Editor’s Introduction

A difficult but important role for foundations is tackling issues involving important social concerns that are too controversial for the government to fund. In the 1980s, one such concern was sexual behavior and its relationship to public and individual health. The HIV epidemic was emerging, but knowledge of sexual practices influencing the transmission of this and other sexually transmitted diseases was inadequate to shape public health responses.

Despite general agreement among health specialists about the importance of obtaining this information, the government was reluctant to support research that asked people about their private sexual behavior. Although the National Institute of Child Health and Human Development (NICHD) had originally requested a national survey of sexual behavior, the idea was killed when it became known by other parts of the federal government. After that happened, a consortium of foundations stepped forward to fund it. As it turned out, the study engendered little controversy, and the anticipated concerns about respondents’ reactions never materialized; rather, Americans were incredibly cooperative.

Chapter Eleven describes the experience of fielding the survey and discusses its key public health findings. The knowledge gained from this project exceeded all expectations, and the findings gained widespread attention from the general public as well as public health experts, from cover stories in weekly newsmagazines to the many articles in academic journals.

This project exemplifies a number of the Foundation’s goals and strategies. First, it involved collaboration with other funders; cross-foundation funding generally strengthens projects and aids in dissemination. Second, reports from the survey have been directed at diverse audiences, ranging from researchers and public health officials to the public. Two distinct books that read as if they could never have come from the same study were published: one for the general public and one for experts and researchers who specialize in social, behavioral and cultural aspects of sexual behavior. Finally, in this project the Foundation complemented its action-oriented investment—in a series of demonstration projects about how to improve preventive and acute services related to HIV illness—with a research investment to better understand the roots of the problem. Combining research, which can make a contribution in the long run, with demonstration and service investments, which
provide more immediate contributions to resolving a social problem, has been important to the Foundation.

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The discovery of HIV in the early 1980s caught the nation ill-prepared. There was far too little accumulated knowledge about retrovirology and far too little continuing research. In 1986, the National Institutes of Health (NIH) said publicly that scientists were unlikely to cure or prevent AIDS through biomedical research until sometime after the beginning of the 1990s. Unfortunately, even that assessment was too optimistic.

Society was at least as ill-prepared as science, with too little knowledge and too little continuing social science research about the primary means of transmitting HIV: sexual relations. In the late 1980s, the high-priority need in the social sciences was data on the sexual behavior of the general public, on a national basis and not exclusively focused on any particular sexual practice. The Institute of Medicine took this position in 1986, and it was endorsed by the report of the Presidential Commission on the HIV Epidemic in 1988 and by commissions and panels of National Academy of Sciences/National Research Council in 1989 and by the General Accounting Office report on AIDS forecasting, also in 1989. Many public and private statements by medical and social science scholars and administrators and by the chief executive officers of pharmaceutical companies mirrored that view.

By the late 1980s, it was understood that HIV was transmitted from one person to another by three means—sexual contact, sharing needles in intravenous drug usage, and blood transfusions—and the most common of these methods was sexual contact. The HIV/AIDS Surveillance Report, issued by the Centers for Disease Control (CDC) in January 1990, reported on the cumulative AIDS cases in the United States through December 1989. There were 115,786 adult cases of AIDS, about two-thirds of which were attributed to sexual contact, about one-quarter to intravenous drug usage, and only 2 percent to blood
transfusions, with the remainder undetermined or by multiple means. While public health officials understood that sexual behavior was the major route by which the virus was spread, they also recognized that they did not know very much about the incidence of various sexual activities that facilitated transmission.

The 1989 report by the National Research Council, *AIDS: Sexual Behavior and Intravenous Drug Use*, makes clear why the information about sexual behavior was needed:

> Estimating future demands on hospitals and other public health services requires reliable models of HIV transmission dynamics. Such epidemiological models ... can also help in assessing the relative effectiveness of different kinds of behavioral change and guiding the development of effective public health education.

> Data needs are driven by immediately relevant questions of disease transmission, progress and control. The resulting intellectual strategy is to design new research looking for the "facts about sex" in order to answer these questions.

The report goes on to argue for understanding the social context of the sexual behavior:

> To understand the motives, development, and varieties of human sexual behavior, it is crucial to understand the systems of meaning and action—the cultural context—in which the "facts of sex" are embedded. The facts remain the same, but understanding may differ. Different understandings in turn may have important consequences for designing effective educational efforts to encourage self-protective behaviors.

By 1987, the leadership at NIH was encouraging and funding relevant social science research. By mid-1988, the CDC was urging the collection, before the 1980s came to an end, of baseline information about sexual behavior of the general population. Because of the political ambivalence about the survey research, however, little more was known about sexual behavior as it related to the transmission of HIV by, say, 1991, than had been known a decade earlier, when HIV was beginning to surface. Much of the little additional insight was derived from research that was not publicly funded.

This research project’s experience with the federal government was protracted and complex, reflecting that political ambivalence. The history from 1987 through 1991 was typical of the experience of other
survey projects that attempted to respond to the need to know more about sexual practices as they relate to the transmission of HIV. The government's stance might best be described as inconsistent or even schizophrenic. The less political and more scientific the entity (at one extreme, for instance, the peer review system at NIH), the more supportive the attitude toward these research efforts; conversely, the more political and less scientific the entity (at the other extreme, deliberation on Capitol Hill), the less supportive attitudes were.

Specifically, our project began in response to a National Institute of Child Health and Human Development request for proposals in July 1987, seeking advice about the design of a national survey of adult sexual behavior as related to reproductive health and sexually transmitted diseases, including HIV. My colleagues, Edward O. Laumann and John H. Gagnon, and I responded to the NICHD request through the National Opinion Research Center, or NORC, at the University of Chicago. We won the competition to design that survey, and before our one-year effort was completed in 1988, NICHD and CDC requested another proposal to put that design into practice in order to produce baseline data before the end of the 1980s about adult sexual behavior in the United States. Our team competed for that contract as well and won it. The design of the survey was completed by the autumn of 1988.

As required of any survey of Americans done under contract with the federal government, we submitted routine documents and materials for clearance from the Office of Management and Budget (OMB), expecting to begin conducting the survey in January 1989. In brief, OMB never gave us the necessary clearance. Instead, it referred the question of whether our survey of adult sexual behavior could or should be done to the top levels of the Department of Health and Human Services; the survey subsequently became an issue on Capitol Hill. Through stages and complexities that are described elsewhere, we were finally informed in late summer 1991 that the federal government was not willing to approve a study of adult sexual behavior, even though it had initially requested one. At that juncture, Laumann, Gagnon, and I received support for our project from the Robert Wood Johnson Foundation.

The contrast between the federal government's ambivalence and the position of the Foundation is clearly seen by the project's title in the two settings. Essentially the same project was titled by the NICHD's request for proposals as "Social and Behavioral Aspects of Health and Fertility-Related Behavior." Our grant application to the Foundation, in April 1991, was titled "Sexual Behavior and Its Relation to the Health of the American Population"—a decidedly more direct and informative title.
The two-year project undertaken with Foundation support involved a national survey of the sexual behavior of adults age eighteen to fifty-nine, selected from a stratified random sample of households and interviewed over the period February to September 1992. Immediately before and during the field period of the survey, additional funding was secured from the Henry J. Kaiser Family Foundation, the Rockefeller Foundation, the Andrew Mellon Foundation, the John D. and Catherine T. MacArthur Foundation, the New York Community Trust, and the American Foundation for AIDS Research, and subsequently, for data analysis, from the Ford Foundation. Thus, the project has had wide and enthusiastic support from the American foundation community.

The survey was done by face-to-face interview, typically in the respondent’s home. It was conducted by about 220 NORC interviewers who had undergone an intensive, three-day training session on the questionnaire. The survey asked basic demographic, economic and social background facts about the respondent, including histories of all marriages, cohabitational intervals, and conceptions and their outcomes. It asked about sexual behavior over the past year, then in greater detail regarding the respondent’s most recent sexual event, and then more generally about sexual behavior over the whole lifetime. Information was also obtained about childhood sexual experiences, adolescent sexual experiences, sexual victimization, sexual health including both lifetime and past-year sexually transmitted infections, sexual dysfunctions, and finally about sexual attitudes and opinions.

The cooperation of 3,432 adults in the survey was outstanding. The survey had an exceptionally high response rate: 79 percent, or nearly four of every five randomly selected men and women from coast to coast, were willing to cooperate by responding to questions about their intimate sexual behavior. Care was taken in the interview to establish an environment of privacy, safety and trust with the respondents; a strong public health motivation was used to encourage honesty and accuracy. Also, much care was taken to achieve the right balance of scope and detail about the sexual behavior so that respondents could and would want to provide accurate answers. Subject to the limits of personal interviewing on any topic, these efforts seemed to be very effective. From internal consistency checks and from external validation of much of the information collected, it appears that this data set is of exceptionally high quality. Two books report the initial findings from the survey, one intended for a general audience, the other for a scientific audience. The public-use dataset, known as the National Health and Social Life Survey (NHSLS), was put in the public domain through Sociometrics, Inc., in December 1994. (It is also
available through the Interuniversity Consortium for Political and Social Research, or ICPSR, of the University of Michigan.)

Fortunately, this survey has by now become one of several high-quality datasets addressing sexual behavior and sexual health. So despite the initial political difficulties, there have been successful efforts to collect survey data about sexual behavior, and the American population has been cooperative and forthcoming.

PUBLIC HEALTH FINDINGS

There were six major public health findings from the NHSLS. The first three pertain to traditional issues about the spread of infectious diseases: how widespread they are, what their primary risk factors are and why these factors represent such high risks. The other three are facts about how people behave, since their behavior has implications for our understanding of the spread of these diseases. These facts include evidence of purposive, strategic behavior on the part of individuals to avoid diseases; evidence of the social context in which sexual partnering occurs; and evidence that adult sexual behavior can be determined from surveys using proper scientific sampling. All six of these findings should be considered part of the nation’s public health agenda.

1. Most sexually transmitted infections are contracted by young adults (under age thirty), and these infections flourish in that relatively small segment of the population. Most data on sexually transmitted infections, or STIs, come from clinic-based studies or from national registry data such as the CDC’s surveillance reports. Neither of these can provide information about the proportion of the population that has, or has ever had, one of these diseases. The counts of specific infections are not usually identified by patient, so we cannot know from these sources how many different diseases one person may have had, or how often one person may have been diagnosed with the same disease. Thus, one cannot estimate the prevalence of the disease in the population at large or in population subgroups, but for epidemiological projections this is the information that it is important to know.

Surveys that ask about some of these infections in general population samples typically do not obtain very much information about the sexual practices of the respondents, so even when we know how many new cases there are, or what proportion of the population is infected, we still do not have the information to permit an assessment of behavioral risk. The National Health and Social Life Survey data do yield estimates of both the incidence and the prevalence of sexually transmitted infections, and those two factors constitute the first two findings described here.

The NHSLS asked specifically about nine infections: gonorrhea, syphilis, genital herpes, chlamydia, genital warts, hepatitis, HIV/AIDS, and pelvic inflammatory disease (PID, women only) and nongonococcal urethritis (NGU, men only). The question asked if the respondent had ever been told by a doctor that he or she had one of these infections; each infection was asked about specifically and separately. If the answer was yes, the respondent was asked how
many times and whether that diagnosis had been within the past twelve months, where he or she went for treatment, and which sex partner the respondent thought may have given him or her the disease. For much of the analysis we have done to date, we have considered the five bacterial infections together (gonorrhea, syphilis, chlamydia, NGU, and PID) and similarly the four viral infections (Hepatitis B, genital warts, genital herpes, and HIV). The former are relatively easy to cure with antibiotics in the early stages soon after presentation, while the latter are incurable and in some cases recurring, so the health risks differ for these two types of infection.

Overall, 16.9 percent of adults age 18 to 59 report that they have had a diagnosed sexually transmitted infection sometime in their life, and 1.6 percent say they have had that diagnosis within the past twelve months. The lifetime rates are similar for men and women overall, although the men report higher rates of bacterial infections (12.1 percent for men, 10.6 percent for women), primarily gonorrhea, while women report higher rates of viral infections (9.0 percent for women, 5.4 percent for men). The rate of infection reported in our survey for the past twelve-month period is 1.6 percent overall, with 1.0 percent for bacterial infections and 0.6 percent for viral infections.

By age, the lifetime rates reach 17–19 percent by the late 20s and remain at about that level up to age 50; they are then lower (about 11 percent) for those who are over 50. The rates of those who report having a diagnosed STI within the past year are highest among young adults: 4.5 percent of people between 18 and 21 compared with less than 1 percent for any age group over 30. Clearly, it is the young adults who acquire and transmit most STIs. If one in 22 young adults has an STI within a year (that is, 4.5 percent), the risk is substantial that someone who has several sex partners selected from that pool is exposed to disease. With rates of infection as high as one in two, as is estimated for gonorrhea, the likelihood of contracting a disease is indeed considerable for someone with multiple sex partners in a year.

The information about STIs collected in our study is retrospective, collected at a point in time. With information of this nature, one cannot distinguish a "cohort effect" (a difference for those born at one time from those born at another time, such as the population born at the peak of the baby boom, in 1957) from an "age effect" (a difference that all experience at a particular age, such as puberty). Thus, we cannot tell if the younger generation will continue to acquire sexually transmitted infections at a high rate as they age or will experience a decline in the rates of contracting diseases as they age beyond 30. The data clearly show, however, that most STIs have been contracted by young adults, and it is in that relatively small portion of the whole population that these infections flourish.

2. **The number of sex partners is the single most important risk factor for getting a sexually transmitted infection.** In descriptive tables of who gets STIs, age is often shown as an important demographic factor. But in our statistical work we are able to look for the basic reasons that some people do and others do not get STIs and that statistical analysis of STI risks shows that age per se is not a risk factor. We have studied the partial effects of age, gender, race/ethnicity, education level, marital status, number of sex partners, and exposure to specific sex practices such as group sex, anal sex, and paid sex. Overwhelmingly the most important single factor, for both bacterial and viral STIs, is the number of sexual partners. In fact, age is not statistically significant once these more directly influential factors are controlled. Similarly, marital status and education level show no relationship with either type of infection.
Those with more than 10 lifetime sexual partners are estimated to be 20 times as likely to have contracted an STI as those with one lifetime partner. Those with five to 10 lifetime partners are nine times as likely to have acquired a bacterial infection and five times as likely to have acquired a viral infection; those with two to four lifetime partners are about two-and-a-half times as likely to have had an STI as those with one lifetime partner. It is this factor—the number of partners—that dramatically dominates the risk of a sexually transmitted disease. Clearly, the reason young adults acquire these diseases has nothing directly to do with their age per se; the behavior that creates the risk is having many sex partners, and it is primarily young, unmarried adults who engage in that behavior.

Men face a much lower risk of contracting these diseases than women. Controlled for number of partners, men have only about 40 percent the risk women face of getting a bacterial infection and only about 30 percent the risk women face of getting a viral infection, according to our survey results. That fact conforms with what is known about the infectivity of many of these diseases: they are more easily transmitted from a male to a female than vice versa. Thus, we should expect to find the evidence that we do: when the number of sex partners is held constant, the risks of an STI are substantially higher for women.

Blacks report fourfold higher rates of bacterial infection, mostly gonorrhea, other factors held constant, while they have rates of viral infection only about half as high as whites. The explanation for this is clear, we think. Our study found dramatic evidence of the social embeddedness of the selection of sex partners, meaning that blacks tend to have sex with other blacks and whites tend to have sex with other whites. If a disease is prevalent within a social group, especially one with a high infectivity, such as gonorrhea, it is likely to be readily transmitted within that group, but not necessarily readily spread to other groups if few from the first group have sex with members of the second group. The concentration of gonorrhea within the young black community probably reflects this phenomenon. That concentration may also be influenced by the fact that blacks and whites may go to different sorts of institutions for medical treatment. What is more, public clinics and private physicians may not approach an infection in the same way. Both tests and treatment may differ, and so may the reports to patients and to public health officials.

The statistical analyses also suggest that those who have ever engaged in anal sex have somewhat higher rates of viral infection, while those who have been paid for sex are twice as likely to have had a bacterial infection. Those who have had one type of STI (bacterial or viral) are about twice as likely to have also had the other type as well.

3. *The reason that someone with many partners has a high risk of an STI is that those other partners also have many partners, often concurrently.* Those who have many partners will not know all of their partners well and are unlikely to have as strong a personal concern about them as someone who has few sexual partners, or just one partner. We have attempted to go behind the strong evidence in the survey data that the number of sex partners is the overwhelmingly dominant factor associated with the risk of disease, and look at two aspects of the "partner risk." The majority of sexually active adults do not acquire new sex partners in any given year and are exposed to relatively low risks of contracting sexually transmitted disease. Others—about 20 percent of our sample of adults—do acquire a new partner within the year. We focused on two dimensions of sexual partnerships, the familiarity of the respondent and his or her partner, and the sexual exclusivity of their relationship, as assessed by the respondent.
We contend that greater familiarity with a sex partner is likely to be associated with greater comfort in discussing sexual histories and risk-reducing strategies, with greater information about the disease status of that partner, with greater caring and concern, and thus greater motivation to protect the partner from disease. Our measures of familiarity include having a new partner within the past twelve months, having a one-time sex partner, having sex with the person for less than a two-month interval, knowing the person less than two days or less than one month prior to first having sex with him or her, and self-descriptions of the relationship as casual sex or a pick-up partner.

We measure sexual exclusivity by several variables, including the number of sex partners the respondent reported his or her partner to have had within the past year, whether that partner was involved with another person at the onset of their sexual relationship, whether that partner continued to have sex with others (distinguishing serial and concurrent partnerships, which have very different implications for disease transmission), whether the partnership involved an expectation of sexual exclusivity, and whether the partnership involved explicit payment for sex.

The evidence shows dramatically that those who have one sex partner tend to have long-term associations and sexual exclusivity with that partner and thus face very little risk of an STI. In contrast, those who have many sex partners face a higher risk of an STI. They report that their partners also have many other partners, tend to be not as well known to the respondent, and have relatively little familiarity or commitment or personal concern.

These differences, then, translate into a much higher risk of disease and explain why the number of sex partners is such a powerful indicator of that risk. When we investigate the relationships between one or another of these measures of familiarity or exclusivity and STIs, we find that the rates of disease are typically three or so times as high for adults who have partners with these risky attributes. For example, the rates of being diagnosed with an STI within the past 12 months are 3.6 times as high for an adult who has any new sex partner within that time interval; 4.3 times as high for one who has any one-time sex partner within that time interval; and 2.2 times as high for one who had a partner with whom monogamy was not expected. Taking several of these partner attributes in combination, 0.8 percent of those whose partners have none of the several measured risky attributes reported an STI within the past twelve months; 2.2 percent of those with one of those attributes reported an STI; and as many as 5.5 percent of those whose partners totaled at least four of those attributes reported an STI within the past 12 months. If that 5.5 percent per annum were the exposure faced by a person for several consecutive years, the accumulated probability of contracting an STI would become quite high, and that may well be the experience for a substantial number of young adults.

4. People at high risk of getting a sexually transmitted disease are changing their sexual behavior. One of the more optimistic findings from the analysis of the survey data is evidence of effective, purposive, strategic behavior in response to the risks of getting an STI. One of those behaviors is the use of condoms. Condom use is highly situational: only 8 percent of married adults in the survey reported that they always used a condom in the past 12 months with their spouse, while 11 percent of those who had a cohabitational partner did so, and 29 percent of those who were neither married nor living with their primary sex partner always used a condom in the past twelve months.

Measured by whether they used a condom the most recent time they had sex, 14 percent of those with one partner within the past twelve months did so, 26 percent of those with two
partners did so, 36 percent of those with three partners did so, 40 percent of those with four partners did so, but only 30 percent of those with five or more partners did so. Clearly, those who face higher risk of disease because they have more partners do respond by using condoms more consistently. The levels of use, however, are not sufficiently high to justify any less effort at promoting safer sex by public health officials, and there is disquieting evidence here of a small core of high-risk individuals who are not exercising preventive behavior.

As many as 30 percent of the adult population report making some change in their sexual behavior because of AIDS. There are many strategies that can be effective in reducing the risk of contracting HIV, and most of these are effective at preventing other, more prevalent STIs as well. Of that 30 percent of the survey respondents who report a change in their behavior, many report more than one change, and in terms of the more common changes that are reported, roughly one-quarter report each of the following: using condoms more frequently, now having only one partner, and selecting their partners more carefully or getting to know their partners better before having sex. Also, 11 percent report having reduced their number of partners, and 11 percent report that they now abstain from sex altogether.

It is encouraging to find that those most likely to report risk-reducing strategies are precisely those who have previously engaged in the riskiest sex practices. For example, 78 percent of those with 11 to 20 partners in the past five years report making a change in their sexual behavior, while only 12 percent of those with one partner in the past five years report any change in behavior. Specifically, if we compare those with 11 or more partners within the past five years to those with four or fewer partners, the former are nearly five times as likely to report reducing their number of sex partners, twice as likely to report selecting their partners more carefully now, and three times as likely to report using condoms more now.

5. Most people have sex with others who are similar to themselves in terms of age, education, race and most other social attributes. This dramatically inhibits the spread of STIs among the population at large. Sexual partnerships are deeply embedded in social structures. For our understanding of the transmission of disease, perhaps the most important long-term finding from the National Health and Social Life Survey data is that sexual partners are overwhelmingly similar in their demographic and social characteristics. They are remarkably similar in age, in race (African American or white) and in ethnicity (Hispanic or non-Hispanic), in education, and in religion. The survey inquired about secondary sex partners and one-time partners as well as the respondent’s “primary” or regular sex partner. While we expected that primary sex partners would be similar in these demographic dimensions, we thought that the casual or one-time or other secondary partners would perhaps be much more different and would constitute a big threat in terms of transmitting a disease from one group in society to another. So we attempted in many ways to determine if those in one social stratum frequently or infrequently had sex with someone from another social stratum. We did find some who have sex with others from different social groups, and who do therefore provide a bridge across which diseases might travel, but they are few and their pattern of bridging is infrequent.

It has been well known that married couples are typically similar in these social characteristics, but we find that even very short-term, noncohabiting pairs are remarkably similar: 91 percent of these short-term pairs are of the same race or ethnicity, 87 percent are of the same educational level, and 60 percent are from similar religious faiths.
Another way of thinking about the issue of the spread of a sexually transmitted infection is to think of the social network of individuals in a community. Imagine a randomly selected individual and think about how many others in that community that one person is connected to. If the definition of "connected" is that that individual knows another person or that the two know someone in common, then their social network is likely to be very densely connected. But if the definition of "connected" is that they have sex with each other, or have sex with someone in common, then the evidence from the survey data suggests that their sexual network is very sparsely connected. Moreover, that sexual network is effectively partitioned by social characteristics such as race or ethnicity, education, age, and religion. This implies that the social organization of sex partnering in our communities makes it rather unlikely that a sexually transmitted infection will spread throughout that community. However, for those infections that pass from an infected person to another quite easily—such as gonorrhea—even a few bridge people in the community can carry the infection across social boundaries. In the case of a disease that does not spread easily, the social organization of sex partnering makes it unlikely that the disease will spread. Fortunately, HIV is a virus that has a very low infectivity, of about one in 500, so it is not a likely candidate for easy transmission from one social network to another.

6. Under the proper circumstances, adults in the United States will cooperate in a scientific survey about their sexual behavior. It has been dogma in our nation, at least since the time of its pronouncement by the sex researcher Alfred Kinsey in 1948, that a randomly selected sample of Americans would not cooperate in a social scientific survey about their sexual behavior. That dogma encouraged Kinsey and many others since that time to accept unscientific sampling as the only feasible way to study sexual behavior by survey. Consequently, when AIDS appeared and the need arose to understand the likely route and speed of its transmission through sexual activity in the population, public health officials were ill-prepared. The National Health and Social Life Survey has shown that dogma to be incorrect. It is a major finding of this project that Americans can be interviewed in scientifically appropriate ways about their sexual behavior. They cooperate in such a survey. They provide the necessary information when they are assured of confidentiality and when they are convinced of the merit and appropriateness of the survey's purpose. Unfortunately, learning about HIV provides that purpose.

We cannot know now if the cooperativeness experienced in the survey would have been the same 20 or 40 years before, when HIV was unknown. The assertion by Kinsey in his day, and by many others as recently as the late 1980s, that a survey could not be done was simply accepted without good evidence. An enduring and important public health finding of this project is that that assertion is wrong.

**IMPLICATIONS FOR PUBLIC HEALTH POLICY**

With as many as one in six adults under age sixty reporting that they have had a sexually transmitted disease sometime in their lifetime, and with more than one in 20 young adults age 18 to 24 reporting that they have had one of these diseases within the past 12 months, there is no basis for complacency in our public health policy toward STIs. There is strong evidence that the risks of these diseases are not uniformly spread among the population, so it would seem prudent to target both preventive educational
efforts and remedial medical attention upon the young, single adults where those diseases are most prevalent.

The risk factors for STIs are well known. The National Health and Social Life Survey contributes strong evidence that the number of sex partners is the key risk factor. Demographic or social characteristics including age, education, religion, and race or ethnicity play a role only to the degree that they affect the number of sex partners. Those with 10 or more lifetime sex partners are 20 times as likely to have an STI as those with one lifetime partner. That fact should be made part of the public health message and should be aimed at young single adults, since it is they who have the most partners.

The survey also indicates that certain population subgroups can and do develop high prevalences for some diseases. Since sex partnerships are so systematically drawn from groups of similar individuals, diseases can be found in one group with very little implication for the likelihood of finding them in some other group. The evidence in the survey of gonorrhea among young blacks is but an example. It could be as true of an infectious disease in a college-based population or any other group that happens to have high rates of sexual interaction.

While the proportion of adults who report having as many as five sexual partners in a year is no higher than 3.2 percent, and those with more than 20 partners within the past five years is no higher than 1.7 percent, for example, it must be stressed that these are not small numbers of people. One percent of the adult population age 18 to 59 is about 1.5 million people.

The survey also helps understand why having many sex partners is associated with so much higher risk of STIs. It is not the case that a man with five partners in a year has only five times as much risk as the man with one partner. That would be the case if all five of those partners were similar in their risky attributes. But that is not what is found: the more partners one has, the more likely they are to have risky attributes, such as being much less well known to the subject and having had several other partners themselves. The familiarity with, and the exclusivity of, partners declines as the number of partners increases, and that raises the risks of disease. The implication for public health policy would appear to be to encourage young adults to be more selective and strategic in their choice of partners and to be strategic in minimizing concurrent partnerships, as well as adopting risk-reducing practices in their sexual repertoire.

The survey suggests that much strategic behavior is undertaken to reduce the risks of disease in sexual relationships. Condom usage is higher where the risks are greater. Of the 30 percent of adults who say
they have changed their behavior because of AIDS, those whose behavior puts them most at risk are indeed those who have changed their behavior, and in general the nature of the changes has been broadly appropriate. Nonetheless, of those with more than 10 sex partners within the past five years, nearly one-third report having made no change in their sexual behavior because of risks of disease. Here, again, public education and persuasion effort are called for.

The survey data emphasize the similarity of sex partners in terms of their social characteristics, and this has implications for the risks of spread of disease. This important finding has both an optimistic and a pessimistic implication. It implies that a disease does not so easily spread through the entire population as it might if those social barriers to its transmission were less severe. On the other hand, the social embeddedness of sexual life makes it more likely that one disease or another may be considered "their" problem, not "ours," which could undermine a public commitment to addressing the risks with effective education, medical care access, and research funding.

There have now been several other scientifically sound surveys of sexual behavior, and there should be more. The National Health and Social Life Survey, in its 90-minute interview, began a process of inquiry that deserves continued funding and research commitment. It has been the social and public health policy in the United States to settle for inadequate information and understanding about sexual behavior, as if, because it is private behavior, it is acceptable not to know very much about it.

But public health and social policy require that Americans reach collective decisions about many aspects of sexual life, from accessing contraceptives to accessing pornography. Americans have a need and a right to know about the prevalence of specific sexually transmitted diseases and their various rates of infectivity, about how common various sexual practices are and about how common specific sexual dysfunctions are, and about how many adults do or do not engage in homosexual behavior, for example.

The survey has only begun to provide answers to these questions; it should be a beginning of a growing inquiry into sexual behavior and practices and their consequences. My colleagues and I hope that its legacy is to have destroyed the myth that we cannot successfully survey Americans about their sexual behavior.

Notes

1 Institute of Medicine, Confronting AIDS: Directions for Public Health, Health Care and Research (1986); Report of the Presidential Commission on the Human Immunodeficiency Virus Epidemic (1988); National Research Council, AIDS: Sexual Behavior and

2 Ted Cooper, Upjohn Co.; Florence Haseltine, director, CPR, NICHD; Don des Jarlais, coordinator for AIDS Research New York State Division of Substance Abuse Services and Drug Research; Philip Lee, School of Medicine, UCSF; Jane Menken, professor of sociology, University of Pennsylvania and chair, NRC Committee on AIDS Research and the Behavioral, Social, and Statistical Sciences; June Osborn, dean of School of Public Health, University of Michigan and chair, National Commission on AIDS; Samuel Their, president, Institute of Medicine; Ronald Wilson, AIDS coordinator, National Center for Health Statistics.


5 For example, see MMWR 37(37) (Sept. 23, 1988), 565–568.


8 Other national in-person surveys and their principal investigators include the National Survey of Adolescent Males, done in 1988 and 1990–1991 by F. L. Sonenstein and her colleagues; the National Surveys of Men and of Women, done in 1991 under the leadership of K. Tanfer; the twenty-thousand-person Survey of Adolescent Health in 1995 under J. R. Udry's direction; the National Survey of Family Growth conducted through NCHS in 1988 (Cycle IV) and 1990 (Cycle IV phone reinterview) with data for women age 15–44 on contraception, number of partners, AIDS-related behavior and STIs; and for annual time series (1988–1996) on a few sexual behaviors, the General Social Survey, led by J. A. Davis and T. Smith. Additionally, a national telephone survey of individuals age 18–75, the National AIDS Behavioral Surveys in 1990–91 (wave 1) and 1992 (wave 2), led by J. A. Cataria has also yielded important results. There have also been a number of local area, or state-level surveys, and many others that focus on one or another specific high-risk group or high-risk behavior.

9 A tenth infection, vaginitis, was not analyzed since some common forms can be contracted nonsexually (for example, from yeast infections) although other forms of this generic are among the most common reported by CDC (for example, trichomoniasis).

10 The likelihood of contracting a disease from a simple act of intercourse with a randomly selected partner is the product P3I, where P is the disease's prevalence in the population from which that partner was selected, and I is the disease's rate of infectivity or transmissibility. This risk is discussed in detail in chapter eleven of Laumann, Gagnon, Michael, and Michaels (1994).

11 For example, 82 percent of black men have black women as their sex partners, and 97 percent of black women have black men as their sex partners; of unmarried white men, 94 percent have white women as their sex partners, and 90 percent of single white women have white men as their partners. These figures are reported in Michael, Gagnon, Laumann, and Kolata (1994), p. 46.

12 Kinsey's colorful statement was: "Neither is it feasible to stand on a street corner, tap every tenth individual on the shoulder, and command him to contribute a full and frankly honest sex history. Theoretically less satisfactory but more practical means of
sampling human material must be accepted as the best that can be done." A. C. Kinsey, W. B. Pomeroy, and C. E. Martin, Sexual Behavior in the Human Male (Philadelphia: Saunders, 1948), p. 93.

Ironically, Kinsey also reports his "amazement at their [his respondents'] willingness to help" by agreeing to be interviewed (p. 36). He suggests the motive often is altruism: "In answer to our request for her history, the little, gray-haired women at the cabin door, out on the Western plain, epitomized what we have heard now from hundreds of people: 'Of all things—! In all my years I have never had such a question put to me! But—if my experience will help, I'll give it to you.' This, in many forms ... is the expression of the altruistic bent ... which has been the chief motive leading people to cooperate in this study" (p. 36). Unfortunately, Kinsey did not follow that insight to its logical conclusion that indeed one can secure the cooperation of a randomly selected sample of respondents. How much more we might know today about our sexual behavior and its consequences if Kinsey had not promoted the myth that scientific sampling could not be employed in the study of human sexuality!