economic mismanagement thereafter) – might partially explain why people were left to their own devices and used common sense to figure out AIDS prevention. Sekou Touré, Guinea’s first president, and the one who drove his republic into the ground by flirting with Maoism, died in 1984, right around the time AIDS was first being discovered and described (the first confirmed case of HIV in Guinea was in 1987 [Direction Nationale de la Statistique 2005b]). The government has opened up to the West since then, but has been largely
preoccupied with stabilizing the administration, inviting foreign investment, and exploiting
Guinea’s abundant mineral resources. Typically, high levels of government involvement
engender good responses to AIDS prevention (as seen in Senegal and Uganda), but this has not
been the case in Guinea (at least in the early stages of this administration). The first
governmental responses didn’t even address sexual contact as the primary means of HIV
transmission, focusing instead on blood transmission in hospitals (Direction Nationale de la
Statistique 2005b). In the absence of high government involvement, religion stepped in to
provide social order and to set norms for behavior. Guinea has long been overshadowed in the
press by its neighbors – Senegal, Mali, Côte d’Ivoire, Liberia and Sierra Leone. Perhaps this
lack of oversight by Westerners, along with a strong religious civil society in place, provided the
conditions for Guinea to develop its own indigenous responses to AIDS. And that may partially
explain why AIDS didn’t explode in Guinea while the world was preoccupied elsewhere.
Whether outsiders like it or not, religion has a huge impact on sexuality in the Bouré. It could
make further impact if outside experts are willing to tap into this indigenous source of wisdom,
energy, and guidance for most people.

Conclusion

The data collected for this study are highly reliable. Research assistants were thoroughly
trained in the most objective data collection methods possible, and field notebooks were
fastidiously transcribed. In addition, utmost care was taken in the assembly of data for analysis
and statistical procedures. All of the foregoing notwithstanding, research projects are always
open to confounders of validity. These include translation of questionnaires from French to
Malinke, cross-cultural misinterpretations of the intent of questions asked, and researcher
misinterpretation of answers given. In addition, the consistency of the research schedule was
compromised by research assistant illness (throwing off the balance of male and female
questionnaires gathered), transportation breakdowns, and periodic drawn-out national workers’ strikes, which threatened the safety of those venturing out for any purpose for days on end.

Finally, mining communities are heterogeneous and transient by nature (to which group of people do you extrapolate the results?) and migrants work far from home, possibly in another linguistic region (Heemskerk 2005). Nevertheless, communication did occur, and valuable lessons can be taken from the results of the data analysis.

For every area explored, there are others that are not researched due to time, budget, or resource constraints. Nörö was identified by one traditional healer as a disease that long predates AIDS yet manifests almost identical symptoms and transmission modes. It is important to follow up on researching Nörö and its history to empirically verify its existence and associated avoidance behaviors. Other areas not explored in more detail include confirming SAG’s condom policy, teasing out which condom sales by outlets in the Bouré were to end users and which were not, exploring why many of those who had a condom available at last sex didn’t use it, and verifying whether or not drug use by kaladiantigi is associated with more risky sexual behavior (beyond simply engaging in foudoukoudouni more often than others). These must be explored in future research.

One final category of further research is the linking of medical HIV seropositivity tests with various factors. Because this is a behavioral science study, no members of the research team were trained in administering HIV tests. However, subsequent research – comparing blood serum tests with rates of those practicing foudoukoudouni, Muslims and non-Muslims, or migrant miners and non-miners – would be extremely powerful for confirming or overturning results of this study based upon association of independent factors.
In conclusion, the case of Guinea demonstrates the potential value of local solutions to the problem of HIV/AIDS (as with indigenous efforts in Uganda and Senegal). For organizations fighting AIDS in Africa, this study should encourage avoiding a carbon copy of what everybody else is doing, and basing projects upon evidence of what everybody else is doing right. The simple fact that somebody else is doing it does not make a strategy sound. What makes it sound – and worthy of replication – is evidence of success. This requires investment in experimental, cutting-edge strategies, which can be more risky than simply replicating what other agencies are doing. But donors are not likely to be willing to invest in experimental ideas unless they are backed up by solid data. For AIDS researchers, this study should encourage exploration into other indigenous strategies for AIDS prevention in other contexts, particularly where AIDS transmission and prevalence patterns do not fit the current theoretical mold. Identifying what is working and replicating it will ultimately make the difference between life and death for millions on the continent and around the world. This is where researchers have the potential to make the most impact.
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BIOGRAPHICAL SKETCH

Adam Daniel Kiš was born in Montreal, Quebec, Canada on June 27, 1978 while his father completed a Ph.D. in ethics from McGill University. He grew up mostly in Berrien Springs, Michigan, as an academic brat – the younger of two sons of Andrews University faculty/staff parents. He earned his high school diploma from Andrews Academy in 1996, and a B.A. in French from Andrews University in 2000. During his college career, Adam also spent one summer studying at Institut Adventiste du Salève in Collonges-sous-Salève, France, a suburb of Geneva, Switzerland. He also spent one academic year as a missionary volunteer for the Seventh-day Adventist Church in Natitingou, Benin, West Africa.

After graduating from college, Adam married Kristin Doss, the daughter of missionaries who served in Malawi, Africa for 13 of Kristin’s childhood years. Between the two of them, Adam and Kristin have visited or lived in over 40 countries – 13 of them in sub-Saharan Africa. Before enrolling in the University of Florida’s Ph.D. program in anthropology, Adam worked one year for Langua Tutor, Inc. – a company near Detroit, Michigan, which provides language and cultural training to businesspersons soon to depart for overseas assignments.

During the Kiš’s residence in Gainesville, Kristin earned a Master’s degree in Educational Psychology from the University of Florida and their son, Zachary, was born. While completing his dissertation research in Guinea, Adam also served as Deputy Country Director and HIV/AIDS Technical Assistant for the Adventist Development and Relief Agency (ADRA) in Guinea. And while writing his dissertation during his last year of studies, Adam taught anthropology courses as a contract instructor at Andrews University. Upon completion of his Ph.D. program, Adam will move with his family to São Tomé e Príncipe off the west coast of Africa to serve with ADRA as a project manager for a USAID-funded health project.