Guttmacher Policy Review
GPR
Winter 2011 | Volume 14 | Number 1

The Need for a Revitalized National Research Agenda On Sexual and Reproductive Health

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Last fall, the National Institutes of Health (NIH) unveiled a broad, 10-year strategic plan on women's health. The Office of Research on Women's Health identified six overarching goals to promote women's health—ranging from personalized prevention and therapeutics to strategic partnerships to maximize the impact of women's health research—that would be furthered by NIH-supported research. Currently, the National Institute of Child Health and Human Development (NICHD) is undertaking its own strategic planning process and engaging stakeholders to map its agenda and identify significant scientific opportunities for the next decade. As the NIH and its subsidiary agencies select and refine their specific research priorities over the upcoming years, there are compelling reasons for these institutions to focus more of their resources on sexual and reproductive health research.

In fact, the NIH has a distinguished history of support for research on sexual and reproductive health. Yet, critical gaps remain in achieving sexual and reproductive well-being in the United States and around the world. Researchers have yet to find answers to fundamental questions about why these problems continue and what solutions would work to address them. Redoubling NIH's research efforts in this area is important because poor sexual and reproductive health can have other health effects, as well as economic and social consequences, which together have a profound impact on individuals, families, communities and countries. Indeed, some of the major domestic and global crises plaguing governments today involve problems directly or indirectly related to unintended pregnancy, unplanned births, teenage pregnancy, HIV and other sexually transmitted infections (STIs), and maternal mortality and morbidity. Therefore, although important progress has been made in many areas of sexual and reproductive health, there is a long way to go, particularly as disparities in health indicators and outcomes are widening, both within and between countries.

Persistent Problems

The most important sexual and reproductive health problems arguably fit into three broad categories: difficulties with the timing and spacing of pregnancies and births; problems associated with achieving healthy childbearing; and STIs and their related diseases. These problems are complex and interconnected, making it difficult to pinpoint their causes and consequences, and to find solutions. That is because these three broad areas are interwoven at the macro level as widespread social problems, and yet they also are experienced at the individual level as connected or persistent problems over a lifetime. Underlying and at many times exacerbating these problems are entrenched societal and attitudinal barriers—such as discrimination based on race, class, age and gender—that lead to disparities in health and health care, and continue to bedevil researchers and impede progress in clinical practice toward understanding and improving sexual and reproductive health.

Timing and Spacing of Pregnancies and Births

Despite advances in contraceptive technologies, improvement in access to contraceptive services and supplies, and progress in lowering fertility rates, many individuals and couples still fail to ensure their pregnancies are well planned. Levels

of unintended pregnancy—nationally and internationally—remain stubbornly high. In fact, almost half of all pregnancies in this country are unintended at the time of conception. Although virtually all U.S. women have used contraceptives, many struggle with consistent, correct and effective use over the approximately three decades of their reproductive lives when they are trying to avoid a pregnancy (as opposed to the five years the average woman who wants two children spends pregnant or trying to get pregnant).

The root problem of unintended pregnancies leads to a host of others. By age 45, almost half of all U.S. women will have an unintended pregnancy, and nearly one-third of women will have an abortion. For teenagers, the facts are starker: Some 82% of their pregnancies are unplanned, and 27% of pregnancies among 15–19-year-olds lead to an abortion. Young people are much less likely than adults to be equipped emotionally, financially and educationally to deal with parenthood, and births to teenagers can have severe negative repercussions on their educational and career development.

The magnitude and consequences of unintended pregnancies are even greater in the global context. Worldwide, some 75 million unintended pregnancies take place each year. A major reason for unplanned pregnancy across the developing world is the lack of access to effective

Timing and Spacing of Pregnancies and Births: Research Areas to Explore

Preventing unintended pregnancies through effective contraceptive use brings tremendous benefits and advances in social and economic development at the family, societal and national levels. But, given the manifold benefits of practicing contraception, why are methods so poorly used? A Guttmacher study uncovered a number of reasons why one-third of all U.S. women at risk of unintended pregnancy do not use contraceptives, use them inconsistently or incorrectly, or have gaps in use. Leading the list of reasons are problems women face when accessing or using methods, such as dissatisfaction with available methods, concerns about side effects, difficulties in paying for contraceptives and lack of time for medical visits. Important life transitions such as changing jobs, ending a relationship or other personal crises, as well as infrequent sexual activity, were other major reasons cited in this study. Within the developing world, married women with unmet need most commonly cite infrequent sex as the reason for not practicing contraception, followed by perceived concerns about side effects or other health issues associated with modern contraceptives.

Even when U.S. women use contraceptives, they often do not choose a highly effective method. For example, use of long-acting reversible methods such as the IUD and implant is extremely low; in 2002, just 2% of those using a contraceptive method were IUD users. As of 2006–2008, that proportion had risen to 6%, but IUD use in the United States remains much lower than in many other developed countries. Research should examine financial, cultural, historical and other barriers to greater uptake of these methods.

Such data point to the need for further research into contraceptive technologies that address the specific concerns women have in practicing contraception. Women may be reluctant to use long-term hormonal contraceptives or commit to a method that requires a daily regimen, such as the pill, and may need new nonhormonal or postcoital methods that fit their level of sexual activity. However, to develop better methods to prevent unintended pregnancies, there still needs to be more research to assess why women are satisfied or unsatisfied with their current methods and what problems they face with existing contraceptive options.

Some obvious gaps in the current array of reversible contraceptive choices are the absence of male methods, except for the condom, and the absence of multipurpose methods that prevent both pregnancy and STIs, again except for male and female condoms. The development of multipurpose methods is a particularly urgent need, because women and young people who are especially at risk for unintended pregnancy are also frequently at risk for STIs, and vice-versa.

Healthy Childbearing: Research Areas to Explore

Although many factors such as aging, risky behaviors, infectious or chronic diseases and the environment have been recognized as risks for infertility, much more research is needed on the etiology of infertility. In particular, not enough is known about the preventable causes of infertility, how exactly each different factor impairs fertility, and the relative importance of each factor in contributing to infertility. For example, a growing body of research has identified environmental toxins as being associated with infertility, but many questions remain unanswered, such as how endocrine-disrupting chemicals impair reproductive processes.

In addition, further research on the detection and treatment of infertility is necessary. As childbearing among women older than 30 becomes more common, it will be even more important to investigate the medical, economic and bioethical questions stemming from the increasing use of assisted reproductive technologies, including their effects on the health of women and children.

In terms of maternal mortality, the broad causes at the global level are generally known: hemorrhage, infection, unsafe abortion, high blood pressure and obstructed labor. However, more detailed research is required to ascertain their relative impact on maternal health, how they interrelate, and which interventions are most effective and cost-effective, especially in settings with limited resources.

contraceptive methods. There are 215 million women in developing countries who want to limit the number of pregnancies they have or space their pregnancies, but are not using an effective method of contraception; these women account for 82% of all unintended pregnancies.

And in the developing world, a deadly outcome of unintended pregnancy is unsafe abortion, of which there are 20 million a year, resulting in an estimated 8.5 million women needing care for abortion-related complications and 46,000 deaths. In Africa and Latin America, where abortion is mostly illegal, more than 95% of the procedures are unsafe.

In both developed and developing countries, preventing unintended pregnancies would lead to better educational and economic opportunities for women and their children, and would ensure greater financial security for their households. In addition, social, economic, national and environmental security would be strengthened, as there would be a reduced burden on infrastructure and resources.

Healthy Childbearing

Being able to achieve and carry a healthy pregnancy safely to term requires good sexual and reproductive health from the preconception to the postpartum phase. The two major problems in this category—infertility, and maternal morbidity and mortality—are often thought of as being divided, with the former affecting developed countries and the latter affecting developing countries; however, in actuality, the two matters are serious concerns in both worlds.

The World Health Organization (WHO) has identified an unmet need for access to infertility services in both developed and developing countries. According to 2002 WHO data, one in four ever-married women of reproductive age in most developing countries is facing infertility, but because of the international spotlight on population growth and the unmet need for contraceptives, this area has been overlooked in developing regions. In the United States, the 2002 National Survey of Family Growth found that two million couples were infertile and 7.3 million women of reproductive age sought infertility counseling or services during their reproductive lives. The need for such services will likely grow as more U.S. women delay their attempts to bear children until their 30s and 40s, when fecundity declines and infertility becomes a greater problem.

At the other end of the spectrum are problems associated with childbearing once a woman becomes pregnant. The U.S. rates of pregnancy-related complications and deaths are relatively high compared with those in other industrialized nations, despite the enormous amount the United States spends on maternity care. As with many other sexual and reproductive health issues, racial, ethnic and income disparities in health status and access to care underlie the problem. For example, death from pregnancy-

related complications is four times as common among black women than white women. Black women in certain localities, such as New York City, are at even greater risk.

Nonetheless, in regard to pregnancy-related illness and death, the disparities within the United States are largely overshadowed by those found between developed and developing countries. According to 2008 United Nations estimates, a woman's lifetime risk of dying from pregnancy is one in 4,300 in developed countries (and one in 2,100 in the United States specifically). In contrast, the lifetime risk of maternal death is one in 120 in South Asia and one in 31 in Sub-Saharan Africa. Among individual countries, Afghanistan is at the bottom of the list, with a lifetime risk of one in 11.

Sexually Transmitted Infections: Research Areas to Explore

STIs raise a host of biomedical, behavioral and service delivery research questions. Many of these questions center on identifying the drivers behind risky sexual behavior and on crafting behavioral interventions that will aid in effective primary prevention strategies, as well as treatment strategies, which themselves often serve as secondary prevention by preventing infection in partners.

In regard to HIV, antiretroviral treatment is increasingly promoted as a prevention strategy: for example, providing pre-exposure prophylaxis (PrEP) drugs to those who are not HIV-positive. Although such a strategy carries great promise, many questions have arisen. What are the long-term health effects of using these drugs on those who are not HIV-positive? What can be done to promote consistent use of PrEP drugs, particularly when lack of adherence can lead to drug-resistant HIV? What are the behavioral factors that influence acceptance and consistent use of these drugs? What is the impact of these drugs on pregnant women and their fetuses? (In fact, the ethical restrictions that limit testing on pregnant women, including HIV-positive women, have impeded clinical research and progress in a number of health areas.)

Sexually Transmitted Infections

Beyond pregnancy and childbearing problems, sexual activity carries the risk of STIs and the often-serious diseases associated with such infections. These diseases warrant further study because they injure individuals' sexual and reproductive health and overall health, and also have a large economic and social toll on countries. The most recent U.S. data, now more than a decade old, estimate 19 million new cases of STIs every year. The financial load of dealing with STIs in the United States amounts to about $15 billion annually in direct medical costs.

Addressing the problem of STIs presents special challenges. Many are asymptomatic and cannot be detected without screening and testing; however, routine testing, although generally recommended and cost-effective, is not commonly performed by many primary care providers. In addition, stigma, the public's lack of knowledge about STIs and barriers to accessing services all contribute to the underutilization of testing and treatment services, and have a disproportionate impact on young people and minorities.

Although some STIs will frequently resolve on their own without complications, others need treatment to avoid serious negative outcomes. For instance, if untreated, syphilis in its late stages can eventually lead to severe damage to the brain, heart, nerves and other organs, and can cause paralysis, blindness, dementia and sometimes even death. Hepatitis B is another STI that can have non–reproductive health effects, such as permanent liver damage from cirrhosis or cancer. Individuals afflicted with STIs may also be at greater risk of contracting HIV.

In many ways, the risks and impact of STIs are greater in resource-limited developing countries, where there is less access to and availability of care and treatment. Part of the problem is that solutions that may be feasible in developed countries may not be realistic in the developing world. Many diagnostic tools and treatments are dependent on modern technology and equipment that are not widespread or affordable in poorer settings.

The discrepancy in outcomes is exemplified by the case of human papillomavirus (HPV). Although most cases of HPV resolve benignly on their own, certain high-risk strains can lead to cervical cancer over the course of many years if not detected and treated. In the United States, the widespread use of the Pap test has been very successful in detecting cervical abnormalities so that treatment can be pursued long before cancer sets in. Even though the prevalence of HPV is exceptionally widespread among the American population, the incidence of cervical cancer is low: about 10,000 cases and fewer than 4,000 deaths a year. In contrast, cervical cancer is the most common form of cancer among women in low-income countries, primarily because of inadequate access to diagnostic and treatment services for cervical cancer and service gaps that result from shortages of trained health care workers, medical equipment and laboratories that are common in wealthier countries.

Worldwide, HIV still remains one of the most serious and challenging reproductive health issues, with 33.3 million people currently living with HIV and 2.5 million new cases each year. Two-thirds of those living with HIV are in Sub-Saharan Africa, where young women aged 15–24 are up to eight times more likely than men overall to be infected. Despite the substantial resources dedicated to HIV programs, the rate of new infections still exceeds that of people receiving treatment services.

Across the Spectrum

Although all three categories of sexual and reproductive health problems—timing and spacing of pregnancies and births, healthy childbearing and STIs—present distinct issues, they are inextricably interrelated. For example, a woman facing an unintended pregnancy may seek an abortion; in developing countries with restrictive laws, such a woman may only be able to obtain an unsafe abortion, which can often threaten her health or even her life. As another example, a woman experiencing an unplanned pregnancy is less likely than a woman with a planned pregnancy to obtain early prenatal care or needed medical care during pregnancy and delivery, which could lead to serious health consequences for both the mother and infant. Finding and addressing lasting solutions to the problems associated with mistimed and poorly spaced pregnancies would dramatically decrease morbidity and mortality for mothers, as well as for their newborns, whose survival is interrelated with their mother's health.

The linkages among sexual and reproductive health problems are also interrelated vertically over the course of a woman's life. That is, failure to deal with sexual and reproductive health problems earlier in life can have consequences later. For example, inadequate sex education impairs young people's ability to protect themselves from STIs, and an untreated STI acquired as a teenager can lead to infertility during later adulthood. Moreover, women experience different sexual and reproductive health problems at different points in their lives. The same woman who has an unintended pregnancy and seeks an abortion may choose to have a baby later in life. Or, conversely, a woman who is already a mother and has an unintended pregnancy might choose to have an abortion, as is the case for six out of 10 U.S. women who seek an abortion.

Societal Barriers

In addition to the three interlocking areas of sexual and reproductive health, there are a number of societal barriers to health that also pose research challenges. These barriers include deep-rooted attitudes and behaviors related to age, race and class, gender and sexuality.

Age

Young people are particularly susceptible to harm to their sexual and reproductive health. Nearly half of all new STI cases in the United States every year occur to youth aged 15–24, even though they account for only one-fourth of the sexually active population. Among 15–24-year-old women, chlamydia is five times as prevalent as in the general female population. Improving prevention and treatment of STIs among this age-group has consistently proven difficult because of a host of factors that inhibit young people's access to and use of care. Those include societal taboos and secrecy around sexual activity and diseases, lack of communica-

tion between adolescents and their guardians and providers, concerns about confidentiality when receiving health care services, laws and policies that discourage adolescents from seeking services, and lack of accurate information among young people regarding transmission of infections, prevention, diagnosis and treatment.

At the other end of the life continuum are the problems of an older population whose sexual and reproductive health needs are commonly forgotten. As longevity continues to increase, older adults—beyond their reproductive years, but most still sexually active—will become a larger share of the population. CDC data indicate that HIV rates are increasing among adults aged 50 and older. These individuals may have less knowledge about STIs than their younger counterparts and may incorrectly believe that they are not at risk; however, physical changes in women after menopause and weakened immune systems among aging individuals could place some at even greater biological risk than younger people.

Race and Class

Deep-seated and persistent societal inequalities on the basis of race, ethnicity and class—both in the United States and in other countries around the world—have created disparities in health outcomes that stymie efforts to improve health, perplexing researchers and health care providers alike. Although it is apparent that such disparities exist in health and health care, there is still limited knowledge about how racial and class factors contribute to disparate status and outcomes. Nonetheless, several things are clear: Disparities are one of the most fundamental and insurmountable problems in health. The different dimensions of inequality are complexly interrelated. After controlling for certain inequalities (e.g., income), others (e.g., racial and ethnic) remain. In many problem areas, the disparities are growing. And sexual and reproductive health may be especially plagued by disparities because of unique sensitivities and controversies in addressing these topics.

One striking example of these disparities can be found among teenagers from communities of color, who face some of the greatest barriers. According to a 2008 CDC study that looked at chlamydia, trichomoniasis, genital herpes and HPV in the United States, one in four women aged 14–19 currently had one of those four STIs; however, disaggregating the sample by race revealed that almost half of all black teen women had an STI.

Gender

Socially constructed and firmly ingrained discriminatory norms and attitudes about women's roles explain many of the social, economic and political obstacles that have led to serious and adverse sexual and reproductive health consequences in rich and poor countries alike. In addition, biological factors make women even more vulnerable to sexual and reproductive harm. For example, women are more susceptible than men to STIs and, at the same time, may face cultural, social and financial obstacles in negotiating with their partners about prevention.

An extreme although common manifestation of the social and biological risks faced by women is violence against women and girls, which can result in severe and long-lasting consequences for overall physical and mental health, and particularly for sexual and reproductive health. Violence can range from rape during civil conflict or humanitarian crisis to less overt or physical forms of coercion such as male partners' efforts to exert reproductive control by intimidating a woman into carrying a pregnancy to birth or sabotaging her birth control. At the core, unequal power between genders and within relationships drives this coercion. In turn, women are placed at risk of negative sexual and reproductive health outcomes, such as unplanned pregnancy, repeated unwanted pregnancies, unsafe abortion, pregnancy complications, and STIs including HIV.

Sexuality

Finally, there is sexuality itself, the obvious underlying factor that inevitably and forcefully shapes sexual and reproductive health outcomes. In fact, sexuality may be the single most important factor that undergirds all of these problems in the field of sexual and reproductive health, largely because of the difficulty most

societies have in dealing with it. Sexual identity (including an individual's self-perceptions and others' perceptions of that person), attitudes and behaviors explain many of the decisions and actions that lead to poor sexual and reproductive health outcomes among individuals, as well as to broader societal trends. This is because healthy sexuality—or the absence thereof—can strongly influence everything from contraceptive behaviors to the strengthening or dissolution of relationships and families.

Yet, sexuality may be the most underdeveloped area of sexual and reproductive health research, including fundamental questions such as what constitutes "sexual health" and how to achieve it. This is highly ironic at best, because the inherent sexual drive of human beings motivates many of the behaviors that later lead to sexual and reproductive health problems. It may be, in fact, the sometimes interconnected quests for pleasure, love and individual and interpersonal "satisfaction" that are what primarily animates men and women to engage in certain sexual and reproductive behaviors. But society in general, and researchers and funders in particular, have been unable to fully confront the thorny and sensitive issues related to sexuality and its impact on societal expectations and individual decision making. In turn, researchers know very little about how sexuality connects to reproductive health, as well as to other economic and social phenomena. More work in this area is certainly warranted.

Moving Ahead

Sexual and reproductive health issues are often viewed through a political lens, but how they are addressed—including through biomedical and behavioral research—have real and highly significant health consequences for individuals and communities. In turn, these enormous health problems impact other social and economic issues.

Although the NIH has made tremendous contributions to advancing sexual and reproductive health, there is need for a focused, reinvigorated research agenda from the agency. Given the perception of sexual and reproductive health as controversial and given the history of conservative attacks on NIH research in these areas, it is not surprising that the NIH has not placed more public emphasis on and devoted more resources to some of the more complicated, fundamental and interesting questions and problems that persist in regard to sexual and reproductive health. But the time is long overdue to set aside the political and personal discomfort with sexuality and focus on producing new evidence to guide and improve prevention efforts. It is clear that more complex and multilevel research, including new and innovative designs and methodologies, is necessary to increase understanding of and improve provision of needed health services. Given the interrelationships among sexual and reproductive health problems, they must be studied at multiple levels. That includes the societal and community levels (in terms of policies, programs, norms and values); family, partner and peer influences; and the individual level (demographic, socioeconomic and psychosocial factors).

Knowing the magnitude and importance of the problems that result from sexual ill-health and the certainty of damaging consequences associated with failing to resolve them, it is time for the NIH to give higher priority to supporting research—both in the United States and in developing countries—that would increase our understanding of these problems. It is time for the NIH to address the problems within the field of sexual and reproductive health through a strong and concerted national effort. www.guttmacher.org