



Healthy Generations

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Reproductive Health Surveillance Volume II: Sexual Health

Reproductive Health Surveillance
Abortion Surveillance
Sexually Transmitted Infections
Adolescent Pregnancy and Childbearing
Monitoring Youth Health Behaviors
LGBT Reproductive and
Sexual Health Surveillance
Infertility Surveillance in the United States
Preconception Health Surveillance
Minnesota International Health Volunteers -
Somali Child Spacing Program



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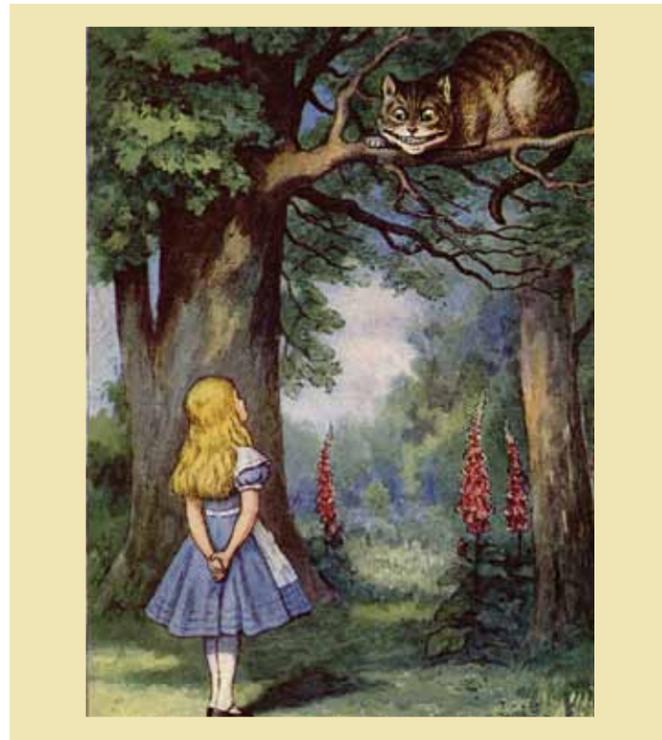
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LETTER FROM THE EDITORS

This volume of Healthy Generations is a companion volume to our winter issue about reproductive health surveillance. That volume focused on maternal and infant issues. In this volume, we turned our attention to surveillance about sexual health. As we prepared this two-volume series, we often reflected about how critical and complex surveillance is. The individuals who conduct surveillance provide health professionals with the foundation to set policies, manage prevention and disease control programs, and set research priorities. Oddly enough, we also thought about a passage from one of our favorite books, Alice in Wonderland, in which Alice asks advice of the Cheshire Cat:

“Cheshire Puss,’ she [Alice] began, rather timidly,... ‘Would you tell me please, which way I ought to go from here?’

‘That depends a good deal on where you want to get to,’ said the cat.

‘I don’t much care where,’ said Alice.

‘Then it doesn’t matter which way you go,’ said the cat.’

Unlike Alice, public health professionals have a clear sense of direction. Our paths must lead to efforts that will serve the public by eliminating inequalities and inequities, optimizing health, and reducing disease burdens. And, unlike Alice, we do not seek guidance from a mischievous Cheshire Cat. Surveillance data often provide a clear path for us.

—Wendy Hellerstedt, MPH, PhD, and Julia Johnsen, MPH



Reproductive Health Surveillance: Sometimes Imperfect, Always Essential

Wendy Hellerstedt, MPH, PhD



“The scientist is not a person who gives the right answers, he is one who asks the right questions.”

— Claude Levi-Strauss

A poor sample design, weak measures, or an inappropriate analysis plan, can result in bias: a distortion that either over- or under-estimates the exposure, the outcome and/or their association.

Surveillance is a critical tool for research development and for identifying unmet needs. Like any tool, it has its uses and its limitations. The thoughtful user of surveillance data will always consider the sample, the measures, and the analysis/presentation of data.

Sample Biases: Is the Sample Representative of the Intended Population?

How were participants selected for a survey? How were cases included in a surveillance system? What is the intended population for the surveillance tool—and do the

participants/cases represent that population? In reproductive health, surveillance (e.g., claims data, systems for reportable diseases, population- or clinic-based surveys) provides:

1. Estimates of the proportion of the population that is exposed to a risk, a protective factor, or behavior (i.e., exposure).
2. Estimates of the proportion of the population that is affected by a health condition or health practice/service (i.e., outcome).
3. Estimates of the association between the exposure and the outcome.

To accomplish this, surveillance/survey systems must:

1. Have a sample that is representative of the intended population.
2. Include valid and reliable assessments of exposures and outcomes.
3. Involve responsible management, analysis, presentation, and interpretation of data.

Sample considerations include:

- **How does the mode of data collection (e.g., household survey, phone survey, mail survey, clinic or provider report to a surveillance system) affect who is included in the sample?** For example, clinic-based data are restricted to individuals who receive clinic services. Thus, a clinic-based survey about the characteristics of women who use infertility services will *not* represent all infertile women. It will reflect only those who have the ability or the desire to seek medical treatment; it may be further restricted to women who are medically eligible for clinic-based services.

Some sources of data may result in a biased sample. For example, if researchers who are interested in miscarriage rates investigate health claims data, they will underestimate the rate of miscarriage. Women who do not recognize that they have experienced a miscarriage or women who did not seek medical treatment would not be counted.

- **Non-response: who are the individuals who refuse to participate in surveys?** Generally individuals who do not respond to health surveys are at higher social, health or behavioral risks than responders; they may also have less interest in health or be less trusting of research or health institutions.

Measurement/Data Collection Biases: Is Information Accurate and Complete?

What is the quality of survey measures (e.g., validity, reliability) in populations similar to the intended survey population? How complete are surveillance system measures (e.g., health claims databases, birth certificates)? The collection of accurate and complete data depends upon several things, including:

- **Awareness.** Is there differential awareness about exposures or outcomes that could affect reporting? Asking respondents about their history of a diagnosed disease may be futile in settings where official diagnosis is rare. This may explain differential reports of some reproductive health conditions



between developed and developing countries. And knowledge about reproductive behaviors may vary by survey respondent characteristics: e.g., men may be less aware than their female partners about the frequency with which female contraception is used by their partners.

- **Recall.** Can individuals recall exposures? Can some people recall better than others? The more specific or complex the questions—e.g., the nature or amount of an exposure—the more difficult it may be to recall information. For example, it is very difficult to obtain complete contraceptive histories over long periods of time: because contraceptive switching is common, women may forget the dates they switched contraceptives and may have further trouble answering complex questions about contraceptive adherence. In contrast, it may also be difficult to compare exposure histories for individuals with a critical illness to those without: participants diagnosed with the disease may recall exposures better than their healthy counterparts, particularly when the exposure is perceived as relevant to their illness.
- **Knowledge.** Individuals may also have difficulty because they lack knowledge. There is great interest, for example, in the fetal origins of adult disease. It is obviously very

difficult (and perhaps impossible) for individuals to document their mothers' exposures while pregnant with them. Similarly, there is interest in whether men and women have been exposed to teratogens that could affect fertility and pregnancy health. Many teratogens, however, are unknown. And individuals are not always aware if they have been exposed to known teratogens, which may be in their workplaces, homes, lawns, or recreational areas. Another way knowledge can influence surveillance data is related to the wording of a question: is a question easy to understand? Does it include jargon or slang that may not be understood by some occupational or cultural groups? Does it include language that is not decipherable to adolescents or to individuals with cognitive difficulties?

- **Willingness to disclose.** Will individuals refuse to report—or distort information about—behaviors, exposures, or outcomes? Individuals may have good reasons for providing false responses (e.g., participation in high-risk sexual behaviors). The reluctance to report, or presentation of a false report, could be related to perceived stigma about an exposure or outcome, fear of consequences, or social desirability (i.e., the desire to provide responses that will be viewed favorably).

- **Reporting/abstracting/interviewing biases.** Does differential documentation or interviewing result in differences in the quality of exposure or outcome reporting for different people? Occupational, social, or cultural groups could be more closely queried or followed for specific exposures or outcomes because of assumptions about risk. An example may be Gulf War veterans and miscarriage risk. Because veterans may have had high exposure to teratogens in the field, they may be closely followed for fertility and pregnancy outcomes. Because of heightened surveillance, they may have higher than expected rates of miscarriage (an outcome that is poorly documented and underestimated in the general population). The higher rates could be associated with differential detection, rather than real differences in risk. Differential documentation can also occur if interviewers or abstractors probe more or less deeply for information from certain groups of people (e.g., if nurses fail to ask professional women about exposure to interpersonal violence; if interviewers inquire about contraceptive use more thoroughly with adults than with adolescents).
- **Missing questions.** We only know the answers to the questions that we ask. And even when we ask questions, we must consider whether the answers provide the information we seek. For example, does our traditional question about satisfaction with the timing of pregnancy really tell us about pregnancy intention? This decades-old question, on almost every major reproductive health survey, asks whether a woman wanted to become pregnant and if so, did her current or latest pregnancy come at the right time, too early, or too late? Those who respond “too early” are categorized as having had unintended pregnancies. But do women believe that a “too early” pregnancy was unintended or do they have a richer, more complex, way of thinking about pregnancy intention? Is “pregnancy intention” a universal concept or are there women who do not think about planning a pregnancy?

Analytic/Presentation Biases: Are Reported Estimates of Incidence, Prevalence, or Associations Appropriately Derived and Described?

Are the presentation of data, data analysis, and interpretation of findings logical and consistent with what is known about the exposures, the outcomes, and their associations? Some considerations:

- **Confounding.** A confounder is any variable(s) that is associated with both the exposure and the outcome. This association is so strong that the confounding variable must be considered in interpreting the association between the exposure and the outcome. Common confounders are age and sex. There are many ways to adjust for confounders in study design or analysis. In simple data presentations, we often expect to see stratification by confounders. For example, birth outcomes data from national and state birth certificates are often stratified by age of the mother, as it is known that poorer birth outcomes occur to women at either end of the age spectrum.
- **Missing data.** In reproductive health, we are often interested in sensitive matters like contraceptive use, sexual behaviors, sexual orientation, experience of violence, and drug use. Questions perceived as too personal may remain unanswered on a survey or left blank in routine surveillance. When data are presented, it should be very clear if some measures have missing data, as that reflects the quality of the measure. It is a mistake to only look at the survey response rate: one cannot assume that all respondents answered all questions. Individual-item response rates could be very low. Item non-response is not only caused by people who refuse to respond; some individuals do not know the answers. Survey researchers suggest that individuals who do not respond because they do not know the answers may do so in response to a sensitive item or because of the cognitive difficulty of the question and/or response.
- **Conclusion.** Surveillance data are wonderful resources—and we can make the best use of them by understanding what the data mean. Imperfections in

Definitions of Some Widely Used Reproductive and Sexual Health Indicators

Abortion Rate. The number of abortions annually per 1,000 women aged 15–44.

Adolescent Birth Rate. The number of live births to women aged 15–19 years in a year divided by the midyear population estimate of adolescent women aged 15–19 years.

Adolescent Pregnancy Rate. The sum of births, abortions, and miscarriages to women aged 15–19 years in a year divided by the midyear population estimate of adolescent women aged 15–19 years.

Contraception. Method for preventing pregnancy, including permanent procedures (e.g., vasectomy for men, tubal ligation for women) and temporary measures (e.g., hormonal implant, birth control pill, emergency contraceptive pills, intrauterine device, diaphragm, female condom, male condom, spermicidal foam/cream/jelly, sponge, cervical cap, abstinence, natural family planning, calendar rhythm, withdrawal).

Fertility. The ability to become pregnant through normal sexual activity.

Fetal Death. Definitions vary, but usually this refers to the death of a fetus that occurs after the 20th week of pregnancy, but prior to birth, during a specific time period.

Incidence. The rate at which new cases of a condition occur in a population during a specified period of time.

Induced Abortion. The intentional termination of a pregnancy. Several methods may be used to terminate a pregnancy, including medication services and surgical procedures.

Infertility. A couple, or an individual, is considered infertile if they have tried to conceive for 12 months or longer without the use of contraception and have not become pregnant.

Parity. The number of live births a woman has had.

Prevalence. The proportion of persons in a population that have a specific condition at a specified point in time or over a specified period of time.

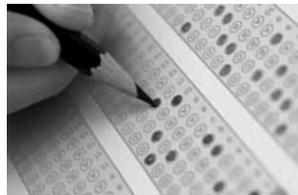
Spontaneous Abortion. An unintentional pregnancy loss before the 20th week of pregnancy.

STI. Sexually transmitted infection, including bacterial infections (e.g., chlamydia, gonorrhea, syphilis) and viral infections (e.g., HIV, genital herpes, HPV).

sampling, data collection, and analysis do not have to limit the contributions of surveillance data. We have the capacity to understand limitations (if not entirely quantify them). If we interpret data fairly and comprehensively, they become understandable and useable. Surveys and surveillance systems give us factual knowledge about salient exposures and the incidence and prevalence of health conditions: they describe the health status of populations. They allow us to examine trends (over time, over place, over groups of people) and to identify opportunities and barriers to optimal health. They provide the basis

for our aims to reduce health inequities or inequalities: without surveillance data, we could not have *Healthy People* goals for our nation. Our careful interpretation of surveillance data can identify unmet needs and can frame the research questions that we need to promote evidence-based public health policies and programs.

■ Wendy Hellerstedt, MPH, PhD, is an Associate Professor in the Maternal and Child Health Program and Director of the Center for Leadership Education in Maternal and Child Public Health at the University of Minnesota.



Abortion Surveillance:

A Critical and Complex Activity

Abortion—its availability and legality—generates controversy. As a result, abortion surveillance is complex and incomplete, globally and in the U.S.^{1,2} The best abortion surveillance is in countries where it is legal, while data from countries where abortion is not legal are not reliable. Perhaps the only thing we know about countries where abortion is not legal is that it is an important source of maternal mortality because it is not safe. In countries where abortion is legal, it is safe and not associated with significant maternal mortality.

Abortion may be a stigmatized procedure even in countries where it is legal. Providers may not report all of the abortions they perform and women may not be willing to disclose having received an abortion when queried by survey researchers. Because abortion data are critical for assessing the magnitude of unwanted pregnancies and unmet needs for family planning services, and because many surveillance systems have gaps in reporting, researchers often combine surveillance reports, including official statistics (those reported to governmental public health agencies) and population-based surveys, to estimate population incidence and trends in abortion.

Global Surveillance of Abortion Incidence and Trends

The Guttmacher Institute is considered a reliable source for U.S. and international abortion data. In the first assessment of worldwide abortion rates in nearly a decade, Sedgh and her colleagues from Guttmacher estimated the 2003 abortion incidence and trends in abortion in several countries.² Their process reflects the challenges of abortion surveillance.

The authors limited their examination to countries where abortion was legal (to assure data reliability); where abortion was generally available; and that had populations of at least one million people in 2003. Of the 66 countries deemed eligible, the authors combined both official statistics and population-based surveys for each country to obtain comprehensive data and account for gaps in reporting. They also engaged local experts to assess the

completeness of data from their country; “completeness” was defined as including at least 80% of all legal abortions.² Thus, the researchers accepted that significant undercounting was the norm.

Following these criteria, Sedgh, et al. were only able to obtain reliable data from 60 of the 66 selected countries. Of those, only 33 had data that were at least 80% complete; 16 countries had incomplete data and the researchers could not verify the completeness of data from 11 others. Of the 33 countries with “complete” data, the U.S. was one of only four countries for which the authors could not depend primarily on government surveillance for representative abortion data.²

Sedgh et al. found that abortion surveillance from the 33 countries did not routinely include information about the characteristics of the involved women, so they could not characterize the women in greatest need of contraceptive services. Surveillance data also did not routinely



“The United States has one of the highest abortion rates in the developed world, with women from every socioeconomic, racial, ethnic, religious and age group obtaining abortions. We study abortion so we can learn more about how well current efforts to improve contraceptive use and reduce unintended pregnancy are working, the circumstances under which women have difficulty accessing abortion and, ultimately, how to reduce the need for abortion.”

—Lawrence Finer, Director for Domestic Research, Guttmacher Institute

include whether the procedure was medical or surgical, so abortion service provision could not be evaluated.²

Despite the limitations of their assessment of global trends in abortion in 2003, Sedgh et al. concluded that:

- Of the 33 countries examined, more experienced a decline in legal abortion than an increase between 1996 and 2003.
- The greatest declines were in Eastern Europe and Central Asia, where abortion rates were the highest among the countries examined.
- The U.S. abortion rate, while decreasing 8% between 1996 and 2003, was higher than that of many Northern and Western European countries. In 2003, the U.S. abortion rate was 21/1000 women aged 15–44 years.
- In 2003, Cuba and the Russian Federation had the highest abortion rates, 57 and 45/1000 women, aged 15–44 years, respectively.
- While the researchers had incomplete data from China, they noted that it accounted for one-third of all legal abortions in 1996. In 2003, its rate of abortion appeared to decline by 21% (given the data available). This decline, if accurate, coincided with the increased use and effectiveness of the IUD in China and a national emphasis on improving the quality of family planning services.³

Government or Non-Governmental Surveillance?

The Centers for Disease Control and Prevention (CDC) defines legal abortion as “a procedure, performed by a licensed physician or someone acting under the supervision of a licensed physician, that was intended to terminate a suspected or known intrauterine pregnancy and to produce a nonviable fetus at any gestational age.”⁴ In the U.S., official abortion statistics come from the CDC.⁵ However, CDC data are known to be incomplete and the most complete source of abortion data for the U.S. are from the independent, non-profit Guttmacher Institute. Both surveillance systems have been used to: “(1) identify the characteristics of women who are at risk for unwanted pregnancies; (2) monitor temporal trends; (3) compare abortion utilization between

THE CDC AND THE GUTTMACHER INSTITUTE CONDUCT ABORTION SURVEILLANCE WITH DIFFERENT SOURCES:

- The CDC began abortion surveillance in 1969 to document the number of women receiving legal abortions, as well as to document characteristics of women who received abortions, such as age, marital status and race. The CDC compiles annual abortion reports from data that are voluntarily submitted by state health departments. The data are incomplete, in part because not all states require abortion reporting and states that do differ in abortion collection protocols and the completeness of reporting. The data on the characteristics of women who receive abortions, even if their abortions are counted by the CDC, are often missing. A report of 2004 abortions showed that almost half of

the data were missing information on gestation of pregnancy, marital status, and race; only about one-third had information about Hispanic ethnicity.⁴

- The Guttmacher Institute, an independent non-profit, has been collecting information on the total number of abortions from providers since 1974. It does not collect information on the characteristics of women who receive abortions.¹

Since the Guttmacher Institute began comparing its reports with those of CDC (in 1977–78), the CDC count of abortion has been lower than that of the Institute. In recent years, the CDC reports have included 65%–69% of the abortions estimated by the Guttmacher Institute.¹

states and nations; and (4) guide legislative actions and research initiatives.”⁶ Abortion data are also used—with birth data and fetal death data—to calculate pregnancy rates. Abortion surveillance also has the potential to provide data to assess changes in medical practices. For instance, the CDC recently began monitoring the use of medical abortions, which are procedures that use abortifacient substances, or medications, rather than surgical procedures.⁷

Abortions in the United States

Each year, the CDC compiles and analyzes the data they receive and releases a Morbidity and Mortality Weekly Report dedicated to abortion surveillance. The most recent report was released November 28, 2008 and featured 2005 abortion surveillance data.⁴ This report indicated that in 2005, 49 reporting areas reported a total of 820,151 induced abortions. A Guttmacher Institute report about trends in abortions in the U.S. from 1974 to 2004 estimated that the number of abortion in 2005 was much higher than the CDC report: 1,206,200 abortions.¹ This report, using its provider surveillance data and District of Columbia data, also reported that:

- Rates of abortion in the U.S. were highest soon after it was legalized in 1973 and have declined steadily since the 1980s.

- A substantial drop in abortion rates among teenagers and women aged 20–24 years accounts for much of the decline in abortion between 1989 and 2004.

- In 2004: 57% of the abortions were obtained by women in their 20s and 7% were obtained by women younger than 18 years old; 86% of the abortions were to unmarried women; white women had the lowest abortion rate (11/1000 15–44 year-old women) and black women had the highest rate (50/1000 15–44 year-old women); 37% of all abortions were to black women; 52% of women who had abortions reported having no prior abortion.

- Almost 90% of all abortions occurred during the first 12 weeks of gestation. This percentage has been constant since abortion was legalized. Data on the percent of abortions that occur after 20 weeks are not good, but it is estimated that they account for 1%—or fewer—of all abortions.

Abortion Surveillance in Minnesota

In Minnesota, all licensed physicians and facilities performing abortions must submit a report to the Minnesota Department of Health (MDH) on every abortion that is



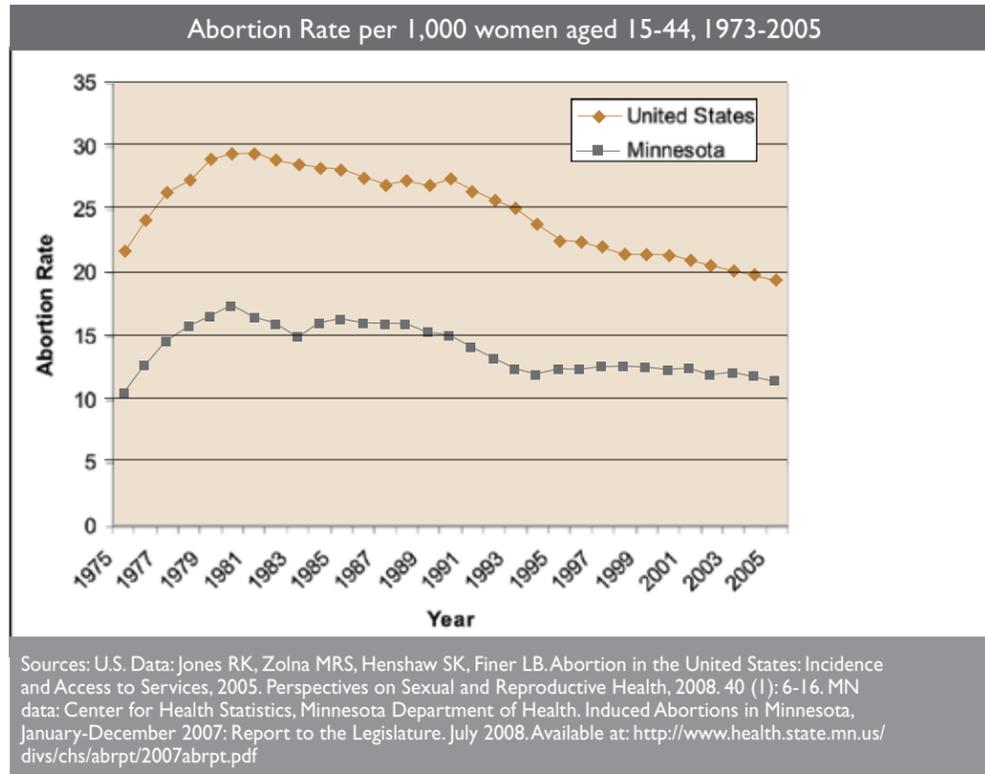
performed (Minnesota Statutes sections 145.4131-145.4136). According to Carol Hajicek from MDH's Center for Health Statistics, the providers send paper records on each abortion to MDH, where each record is keyed into an electronic database. Aggregate data alone, not individual record information, are sent to the CDC annually. In addition to submitting abortion data to the CDC, MDH prepares a report for the Senate Health and Family Security Committee and the House Health and Human Services Committee, as required by law.

The yearly report gives the number of induced abortions in the previous year and contains summary data about age, marital status, county or state of residence, race/ethnicity, and education level of the woman receiving an abortion. This document also reports contraceptive use and method and the reason given for the abortion.

Difficult, but Necessary, Data Collection

Abortion surveillance data are essential to understanding the breadth of pregnancy outcomes.⁴

While there are challenges to collecting abortion data, reliable and valid data also contribute to assuring reproductive health services. They are, ultimately, our best source of information about gaps in family planning services. Trend data, and geographic comparisons, allow us to



evaluate whether reproductive health care policies are effective in allowing women and couples to meet their fertility needs. When we have information on the characteristics of women who obtain abortions, we are also able to identify possible inequities in the provision of, or access to, family planning services. Because of the importance of abortion data, one challenge to reproductive health professionals is how to reduce the stigma associated with the procedure. In doing so, we optimize our ability to collect reliable and valid data that allow us to develop the kinds of programs and policies that will help women and couples meet their fertility intentions.

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Material for this article provided by Wendy Hellerstedt, Julia Johnsen, and Andrea Mayfield.

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Perspectives on Reproductive Health Surveillance in India: An Interview with Dr. Karthik Srinivasan



Dr. Karthik Srinivasan started the Master of Public Health (MPH) program in Maternal and Child Health (MCH) in 2007, after spending several years as an obstetrician/gynecologist in his native India. There, he gained extensive experience in offering services in clinical medicine, social obstetrics, and infectious diseases in resource-poor settings. He also developed expertise in surveillance as a monitoring and evaluation consultant for a Bill and Melinda Gates Foundation-funded HIV prevention program in India. In addition to surveillance, he has also designed and conducted cross-sectional and field epidemiological studies in India. Since matriculating into the MCH program, he has found another home at the University of Minnesota. Dr. Srinivasan has become a student leader and a popular and talented teaching assistant for several courses in reproductive health and evaluation methods. His knowledge of global reproductive health is vast—and his teaching skills are well developed.

When Dr. Srinivasan completes his MPH in summer 2009, he intends to continue working in HIV prevention with a focus on vulnerable populations. He will also offer consulting services for training and evaluation of reproductive health programs for non-profit, non-governmental organizations in India. Before he leaves our MCH Program, we asked him to share his perspectives on reproductive health surveillance in India.

Healthy Generations (HG): You have done a great deal of research and practice in India. What surveillance data (either global or national) have been useful to you—and why?

Karthik Srinivasan (KS): Surveillance data in India are often of variable quality and can be outdated. One of the best surveillance data sources for India is the National Family Health Survey (NFHS) (<http://www.nfhsindia.org/>). The survey provides state and national information about MCH issues, including fertility, infant and child mortality, family planning, reproductive health, nutrition, anemia, and health care utilization. It is comparable to the National Survey of Family Growth (NSFG) in the U.S., but it is newer (it began in 1992–93) and it is conducted less frequently than NSFG, with the most recent data from 2005–06. While the World Health Organization (WHO) has deemed the data to be of good quality, it is nevertheless a

household survey of families and married individuals, so there is little information for groups other than families.

I have also used data from behavioral and biological surveillance studies for specific groups. The issues with these surveillance data are that, while they are rich and of good quality, they are very hard to find and are usually only disseminated locally.

Sometimes the best way to find such data for countries or regions is by reviewing the reference lists of reports from global health organizations like the WHO (<http://who.int/en>) or the Joint United Nations Programme on HIV/AIDS (UNAIDS; <http://www.unaids.org/en/>). In addition to UNAIDS and WHO, other good resources of global reproductive health surveillance data are the Centers for Disease Control and Prevention (CDC; <http://www.cdc.gov/Reproductivehealth/Surveys/index.htm>) and the Guttmacher Institute (<http://www.guttmacher.org>).

HG: What kind of surveillance data about India have you needed—and have not had?

KS: The majority of my work in India has been with stigmatized populations (e.g., commercial sex workers, IV drug users, individuals living in extreme poverty). It has been difficult to find data for most reproductive health indicators for these individuals. Most of the surveillance for such groups has been

passive—with estimates from routine reporting data—limiting the scope and the accuracy of the data. I have needed demographic data (e.g., age distribution, baseline health status, literacy levels, geographical distribution) for these populations, but I have only had access to data from small, non-representative surveys. More importantly, I have needed information about the health behaviors, disease prevalence (e.g., STIs, HIV), and individual-level risk factors for stigmatized individuals and that has been very difficult to find.

Obtaining good data about stigmatized conditions (e.g., STIs, HIV, abortion) in India has also been difficult because of limited surveillance and an over-dependence on behavioral and biological surveillance reports. Many studies use snowball or respondent-driven sampling (RDS) methods and they can lead to biased estimates. Sentinel surveillance reports from various resource-limited settings are also often limited because of biases associated with the quality of site or sample identification.

Some data are just not available in India because of cultural or socio-political reasons. For example, we don't have information about the sexual health needs of unmarried men and women because, culturally, sexual activity is always linked

to marriage. I have had a tough time even estimating basic reproductive health indicators, like contraceptive needs, for unmarried people.

For Indian people overall, data on MCH mortality and morbidity indicators have been limited, outdated, and of poor quality since they are primarily derived from health service records. While one might think that mortality data are easy to obtain, because death is an easily identifiable event, there are issues with misclassification and the definition of “maternal deaths” because we depend on health service records.

HG: What do you think are priorities (met or unmet) for good reproductive health surveillance in India?

KS: Some of the most pressing public health issues in India have been the unmet need for MCH services (preventive and curative). While meeting the needs for MCH services is a national priority, progress has been slow and varied across the country. Unmet reproductive health surveillance in India includes an urgent need for data about unplanned pregnancies, coverage of family planning services, abortion (including illegal and unsafe abortions), and maternal morbidity. Surveillance on reproductive cancers and STIs is also limited because there are no national screening programs and there is limited use of advanced diagnostic testing. For example, nucleic acid amplification testing for chlamydia is standard in the U.S., but in India it is used primarily for research and biological surveillance samples. One major limitation of surveillance data in India has been the heavy dependence on service utilization records.

It is interesting that Indian public health officials have recently started surveillance on “near-miss cases of maternal mortality.” While the term is somewhat confusing, this means surveillance on maternal morbidity, so data are collected about mothers who have a hospital stay because of a pregnancy or childbirth complication.

HG: Are there any organizations and/or data sources that you would encourage our readers to check out to increase their general reproductive health knowledge or their knowledge about specific topics, like HIV?

KS: I collect information from multiple credible sources and synthesize them for teaching, research papers, or program planning. I recommend that individuals review a variety of reports and publications from the web and peer-reviewed journals rather than use a single source if they are interested in reproductive health indicators in developing countries. Some of the best sources are from the global or national health organizations like the WHO, the CDC, the Population Council (<http://www.popcouncil.org/>), and Family Health International (<http://www.fhi.org/en/index.htm>). The World Bank (<http://www.worldbank.org/>) is great for economic analyses and reports about the impact of poverty on reproductive health.

I review surveillance reports when they become available and I compare current and past reports. This has helped me track the course of a reproductive health indicator and understand how changes in classification, estimation, and definitions influences surveillance data. A classic example of a reproductive indicator that has had tremendous changes in surveillance methods and estimated prevalence and

incidence is HIV/AIDS, which was first reported in the late 1980s.

Reproductive health surveillance data may be biased and it is important for me to understand the methods used to collect and analyze the data I use, so I can assess their limits and strengths. Good sources of data will provide the user with details about their surveillance methods and limitations. For example, the UNAIDS has a useful description of how it computes HIV/AIDS estimates and the limits to its methodology (<http://www.unaids.org/en/KnowledgeCentre/HIVData/Methodology/default.asp>).

When I am researching global reproductive health, I also depend on peer-reviewed journals. The ones I use most frequently are:

- *Perspectives on Sexual and Reproductive Health* (<http://www.guttmacher.org/archive/PSRH.jsp>)
- *Contraception* (<http://www.contraceptionjournal.org/>)
- *Sexually Transmitted Infections* (<http://sti.bmj.com/>)
- *AIDS* (<http://journals.lww.com/aidsonline/pages/default.aspx>)
- *New England Journal of Medicine* (<http://content.nejm.org/>)

BIRTH REGISTRATION IS A HUMAN RIGHTS ISSUE

Birth registration is one of the most common forms of surveillance, but about 51 million births are not registered every year in developing countries—40% of all newborns. Unregistered children are almost always from poor, marginalized or displaced families or from countries that have dysfunctional birth registration systems. South Asia has the largest number of unregistered children (about 23 million unregistered births in 2006). Sub-Saharan Africa has the highest percentage of children younger than 5 years who are not registered at birth (66%).

Lack of registration denies individuals the right to a legal name and to a nationality. It also denies individuals the right to access many

basic needs, including health care; immunization; school enrollment; passports; bank accounts; voting rights; and protection from child labor, child marriage, or child military service. Lack of registration makes abolishing child sex trafficking and child labor crimes difficult, if not impossible.

Because birth registration means so much more than population surveillance—and is considered a child’s first right—many agencies (e.g., UNICEF, WHO) have developed programs to increase birth registration in developing countries. For more information, go to http://www.unicef.org/protection/index_birthregistration.html



Sexually Transmitted Infections: Surveillance of Stigmatizing Conditions

Julia Johnsen, MPH, Wendy Hellerstedt, MPH, PhD



WHAT'S IN A NAME? SEXUALLY TRANSMITTED INFECTIONS OR SEXUALLY TRANSMITTED DISEASES?

In the past, it was more common to refer to STIs as sexually transmitted *diseases* (and in the more distant past, as *venereal diseases*). Many people prefer the word *infection* because many STIs are curable and many afflicted individuals do not have a *disease*. An STI can be a stigmatizing condition and the word *infection* may have less emotional weight than *disease*.

Estimating the Magnitude of Sexually Transmitted Infections

STI surveillance is coordinated through the Centers for Disease Control and Prevention (CDC). Approximately 19 million Americans acquire a new STI each year²—but this estimate is more than a decade old. The direct medical costs associated with STIs in the U.S. may be as high as \$15.3 billion dollars (in 2007

“Despite the tremendous health and economic burden of STDs, the scope and impact of the STD epidemic are underappreciated and the STD epidemic is largely hidden from public discourse. Public awareness and knowledge regarding STDs are dangerously low, but there has not been a comprehensive national public education campaign to address this deficiency.”¹

A sexually transmitted infection (STI) is an infection that is *usually* passed from person-to-person through oral, vaginal, or anal sexual contact. An STI can also be transmitted through needle sharing. Infected pregnant women are at risk of infecting their infants: some STIs can cross the placenta (e.g., syphilis) and some can be transmitted from mother to infant during delivery (e.g., gonorrhea, chlamydia, genital herpes). HIV can cross the placenta, infect the infant during delivery, and—unique to HIV—infect the infant through breast milk.

dollars).² STIs disproportionately affect people early in their reproductive lives: while 15–24 year-olds represent only 25% of those who have ever been sexually active, they account for nearly half of all new STI cases.³ In Minnesota, adolescents and young adults accounted for 69% of chlamydia and 59% of gonorrhea cases in 2008.⁴ It makes sense that incident cases occur among those who are initiating causal behaviors: young people often have not established patterns of sexual negotiation and infection protection.

In considering the magnitude of STIs, it is important to remember:

- Many STIs are asymptomatic and not likely to be reported to health-care providers. Thus, they are not likely to be reported to public health professionals for surveillance purposes.
- The U.S. only collects data about select STIs: the “notifiable” STIs are not necessarily the most common STIs.
- STIs—because of their association with sexual activity—are stigmatizing conditions in most cultures. Stigma prevents individuals from seeking diagnosis and treatment; it may also

affect provider screening or reporting behaviors.

In sum, many cases of “notifiable” STIs are not diagnosed (and thus not reported) and some common infections (e.g., genital herpes, human papillomavirus) are not included in national surveillance efforts.

The Health Burden of Sexually Transmitted Infections

STIs are a major cause of acute illness, long-term disability and even death. For example, some types of the human papillomavirus (HPV) cause cervical cancer, and, less commonly, cancers of the vulva, penis, and anus. STIs are also associated with other reproductive cancers, liver diseases, infertility, pelvic inflammatory disease (PID), and pregnancy complications. Individuals with STIs are at 3–5 times higher risk than non-infected individuals to acquire other STIs, including HIV, if exposed.⁵

Chlamydia is the most commonly reported infectious disease in the U.S. with 1,108,374 cases reported in the U.S. in 2007.² It is easily cured with antibiotics, but about 70% of

infections in women are asymptomatic, so women may not seek treatment.⁶ Up to 40% of females with untreated chlamydia may develop PID and up to 20% of those women may become infertile.² Complications for men are uncommon, but may include epididymitis and urethritis, which can cause pain, fever, and in rare cases, sterility.²

Gonorrhea is the second most commonly reported STI in the U.S. with 355,991 cases reported in 2007.² Like chlamydia, gonorrhea is easily cured with antibiotics but may be asymptomatic in up to 50% of cases.⁶ Gonorrhea is also a major cause of PID.⁷

While gonorrhea and chlamydia may be the most commonly reported STIs, they are not as widespread as some STIs for which there is no standard surveillance. For example, it is estimated that approximately 20 million Americans are infected with human papillomavirus, with 6.2 million new infections occurring every year.⁸

Syphilis is the third major reported STI in the U.S. and it is often described by stage of disease. In 2007, there were about 11,500 infectious syphilis (i.e., primary and secondary, or P&S) cases; there were approximately 11,000 cases of early latent infection and about 18,000 cases of late/late latent infections. There were an additional 430 cases of congenital syphilis (i.e., the infection was passed from mother to child).² Syphilis is a bacterial STI and easy to cure if caught early. Unfortunately, its signs and symptoms are similar to those of other diseases and many afflicted individuals do not experience symptoms for 10–20 years after exposure. Individuals in the late stage of the infection may have damage to the

brain, nerves, eyes, heart, blood vessels, liver, bones, and joints. They may have problems with coordination, numbness, paralysis, blindness, and dementia.

There is a national campaign to eliminate syphilis because it has the potential for eradication. It can be cured (if caught early), it is geographically concentrated in the U.S. (about 50% of P&S cases are from just 20 counties and two cities), and it is relatively rare (about 41,000 cases reported/year). Despite the national campaign, between 2006 and 2007, the reported cases of syphilis increased in the U.S. by 11%.²

National Surveillance of Sexually Transmitted Infections

Prior to 1900, “venereal diseases” were considered a moral problem, not a public health problem. Thus, STI surveillance in the U.S. lagged behind surveillance of other infectious diseases. When STIs became viewed as a medical condition in the 1910s, surveillance first began in California and New York. By the 1930s, surveillance was conducted by several states.⁹

While there are more than two dozen major bacterial, viral, or parasitic STIs, surveillance in the U.S. has focused on only a few of them (i.e., “notifiable” infections): chlamydia, gonorrhea, syphilis, HIV, and chancroid. Data for some other STIs (e.g., herpes simplex virus-type 2, human papillomavirus) are obtained periodically through clinic reports and surveys.

The overarching goals of STI surveillance are to **control** and **prevent** infections by:

- Identifying and/or monitoring priority

or vulnerable population groups (e.g., through sentinel surveillance) or individuals (e.g., partner notification);

- Monitoring temporal and geographic trends in health outcomes and health services; and
- Providing data to support clinical and behavioral interventions and public health policies.

The CDC has compiled annual surveillance reports about chlamydia, gonorrhea and syphilis in the general population and in vulnerable groups (e.g., men who have sex with men, racial and ethnic minorities, women, adolescents) since the 1980s.² These reports are based on the following sources of data for general and sentinel populations:

- Case reports from state and local STI programs;
- Regional Infertility Prevention Projects (<http://www.cdc.gov/std/infertility/ipp.htm>);
- The National Job Training Program (specifically chlamydia among young people);
- The Corrections STD Prevalence Monitoring Project;
- The Chlamydia Prevalence Monitoring Project (<http://www.cdc.gov/STD/chlamydia/chlamydia-stats-all-years.htm>);
- The Men Who Have Sex With Men (MSM) Prevalence Monitoring Project (<http://www.cdc.gov/STD/stats07/msm.htm>);
- The Gonococcal Isolate Surveillance Project (GISP) (<http://www.cdc.gov/std/gisp/>);
- Indian Health Service data; and
- National surveys implemented by federal and private organizations.

Types of Surveillance

As described by the CDC,¹⁰ there are three major forms of surveillance:

Passive surveillance refers to a system in which health authorities receive information through a standardized reporting system. Passive surveillance programs may receive data from hospitals or physicians or they may create reports from administrative databases (e.g., electronic medical records,

Medicaid data, vital records). While reporting is often mandatory, this system is considered “passive” because health authorities take no action to receive reports. Passive surveillance can be inexpensive but reporting can be incomplete, often producing data that underestimates risk.

Active surveillance requires a commitment of time and resources because it involves outreach on the part of health authorities. Instead of relying on data sources to report to a surveillance system, or on analyses of secondary data, surveillance staff identify potential cases, abstract information from multiple data sources, and follow-up on each case to verify information. Surveillance staff may visit or call laboratories, clinics, or health-care providers to stimulate reporting. Because active surveillance can be very expensive, it is usually limited to outbreaks or special initiatives to eradicate an infection, like the national plan to eliminate syphilis.

Sentinel surveillance involves monitoring the infection trends in a specific cohort (e.g., men who have sex with men, blood donors, military personnel, pregnant women), geographic area (often large metropolitan areas), or site (e.g., clinics, physician networks, hospitals). Sentinel surveillance can efficiently estimate risks in high-risk populations and, often, in the general population. The design of sentinel surveillance depends on the epidemiology of the infection, its risk factors and how common it is. Using HIV as an example: two—potentially independent—risk factors for exposure are male homosexual activity and intravenous (IV) drug use. Thus, “sentinel” surveillance in the U.S. is conducted specifically in two high-risk groups: men who have sex with men and individuals in corrections facilities (i.e., those at high risk for IV drug use).

The advantage of sentinel surveillance is that it can be less expensive than active surveillance and the data can be of higher quality than data collected through passive surveillance. A disadvantage is that the sample may not represent the intended sample (especially if that sample is hard to locate because of stigma or historical disenfranchisement). The GISP is an example of sentinel surveillance in the U.S.: it monitors antibiotic resistance patterns in gonorrhea by conducting surveillance in STI clinics.

HOW DOES MINNESOTA CONDUCT STI SURVEILLANCE?

The Minnesota Department of Health (MDH) uses the following sources of STI data:

Case reports. Under state law both physicians and laboratories must report lab-confirmed infections of chlamydia, gonorrhea, syphilis, and chancroid to the MDH within one working day. Other common sexually transmitted conditions, such as herpes simplex virus (HSV) and human papillomavirus (HPV), are not reported to the MDH.

Partner Services Program. All early syphilis cases reported to the MDH are referred to the Partner Services Program to ensure treatment of patients and their sexual partners. Additional surveillance data are collected through this process, including information on sexual behavior and drug use.

Gonococcal Isolate Surveillance Project. As part of the Gonococcal Isolate Surveillance Project (GISP) funded by the CDC, the MDH

monitors antimicrobial susceptibilities of *Neisseria gonorrhoeae*. A Minneapolis STI clinic submits isolates on a monthly basis to the MDH, which performs the susceptibility testing. Sociodemographic and behavioral data for each case are also submitted. The MDH also conducts testing on additional isolates collected outside of the GISP project from a St. Paul STI clinic.

Minnesota Infertility Prevention Project (MIPP). Minnesota participates in the national Infertility Prevention Project (IPP) funded by the CDC. Through IPP, the MDH funds clinics across the state to provide testing and treatment for chlamydia and gonorrhea to 15–24 year-old men and women. Participating clinics submit demographic and clinical data to MDH on every test performed. With information on positive as well as negative tests, prevalence (or positivity) rates for chlamydia and gonorrhea are calculated and monitored.

For information about STI surveillance in Minnesota, please visit: <http://www.health.state.mn.us/std>.

Future Directions in the Surveillance of Sexually Transmitted Infections

There are several challenges to STI surveillance:

- The **completeness** of reports is affected by both under-detection and under-reporting.
- **Timely** reporting is critical to identify outbreaks and to mobilize the public health community to reduce the spread of infection. Timeliness is difficult to assure, especially in situations where surveillance is conducted passively.
- **Comparing trends over time or geographic areas** can be compromised if analysts do not have access to information about changes in case definition, health care access, or practices associated with screening, partner notification, or reporting practices. Trends may be real or related to changes or differences in reporting or intervention protocols. For example, an increase in reported chlamydia infections should be expected after the implementation of universal screening in a state or region. One might also expect to see a decrease in chlamydia rates if there is a dramatic decrease in the use of screening services in

a region, perhaps related to clinic closings or significant loss of health insurance in a population.

- **There are many STIs—and they have a variety of consequences.** This translates into the need for a very complex, expensive system to comprehensively evaluate and monitor trends and emerging issues.

STI surveillance is valuable because STIs represent a health burden to many individuals. If health care providers and public health professionals have access to timely, accurate, and comprehensive data they can plan the clinical management of STIs as well as develop behavioral interventions and prevention programs to reduce STI transmission. To enhance understanding of STIs, future surveillance or monitoring efforts may:

- assess the economic benefits of STI prevention efforts (e.g., what are the costs of averting the potential consequences of chlamydia through treatment?);
- assess the efforts of public health and clinical interventions (e.g., what is the effectiveness of the HPV vaccine?);
- continue development of media and Internet resources for STI reporting. For example, the Global Public Health

SURVEILLANCE IS A COMPONENT OF THE NATIONAL SYPHILIS ELIMINATION EFFORT

In 1999, the Division of Sexually Transmitted Disease Prevention at the CDC announced a national plan to eliminate syphilis in the U.S. According to the CDC, the plan has five strategies to achieve elimination: “(1) **enhanced surveillance**; (2) strengthened community involvement and partnerships; (3) rapid outbreak response; (4) expanded clinical and laboratory services; and (5) enhanced health promotion.” The plan has not been successful, but it has not been abandoned.

Between 1999 (the inception of the elimination plan) and 2004, syphilis rates increased 68%; CDC analyses suggest that 64% of this increase was among men who have sex with men. Go to <http://www.cdc.gov/std/SyphSurvReco.pdf> for a description of national plans for syphilis surveillance in the U.S. and to <http://www.cdc.gov/stopsyphilis/plan.htm> for a description of the national plan to eliminate syphilis.



Intelligence Network (developed by Health Canada and the World Health Organization) can deliver—in real time and in seven languages—information about infections and outbreaks as they are occurring. This network does not focus on STIs—and much of its data needs to be verified—but it provides a prototype for emerging STI problems;

- continue to monitor sentinel populations to understand race disparities or disproportionate risk among select populations (e.g., military personnel);
- monitor the usefulness of new means of STI testing (e.g., self-obtained vaginal swabs, home kits);
- expand investigation of sources of exposure to allow identification of new or unusual routes of transmission (e.g., develop accessible models to examine the social dynamics of transmission or the geographic concentration of infections);
- develop mechanisms to understand the nature of STI-specific stigmas and how they might affect the quality of surveillance data;
- identify whether less specific measures of risk (e.g., syndromes, unspecified infections, morbidities associated with STIs) might enhance the quality of standard surveillance systems; and

- expand surveillance of antibiotic resistance to include STIs like chlamydia, herpes, and trichomoniasis, to guide clinical management of these infections.

For more information, please go to:

- National Institute of Allergy and Infectious Diseases, <http://www3.niaid.nih.gov/topics/sti/>
- Centers for Disease Control and Prevention, <http://www.cdc.gov/std/>
- To calculate STI morbidity by region, sex, and year, go to <http://wonder.cdc.gov/std.html>.

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- Julia Johnsen, MPH, is the Director of Community Outreach for the Center for Leadership Education in Maternal and Child Public Health, University of Minnesota. Wendy Hellerstedt, MPH, PhD, is an Associate Professor in the Maternal and Child Health Program and Director of the Center for Leadership Education in Maternal and Child Public Health at the University of Minnesota.

HIV/AIDS SURVEILLANCE

In 2008, reporting systems for confidential, name-based reporting of HIV case data were fully implemented in all 50 states, the District of Columbia, and five dependent areas (American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands). This marked an important milestone in HIV/AIDS surveillance efforts. **U.S. HIV diagnoses increased 15% from 2004–2007** in the 34 states that have used name-based HIV case reporting for at least four years, according to the 2009 HIV/AIDS Surveillance Report, released in February 2009. The observed increase may be due, in part, to changes in state reporting regulations and HIV testing practices. A national comparison of HIV infection rates will be available in 2013, when all states will have mature surveillance systems.

To view most recent Surveillance Report from the Centers for Disease Control and Prevention, please visit: <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/2007report/default.htm>

For information on additional surveillance activities at the CDC, please visit: <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/index.htm>

Definitions important to HIV/AIDS Surveillance

Reported Cases: are those cases reported during a given year to the CDC from local and state health departments. Currently all 50 states, the District of Columbia, and five U.S. dependent areas report HIV cases to CDC. Reported cases are the basis of the estimated cases.

Estimated Cases: are the reported cases after adjustments have been applied by CDC. Only states that have been conducting name-based HIV surveillance for at least four years are included. Estimated cases reflect the number of cases diagnosed during a given time period.

HIV/AIDS Diagnoses: include individuals diagnosed with HIV, at any stage of disease, in a given time period. HIV/AIDS diagnoses have historically served as a proxy measure for HIV incidence.

HIV/AIDS Prevalence and AIDS Prevalence: are the number of people living with HIV/AIDS or AIDS in a given population. Prevalence rates usually calculated per 100,000 people.

HIV incidence: is the number of new HIV infections in a specific population during a specific time period.

Regional HIV/AIDS Surveillance Reports
Iowa http://www.idph.state.ia.us/adper/hiv_aids_programs.asp#surveillance
Minnesota <http://www.health.state.mn.us/divs/idepc/diseases/hiv/hivstatistics.html>
North Dakota <http://www.ndhiv.com/contact/>
South Dakota <http://doh.sd.gov/Disease/statistics.aspx>
Wisconsin <http://dhs.wisconsin.gov/aids-hiv/Stats/index.htm>



Adolescent Pregnancy and Childbearing

The early reproductive years are important because they establish the pace and level of fertility over a woman's reproductive lifespan. For that reason, the fertility of adolescents is of interest. When reporting pregnancy and birth data, it is common to define adolescents as those who are younger than 19 years old at the time of pregnancy termination (i.e., fetal loss, induced abortion, or birth of a live infant). Adolescent childbearing is associated with poor health, social, and economic consequences for the mother and her infant.^{1,2,3} For that reason, adolescence is the only age group for which there is general agreement that pregnancy (and especially childbearing) should be avoided.



Estimating Adolescent Pregnancy and Childbearing Rates

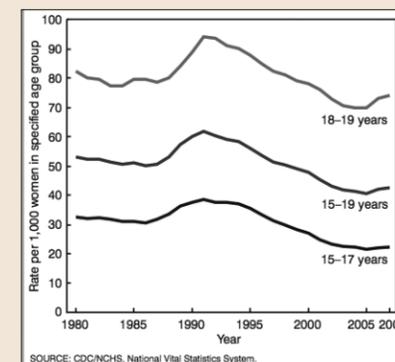
Adolescent pregnancy rates, like all pregnancy rates, are estimated with some uncertainty. Birth rates, however, are a matter of public record in the U.S. and are considered valid. National and state birth surveillance is conducted through birth certificates, which are registered for all births in the U.S. and reported by state health departments to the National Center for Health Statistics. Birth data are more valid than pregnancy data, because births are easily identified and uniformly reported. Pregnancy surveillance is much more complex. Pregnancy estimates in the U.S. are derived from birth, abortion, and fetal loss data. Each of these pregnancy outcomes is enumerated differently. Birth data come from the birth certificates. Abortion data are estimated from clinical data collected by the Guttmacher Institute and state abortion surveillance reported to the National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention (CDC). Fetal loss estimates are obtained from pregnancy history information collected by the National Survey of Family Growth, a periodic household survey of women and men, aged 15–44 years. Since the early 1990s, adolescent pregnancy

and birth rates in the U.S. and in Minnesota have been declining. In the U.S. in 2004 the adolescent pregnancy rate reached an historic low of 72.2 pregnancies per 1,000 women aged 15–19 years. The rates for 15–17 year-olds declined relatively more than those for 18–19 year olds.⁴ Adolescent pregnancy is multi-factorial, but some of the decline may be explained by trend data from the CDC's Youth Risk Behavioral Surveillance (YRBS) that shows, during the past decade, that (1) youth have delayed the onset of sexual activity; and (2) sexually active youth have increased contraceptive use.^{4,5}

The Declines in Adolescent Childbearing May be Stalled in the U.S.

The most recent childbearing data for the U.S. suggest that the progress in reducing adolescent childbearing may have stalled: birth rates for 15–19 year-olds in the U.S. rose 5% between 2005 and 2007, interrupting the 34% decline from 1991 to 2005.⁶ During this same time period, birth rates also rose for most adults. It is not clear if adolescent pregnancy rates also increased between 2005 and 2007 along with childbearing rates. National pregnancy estimates are typically a couple of years behind birth data because they are so complicated to derive (i.e., they involve

BIRTH RATES FOR TEENAGERS BY AGE: UNITED STATES, FINAL 1980–2006 AND PRELIMINARY 2007



Source: Hamilton, et al.⁶

abortion and fetal loss estimates, in addition to birth data). The most recent U.S. data on adolescent pregnancy are from 2004 because that is the latest year for which national data on abortion are available. The data from 2004 show a continuation of the long-term decline in adolescent pregnancy.

What about Adolescent Pregnancy and Childbearing in Minnesota?

In April 2008, the Minnesota Organization on Adolescent Pregnancy, Prevention

and Parenting (MOAPPP) released a report demonstrating a rise in adolescent pregnancy in Minnesota for the first time in 16 years. According to MOAPPP's estimates from 2005 and 2006 Minnesota data, the adolescent pregnancy rate increased 6% while the adolescent birth rate increased 7%.¹ Minnesota's increase in adolescent birth rates from 2005 to 2006 was twice as high (7%) as the national increase in these rates (3%) for the same period.⁶ This apparently greater increase may be explained, in part, by the fact that Minnesota has historically had one of the lowest rates of childbearing in the U.S. A small change in the number of adolescent births would have the greatest impact in states where the baseline number is low. In 2009, MOAPPP released a second report demonstrating a 2% increase between 2006–2007 in both the birth and pregnancy rates of 15–19 year-olds.

Stephanie Hengst (in 2007–08) and Amanda Atkinson (in 2008–09), students in the Maternal and Child Health Program at the University of Minnesota, spent some of their time in the MPH program working as Information and Management Resource Interns at MOAPPP. Among their duties was the integration and analyses of pregnancy and birth data from the Minnesota Department of Health, the Minnesota Student Survey, and county public health agencies. The results of these analyses, including the finding of an increase in adolescent pregnancy and birth rates from 2005 to 2006 and from 2006 to 2007, are in MOAPPP's 2008 and 2009 Adolescent Sexual Health Report.^{7,8} While the findings caused headlines, both students have urged caution in their interpretation. "Within the adolescent sexual health field, people were certainly surprised. They want to wait and see what happens in the next couple years to learn if this is a long-term trend, or a blip in the teen birth rates," commented Hengst.

It will take several years of data to know if Minnesota is experiencing a true increase in adolescent pregnancy and childbearing. Although the data are open to interpretation, Hengst emphasized the importance of making the data available to the public in a timely fashion. Hengst, Atkinson and their MOAPPP supervisor, Program Manager Jill Farris, MPH (an MCH Program graduate, featured in this volume), also worked to compile adolescent sexual health data from each of the 87 counties in Minnesota. Using these data Hengst, Atkinson, and Farris

Mother and Child



MCH student, Dinah Dafeamekpor, shared her thoughts on this photo: "I took this picture a few years ago in the greater Accra Region of Ghana, West Africa. I was in Ghana for a field experience with Reach the Children, a non-profit organization based in Utah. I was intrigued by this little girl carrying a baby—not because it is an uncommon sight, but because the little girl was actually the mother of the 9 month-old baby. This baby was the result of an indiscretion by an uncle when the girl was only 11 years old. Being in a Ghanaian society that frowns on abortion, the girl had to have the baby. I thought this girl had grown up too soon.

I couldn't help but want a picture—a picture that has stayed in my consciousness ever since I took it. This little girl is the reason I am pursuing an MPH in Maternal and Child Health, with a focus on global reproductive health. I believe that situations like this can be avoided and I hope that I can contribute to making that happen as a public health professional. I am sharing this picture to inspire discussions about maternal and child health issues. I think this picture beautifully illustrates some of the issues facing females today and I am grateful for the opportunity to share it."

created adolescent sexual health reports for each county. The reports are available to users online.

To learn more about MOAPPP, or to view the 2008 and 2009 Adolescent Sexual Health Reports or the Minnesota County Adolescent Sexual Health Reports, please visit: http://www.moappp.org/resources/adolescent_reports.html

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Material for this article provided by Wendy Hellerstedt, Julia Johnsen, and Andrea Mayfield.



Monitoring Youth Health Behaviors

Julia Johnsen, MPH



"As a society, we measure what we value, and we value what we measure"

— Bill O'Hare, Annie E. Casey Foundation Forum for Youth Investment, 2004

Youth Risk Behavior Surveillance System

The YRBSS monitors priority health-risk behaviors among youth and young adults by combining data from several surveys. In 2007, the YRBSS supported the national school-based survey conducted by the CDC (the Youth Risk Behavior Survey; YRBS), 44 state surveys, five territory surveys, and 22 local surveys of students in grades 9–12 during January 2007–February 2008.

The YRBS monitors six categories of priority health-risk behaviors for youth and young adults:

- behaviors that contribute to unintentional injuries and violence;
- tobacco use;
- alcohol and other drug use;
- sexual behaviors that contribute to unintended pregnancy and sexually

transmitted infections, including human immunodeficiency virus (HIV) infection;

- unhealthy dietary behaviors; and
- physical inactivity.

Minnesota Student Survey

Not all states participate in the YRBS. In Minnesota, the Minnesota Student Survey, administered by the Minnesota Departments of Education, Health, Human Services, and Public Safety, is conducted every three years in three populations:

- students in regular public schools, including charter schools and tribal schools (grades 6, 9, and 12 only);
- students in alternative schools and Area Learning Centers (all grades); and
- students in juvenile correctional facilities (all grades).

The MSS monitors activities, experiences and behaviors related to:

- tobacco use;
- alcohol and other drug use;
- school climate;
- physical activity;

Counting events—the number of people diagnosed with HIV, for example—is essential to public health surveillance efforts. So, too, is monitoring the trends in behaviors we know precede such incident events. The Youth Risk Behavior Surveillance System (YRBSS) and the Minnesota Student Survey (MSS) are two such surveillance resources.

- violence and safety;
- connections with community, school, and family;
- sexual activity (only asked of high school students); and
- mental health.

The MSS also asks questions about family structure, academics, and other topics of interest.

The MSS and the YRBS: Communicating about the Health of Youth

Data from both surveys are used to measure progress toward achieving national health objectives, monitor trends in health risk behaviors, evaluate the impact of community and school-based interventions and programming, support the design or modification of curriculum, seek funding, and influence policy and practice. YRBS and MSS data are used by leaders in health, education, and social service agencies to make the case for changing the school or community environments to be more supportive of health promoting behaviors for young people to assure their present well-being and to protect their future health.

The data are also used by researchers to build the evidence base for youth-promoting interventions and policies. The MSS has been used to develop scholarly papers on a wide range of topics, including suicidality among gay, lesbian and bisexual youth;¹ profiling adolescent Internet chat users;² and sexual behaviors and risk-taking among high-schoolers.³⁻⁵ The YRBS has been used for dozens of scholarly papers, on topics ranging from youth violence, obesity, surveillance methods, suicide ideation, sexual behavior, and tobacco/drug use, as documented at <http://www.cdc.gov/HealthyYouth/YRBS/publications.htm>. The data provided by these surveillance systems are constantly in use—and they should be. They provide us with the knowledge we need to create environments that reduce youth risk and promote optimal health.

For more information about the Minnesota Student Survey, please visit <http://www.health.state.mn.us/divs/chs/mss/> and http://www.dhs.state.mn.us/id_007196.

For more information about the Youth Risk Behavior Surveillance System, please visit <http://www.cdc.gov/HealthyYouth/yrbbs/index.htm>.

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Julia Johnsen, MPH, is the Director of Community Outreach for the Center for Leadership Education in Maternal and Child Public Health, University of Minnesota.

Family Planning in India: North vs. South

Imee Cambroner is a recent graduate of the Master's of Public Health (MPH) Program in the Maternal and Child Health (MCH) Program at the University of Minnesota. As a student, Imee explored an ongoing interest in the relationship between health policy, practices, and outcomes by conducting a qualitative research project on the incentives and barriers that influence couples' use of family planning methods in North and South India. Imee was interested in India because of its contradictions: it has one of the world's oldest national family planning policies yet it is the second most populated country in the world.

Imee interviewed 20 pregnant women and five health professionals in Agra (Uttar Pradesh, North India) and Manipal (Karnataka, South India). The two areas were distinct because of the higher quality of health services and the higher literacy of women in Manipal. In Agra, use of family planning may have been more likely to be determined by desire for a male infant and by decision-makers in the extended family of the couple. In Manipal, where women were more educated and likely to work outside of the home, women (and couples) may have been the primary decision-makers and there appeared to be more desire for a two-child family.

In order to disseminate her findings to a broad audience, Imee transformed her research into a documentary film, which she presented for her Master's Project in June 2009. "Film is a way to engage an audience, connect with the project and the participants, and send a message on the study's findings and implications," she said. Imee sees documentary films "as a complement to some of the more traditional ways of disseminating research."

Imee will put her new MPH to good use by conducting surveillance activities in Africa. She recently accepted a position as a Strategic Information Fellow with the Association of Schools of Public Health/Centers for Disease Control and Prevention (ASPH/CDC) Global Health Program in Dar es Salaam, Tanzania. She will evaluate and monitor the effectiveness of HIV/AIDS programs and help build HIV/AIDS surveillance capacity for Tanzania's most at-risk populations.

To view Imee's documentary, go to: <http://www.epi.umn.edu/mch/>

SEXUAL AND REPRODUCTIVE HEALTH OF YOUNG PEOPLE

A report released by the CDC in July 2009 presented data on the reproductive and sexual health of young people (10–24 years) from 2002–07 in the U.S. Data were compiled from a number of sources (including the National Vital Statistics System, HIV/AIDS reporting system, National Electronic Injury Surveillance system, National Health and Nutrition Examination Survey, National Survey of Family Growth, National Youth Risk Behavior Survey, and Abortion Surveillance) to examine three primary issues:

1. current levels of risk behavior and health outcomes;
2. disparities by sex, age, race/ethnicity, and geographic residence; and
3. trends over time.

The report indicated that young people in the U.S. engage in sexual risk behavior and experience negative reproductive health outcomes. Findings also suggest that noticeable disparities persist, and that declines observed over the past decade for a number of negative outcomes may have stalled, or be increasing (e.g., the birth rate).

To view the complete report, please visit: <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5806a1.htm>



Lesbian, Gay, Bisexual, and Transgender Reproductive and Sexual Health Surveillance

Andrea Mayfield

Lesbian and Bisexual Women

Relatively little data are available about the reproductive and sexual health of women who partner with women, including the prevalence of STIs, HIV, and cervical cancer. National, state, and local surveillance data are limited in their ability to estimate rates of STI transmission between women because many exclude sex between women as a characteristic of interest. In addition, it is not clear that any state or local system routinely collects information about same-sex behavior among women.¹

When studies include sexual orientation as a factor for risk classification, the definitions of sexual orientation are often inconsistent, making it difficult to compare findings between studies.² In addition, the majority of studies about lesbian health use small nonprobability samples and lack a control or comparison group. This limits the generalizability of research findings and the ability to compare health outcomes of lesbians to other groups of women.² More longitudinal data and methodologically sound studies are therefore needed to examine the health of women who are sexually active with other women (WSW).



Despite the paucity of information about same-sex behavior among women, sexual practices among WSW present a viable means for transmission of bacterial and viral STIs.¹ Though the rate of transmission of infection between women is likely lower than that between men and women, risk of infection between women is largely understudied. Additionally, many women who partner with other women have partnered with, or continue to partner with, men. Some of these women may also demonstrate increased sexual risk-taking behavior.¹ For example, a study of lesbian and bisexual adolescents in Minnesota found that lesbian and bisexual teenagers had a higher prevalence of pregnancy than heterosexual adolescents and that lesbian and bisexual youth were more likely to use contraceptives ineffectively.³

Lesbians may be less likely to receive recommended preventive healthcare, such as pelvic examination and Pap smear screening, and may be more likely to receive their first

Pap smear at an older age than heterosexual women.^{4,4} Individual- and provider-related reasons may explain less than optimal care. WSW may not feel comfortable disclosing their sexual orientation to providers, which limits provider guidance on preventive measures and risk reduction. WSW may also lack of awareness about their need for preventive screenings, such as Pap smear or HIV testing. Providers may not obtain a complete sexual history from WSW or may be insensitive to WSW, thus decreasing their compliance with recommended visits.^{4,5} Barriers to frank, non-judgmental discussions about sexual health and to compliance with care can translate into increased behavioral risk for STIs and decreased opportunities for STI and HIV testing.¹

Gay and Bisexual Men

Compared to WSW, significantly more sexual health information is available about men who have sex with men (MSM). Still,

existing sexual health surveillance for MSM uses limited methodology.

Nationally notifiable STI data are routinely reported to the Centers for Disease Control and Prevention (CDC) by state and local health departments, but often do not include information about sexual behavior, including sexual contact between men.^{6,7} According to the CDC, the only exception includes reported cases of primary and secondary syphilis, of which MSM accounted for 65% of cases in the United States in 2007. For all other nationally notifiable STIs, however, national trends for MSM are not currently available.⁷

Similar to the research with WSW, most of the studies about MSM use nonprobability samples from clinical or public venues. Since 1999, for example, STI clinics in eight U.S. cities have submitted syphilis, gonorrhea, chlamydia, and HIV test data from MSM visits to the CDC as part of the MSM Prevalence Monitoring Project.⁷ Although

results obtained through this project are not generalizable to MSM in the U.S., these data provide valuable information about STI testing behavior and prevalence of STIs among MSM.

Additional surveillance efforts for MSM include the National HIV Behavioral Surveillance System (NHBS) and the Gonococcal Isolate Surveillance Project (GISP). The NHBS survey is conducted on a periodic basis and collects information about HIV risk behaviors, including sexual contact between men, in cities with a high prevalence of AIDS.⁶ GISP, on the other hand, is a national sentinel surveillance system, that provides data about isolates of specific strains of gonorrhea obtained from STI testing among MSM.⁷

Transgender Persons

In its surveillance work, the CDC has defined transgender persons as “individuals whose gender identity, expression, or behavior is not traditionally associated with their birth sex.”⁸ Very little data are available about the reproductive and sexual health of this highly stigmatized group. National, state, and local surveillance systems do not routinely collect information about the health of transgender individuals and the data that do exist are based on small, nonprobability samples.

STIs and HIV co-occur in this population, though estimates of risk are variable. A CDC factsheet, summarizing several needs assessments and research studies, states that the HIV infection rate among transgendered persons could range from 14–69%, with risk highest among male-to-female (MTF) transgender sex workers.⁸ Reproductive and sexual health surveillance data for transgender individuals are difficult to obtain. Researchers have limited ability to locate this population through traditional public health means because of fear of disclosure and participation in alternative social networks. In addition, transgender persons face stigma and discrimination when trying to access the health care system, which exacerbate their risk for STIs and other reproductive and sexual health conditions.⁸

Resources

The following list is a sample of studies, reports, centers, and surveillance systems that collect or publish reproductive and sexual health data, or provide data resources, on lesbian, gay, bisexual, and transgender



persons in the U.S.:

American Public Health Association/ Gay and Lesbian Health: <http://www.apha.org/about/Public+Health+Links/LinksGayandLesbianHealth.htm>

Centers for Disease Control and Prevention (CDC): <http://www.cdc.gov/lgbthealth/index.htm>

The Fenway Institute: http://www.fenwayhealth.org/site/PageServer?pagename=FCHC_ins_fenway_research

Institute of Medicine of the National Academies/Lesbian Health: <http://www.iom.edu/CMS/3775/5606.aspx>

Lesbian Health and Research Center: <http://www.lesbianhealthinfo.org/>

Minnesota Student Survey: <http://www.health.state.mn.us/divs/chs/mss/>

National Coalition for Lesbian, Gay, Bisexual and Transgender Health: <http://www.lgbthealth.net/index.shtml>

National Lesbian Health Care Survey: <http://www.icpsr.umich.edu/cocoon/ICPSR/STUDY/08991.xml>

National Survey of Family Growth (NSFG): <http://www.cdc.gov/nchs/about/major/nsfg/abclist.htm>

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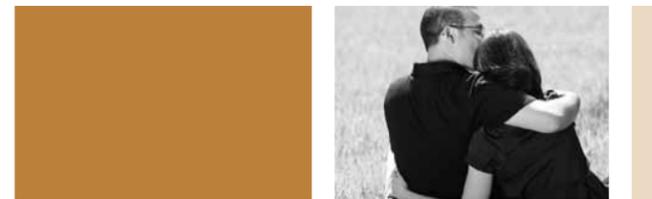
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■ *Andrea Mayfield is an MPH student in the Maternal and Child Health Program at the University of Minnesota.*

AGENCY FOR HEALTHCARE RESEARCH AND QUALITY: NATIONAL HEALTHCARE DISPARITIES REPORT

In 2009, the Agency for Healthcare Research and Quality (AHRQ) reported that disparate health outcomes among racial and ethnic groups stayed the same or worsened across at least 60% of healthcare and quality measures between 2000–01 and 2005–06. The National Healthcare Disparities Report examined disparities related to race, ethnicity, socioeconomic status, and membership in “priority populations,” including women, children, older adults, individuals living in rural settings, and persons with disabilities or special health care needs. The AHRQ report evaluated 220 quality measures related to effectiveness, patient safety, timeliness and patient centeredness, focusing on 45 core measures. The report made three conclusions: (1) disparities persist in health care quality and access; (2) the magnitude and pattern of disparities vary within subpopulations; and (3) some disparities exist across multiple priority populations.

The report is available at: <http://www.ahrq.gov/QUAL/qdr08.htm>.



Infertility Surveillance in the United States

Ruby Nguyen, PhD



Reducing the proportion of married couples with an impaired ability to conceive or maintain a pregnancy from 13% to 10% is a Healthy People 2010 goal.¹ However, there are few population-level estimates of infertility available to assess our attainment of that goal. In the U.S., much of what we know about population-level infertility is from the National Survey of Family Growth (NSFG). The NSFG administers its household surveys nationwide every 4–6 years. Its sample design is intended to achieve a representative sample of 15–44 year-old females and males in the U.S. NSFG data provide estimates of infertility, impaired fecundity, and infertility services:

- The NSFG defines infertility as the number of reproductive-aged (i.e., 15–44 years old) married women who did not become pregnant in the previous 12 months despite not using contraception during that time and not being surgically sterile (via removal of their ovaries or uterus). The latest NSFG data, from 2002, reported that 7.4% of married women were infertile (about 2 million women).²
- Unlike the infertility definition, NSFG’s definition of impaired fecundity includes unmarried women and is extended to include unsuccessful pregnancies; it is defined as physical difficulties in either conceiving or carrying a pregnancy to term. The NSFG estimates that 12% of reproductive-aged women (approximately 7 million women) have impaired fecundity; of those women, about 40% have never given birth.
- The NSFG defines infertility services as medical services that assist women in preventing miscarriage or in becoming pregnant. In 2002, the NSFG reported that 11.9% of reproductive-aged women had ever sought infertility services. The most common types of care were advice, medical help to prevent a miscarriage, infertility testing (for the woman or her partner), and ovulation drugs.

Infertility Involves Men as Well as Women

One concern about the use of estimates for infertility based on data from women is that men may contribute to at least half of the infertility diagnoses. It is estimated that male-factor infertility accounts for approximately 20% of couples’ infertility diagnoses, while male and female factors account for an additional 20%, and “unknown” causes, which may involve the man, account for another 12%.² Another data issue concerns the reliance on formal

diagnoses or care-seeking to estimate the prevalence of infertility. Such data are limited to individuals who have the knowledge, concern, or ability to seek care. It is likely that not all infertile people seek care or even suspect a problem. For example, a recent study from Massachusetts showed that even when there was mandated and comprehensive coverage for infertility services, the majority of individuals who sought care were white, highly educated, and had high incomes.³

What Is ART?

Couples who are unable to achieve a successful pregnancy may seek assisted reproductive technologies (ART). ART is defined by the CDC as all fertility treatments in which both eggs and sperm are involved.⁴ The most common form of ART is *in vitro* fertilization, which occurs when eggs are combined with sperm, usually in a laboratory, and the fertilized eggs are then placed in a woman’s uterus.



This definition of ART excludes procedures that only involve sperm (e.g., artificial or intrauterine insemination) as well as treatments that only involve eggs (e.g., women taking medications to stimulate egg production without the intention of having the eggs retrieved). The CDC provides an annual report on ART procedures using surveillance data from U.S. clinics. The CDC instituted active surveillance in 1992 as a result of the Fertility Clinic Success Rate and Certification Act. This law requires that every medical unit that uses ART procedures report every ART pregnancy attempt, types of procedures used, patient characteristics, and success rates.⁵ ART surveillance data are thus representative of every medical unit that uses ART. However, these data do not provide a complete estimate of the degree of infertility or a representative profile of the characteristics of infertile persons, because they are limited to individuals with access to, knowledge of, and funds for ART treatment.

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Ruby Nguyen, PhD, is an Assistant Professor in the Maternal and Child Health Program at the University of Minnesota.

NON-MARITAL CHILDBEARING IN THE U.S.: RATES CONTINUE TO RISE

A May 2009 report, using data from the National Vital Statistics System, described the increasing trends in non-marital childbearing in the U.S. In 2007, 40% of all births in the U.S. were to unmarried women. The number of births to unmarried women in 2007 (1,714,643) was 19 times higher than the estimate for 1940 and 2.5 times the number reported in 2002. Non-marital childbearing rates in 2007 were highest for Hispanic and black women. Non-marital childbearing has increased for women in their twenties and older—and has declined, or remained stable, for adolescents (86% of births to adolescents in 2007 were to unmarried women). In 2007, adolescents accounted for 23% of all non-marital births, down steeply from 50% in 1970. This change reflects the decline in birth rates for unmarried adolescents concurrent with the increase in birth rates for adult unmarried women. Non-marital childbearing in the U.S. is comparable with that of several other industrialized countries.

The report is available at: <http://www.cdc.gov/nchs/data/databriefs/db18.htm>.

THIRD ANNUAL PRECONCEPTION HEALTH CONFERENCE

Achieving Preconception Health: Optimizing Family and Physical Environments

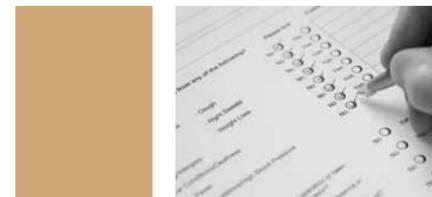
Thursday, October 8, 2009, 9:00 a.m.-12:00 p.m. FREE OF CHARGE

Video conference sites throughout the metro and greater Minnesota areas.

Expert speakers, including Dr. William Doherty (<http://www.drbilldoherty.org/>), will engage the audience in discussing preconception health care and fathers, families, and the environment.

Sponsored by: Center for Leadership Education in Maternal and Child Public Health, along with the Minnesota Department of Health, the March of Dimes, Medica, and Ramsey County Public Health

To register and learn more please visit: <http://www.health.state.mn.us/divs/fh/mch/preconception/>.



Preconception Health Surveillance

Jessie Kemmick-Pintor



How do we measure progress in preconception health?

There is no standardized surveillance of the receipt or provision of preconception care. *Healthy People 2000* included an objective for increasing the provision of preconception care (stipulating that 60% of primary care physicians provide age-appropriate care),⁶ but because there was no measure for the objective, it was excluded from *Healthy People 2010*.² There are several other *Healthy People 2010* objectives related to preconception health (e.g., goals for maternal folic acid intake; reduction of unintended pregnancies).⁷ The 2006 CDC report on preconception health² recommended the following surveillance activities:

- “Apply public health surveillance strategies to monitor selected preconception health indicators (e.g., folic acid supplementation, smoking cessation, alcohol misuse, diabetes, and obesity).
- Expand data systems and surveys (e.g., the Pregnancy Risk Assessment and Monitoring System and the National Survey of Family Growth) to monitor individual experiences related to preconception care.
- Use geographic information system techniques to target preconception health programs and interventions to areas where high rates of poor health outcomes exist.

Pre- and inter-conception health care, while not new concepts,¹ have been gaining ground in the United States over the past several years. Beyond solely providing prenatal care, which is often initiated after the first critical weeks of pregnancy, pre- and inter-conception care aims to improve maternal and infant health by addressing a woman’s health prior to—and between—pregnancies. The Centers for Disease Control and Prevention (CDC) defined preconception care as “interventions that aim to identify and modify biomedical, behavioral, and social risks to a woman’s health or pregnancy outcome through prevention and management by emphasizing those factors that must be acted on before conception or early in pregnancy to have maximal impact” in its 2006 *Recommendations to Improve Preconception Care and Health Care*.² Improving a woman’s health before pregnancy improves maternal and infant outcomes¹ and women and physicians alike understand the importance of preconception health.^{3,4} However, the limited research available regarding the actual implementation of preconception care demonstrates only “modest progress.”^{1,5}

- Use analytic tools (e.g., Perinatal Periods of Risk) to measure and monitor the proportion of risk attributable to the health of women before pregnancy.
- Include preconception, interconception, and health status measures in population-based performance monitoring systems (e.g., in national and state Title V programs).
- Include a measure of the delivery of preconception care services in the *Healthy People 2020* objectives.
- Develop and implement indicator quality improvement measures for all aspects of preconception care. For example, use the Health Employer Data and Information Set measures to monitor the percentage of women who complete preconception care and postpartum visits or pay for performance measures.²²

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Jessie Kemmick-Pintor is an MPH student in the Maternal and Child Health Program at the University of Minnesota.



Program Profile: Minnesota International Health Volunteers — Somali Child Spacing Program

Katie Amaya, MPH

Minnesota International Health Volunteers (MIHV) is a community-based non-profit in Minneapolis with 30 years of experience implementing international and domestic programs to improve the health of women and children. Since 2002, MIHV has partnered with the Somali community in the Twin Cities to serve the health and social needs of Somali families. In 2008, MIHV launched the Center for Somali Health in order to develop and promote culturally appropriate programs for health-care and social service providers. Among its many achievements, the Center conducted the first Minnesota-wide survey of Somalis to assess health knowledge, attitudes, and behaviors. The Center has also provided health education through conference presentations, written materials, on-site trainings, and videos. An important MIHV initiative has been the Somali Child Spacing Program, developed in 2004 and funded by the Minnesota Department of Health's Family Planning Special Projects. MIHV has been innovative in its use of data to develop programs and trainings: it has augmented publicly available surveillance data with qualitative and quantitative data from its own studies of the Somali population.

Somalis in Minnesota

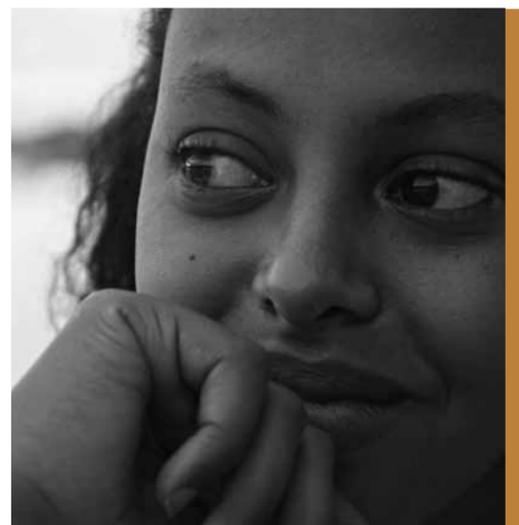
Since Somalia gained its independence in 1960, it has experienced civil wars and natural disasters; it has not had a recognized government since 1991. More than one million Somalis have sought refuge in neighboring countries, such as Kenya and Ethiopia.¹ From 1992 to 2005, Somali refugees accounted for 42% of all African refugees in the U.S.² **There are more Somalis in Minnesota than any other African immigrant group and Minnesota is home to the largest Somali population in the country.**¹ Most of the Somalis in Minnesota are refugees, with perhaps one-third coming to Minnesota directly from refugee camps.¹ **Most Somalis live in the Twin Cities.** In 2004 the Minnesota State Demographer estimated that 25,000 people of Somali ancestry reside in Minnesota,³ but the reliability of population estimates is unknown. Since 2004, an additional 7,000 Somali people arrived as refugees, increasing the estimate of Somali people in Minnesota to 32,000. Other

estimates suggest there may be 40,000 to 60,000 Somalis living in Minnesota.⁴

Health data for Minnesota's Somali population are lacking because most of the health and census surveys do not differentiate between African-American and foreign-born blacks; those that do often do not have sufficient data about country of origin. As the Somali population in Minnesota continues to grow, professionals look to MIHV for data and information on best practices in program development and implementation.

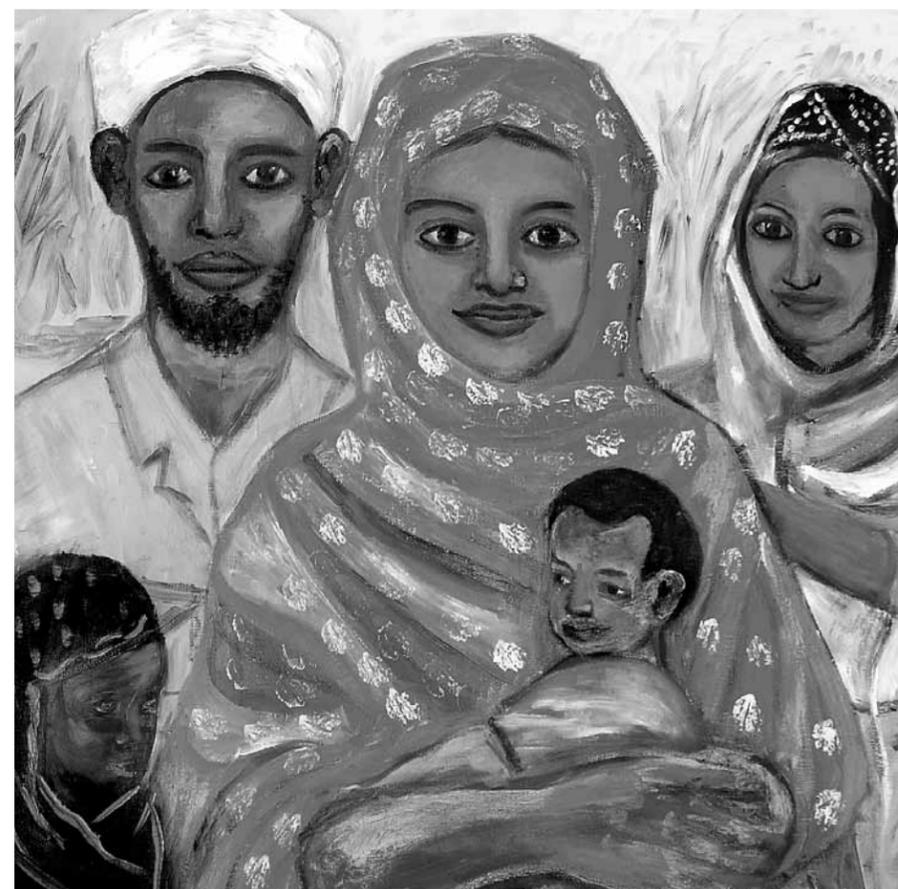
Somali Child Spacing Program

In Somalia, women experience high fertility (averaging seven livebirths in their lifetimes) and high infant mortality. In the U.S., Somali women continue to experience high fertility because of very low birth control use, but low infant mortality has led to larger than desired family sizes. MIHV recognized the need to develop



culturally appropriate educational materials about child spacing for Somali refugees in 2003. Child spacing refers to waiting a period of time between giving birth. Evidence suggests that it may be optimal to wait 18–23 months after a full-term birth before conceiving again: infants conceived before or after this window of time are at increased risk for preterm delivery, low birth weight, and small size for gestation.⁵

MIHV established its priorities for the child spacing program by examining surveillance data from Somalia. In 2008, 15% of 15–49 year-old married women in Somalia used any method of contraception and only 1% used modern methods.⁶ Such low contraceptive use likely reflects lack of access in Somalia, plus cultural and religious values around having a large family and not using hormonal methods. MIHV augmented these surveillance data by conducting focus groups with Somali men and women in the Twin Cities about their reproductive knowledge, attitudes, and practices. MIHV found that their



focus group participants were much more likely to use family planning methods than women in Somalia: 46% used some form of contraception (primarily intrauterine devices, condoms, and hormonal methods). Nonetheless, Somali focus group participants expressed misconceptions about modern contraception (e.g., it causes infertility and birth defects) and confusion about whether family planning is consistent with Islamic teaching. They also described access problems (e.g., did not know where to receive services, had transportation problems, were concerned about confidentiality).⁷ Based on surveillance data, and their own qualitative data, MIHV created culturally appropriate (and relevant) educational materials about contraceptive methods in Somali and developed an extensive outreach campaign, including a series of public service announcements (PSAs) currently airing on Somali TV. To date it has distributed about 22,000 reproductive health materials to the Somali and health provider communities and provided family planning information to about 25,000 Somalis in the U.S.

In 2007–08 MIHV's Somali Child Spacing

Program partnered with the University of Minnesota's Center for Leadership Education in Maternal and Child Health, to conduct and analyze a series of key informant interviews to better understand how Somali youth learn about and discuss sexuality and reproductive health. This research will inform future program strategies to provide information in a culturally appropriate manner to Somali youth (e.g. training health educators) and to improve communication in Somali households about sexuality and reproductive health.

For more information about MIHV, please visit <http://www.mihv.org> or contact Katie Amaya, Program Coordinator (612-230-3258, kamaya@mihv.org). MIHV's Somali Child Spacing Program was recently featured on Public Radio International's "The World" on April 9, 2009. Listen to the 5-minute radio program, or read the transcript, at <http://theworld.org/node/25648>. The Somali Child Spacing Program's public service announcements can be seen on YouTube and accessed through MIHV's website.

Providing Culturally Appropriate Reproductive Health and Family Planning Services to Somali Immigrants and Refugees: A Reference Guide

The Minnesota International Health Volunteers created a 30-page guide for health professionals who provide reproductive services to the Somali community. The guide contains information about culturally competent health care for Somali adults and adolescents, as well as a demographic and social overview of the Somali community in Minnesota. The guide is free. To order it please visit: <http://www.mihv.org>.

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Katie Amaya, MPH, is the Program Coordinator for the Minnesota International Health Volunteers.

Interested in Making a Difference?

Consider a Master's in Public Health (MPH) degree in Maternal and Child Health (MCH)



Jill Farris spends a significant amount of her professional life using surveillance data to educate varied audiences, promote program development, and inform policy development. She exemplifies a common trajectory for MCH graduates: while it has only been a few years since she earned her degree, she is establishing herself as a public health leader and she is dedicating time to mentoring graduate students. Farris earned a Master's in Public Health (MPH) in Maternal and Child Health (MCH) from the University of Minnesota's School of Public Health in 2005. According to Farris, her undergraduate work in psychology, women's studies and human services cultivated an interest in what she would later come to know as public health. The summer before her senior year of college she had the opportunity to work with Planned Parenthood, where her interest in public health was nurtured. At Planned Parenthood Farris expressed an interest in "working in health in a non-clinical setting" and a colleague suggested she consider the field of public health. So she did.

After considering her interests and the skills she wanted to acquire, Farris applied to, and was accepted by, the University of Minnesota's Maternal and Child Health MPH program. She developed her expertise in adolescent health through coursework, paid work, and a required field experience. Farris was a student research assistant with the Healthy Youth Development Prevention Research Center in the University's Medical School where she worked on teen pregnancy prevention issues. All MPH students are required to complete a field experience and Farris found a perfect fit as an intern at the Minnesota Organization on Adolescent Pregnancy Prevention and Parenting (MOAPPP). This internship involved working on a CDC-funded project to promote the use of science-based approaches for teen pregnancy prevention. As an added bonus, her supervisor was a recent MCH graduate, Lisa Turnham, MPH. Farris also conducted a needs assessment with select counties in greater Minnesota that experienced higher rates of adolescent pregnancy and child bearing. Farris credits this experience with connecting her to public health professionals across the state. By the end of her training, Farris had valuable relationships with research faculty at the University and with community

leaders. And her student experiences with MOAPPP paid off: MOAPPP hired her as a program manager in April 2007.

In her two years at MOAPPP, Farris has made significant contributions to the field of adolescent health and to training future MCH leaders. She helped compile MOAPPP's annual Minnesota Adolescent Sexual Health report for 2009 (http://www.moappp.org/resources/adolescent_reports.html). The report, using state and county surveillance data, is described in this issue. In addition to this report, which is MOAPPP's most requested and downloaded resource, Farris coordinates the development and dissemination of adolescent sexual health reports for each of Minnesota's 87 counties, using surveillance data. As a trainer, mentor, and supervisor, she works with MCH students to translate data into education materials and resources that are used across Minnesota. For example, Farris is working with an MCH student intern to create maps highlighting county differences in adolescent birth, pregnancy and chlamydia rates using vital records and STI surveillance data.

Farris stated that having a background in public health and prevention science has helped her examine adolescent health issues

with an ecological approach. Adolescent health reflects the accumulation of health exposures and experiences from fetal life, infancy, and childhood. Relevant exposures and experiences are not only personally experienced—like interactions with family and diet—but may be experienced at a population level (e.g., the experience of culture, as it is informed by customs, policies, and media). To be an expert in adolescent health, Farris must understand varied aspects of health, from genetics to health systems.

Farris' current passion? To find new ways to "frame" the data on adolescent pregnancy and childbearing for dissemination to various stakeholders. Her challenge is to find a way to tell the story of adolescent sexual health with data in a way that is accessible, accurate, and will translate into programs and policies that support adolescents, their families, and their communities.

Learn more about getting an MPH in Maternal and Child Health, visit:

www.sph.umn.edu/education/mch/home.html

email: Kathryn Schwartz, schwa139@umn.edu



HEALTHY PEOPLE 2010 GOALS FOR SEXUAL AND REPRODUCTIVE HEALTH

Some Healthy People 2010 Goals to Promote Responsible Sexual Behavior

- Objective 25-11: Increase the proportion of adolescents who abstain from sexual intercourse or use condoms if currently sexually active (baseline, 85% of adolescents abstinent)
- Objective 13-6a: Increase the proportion of sexually active persons who use condoms (baseline, 23% of females aged 18 to 44 years)

Some Healthy People 2010 Goals that Address HIV and AIDS

- Objective 13-1: Reduce AIDS among adolescents and adults (baseline, 19.5 cases of AIDS per 100,000 persons aged 13 years and older)
- Objective 13-5: Reduce the number of cases of HIV infection among adolescents and adults
- Objective 13-12: Increase the proportion of adults in publicly funded HIV counseling and testing sites who are screened for common bacterial sexually transmitted diseases (STDs) (chlamydia, gonorrhea, and syphilis) and are immunized against hepatitis B virus

Some Healthy People 2010 Goals that Address Sexually Transmitted Infections

- Objective 25-4: Reduce the proportion of adults with genital herpes infection (baseline, 17% of adults with genital herpes infection)

- Objective 25-5: Reduce the proportion of persons with human papillomavirus (HPV) infection
- Objective 25-6: Reduce the proportion of females who have ever required treatment for pelvic inflammatory disease (PID) (baseline, 8% of females required treatment)
- Objective 25-10: Reduce neonatal consequences from maternal sexually transmitted diseases, including chlamydial pneumonia, gonococcal and chlamydial ophthalmia neonatorum, laryngeal papillomatosis (from human papillomavirus infection), neonatal herpes, and preterm birth and low birth weight associated with bacterial vaginosis

Some Healthy People 2010 Goals that Address Pregnancy

- Objective 9-1: Increase the proportion of pregnancies that are intended (baseline, 51% of pregnancies intended)
- Objective 9-3: Increase the proportion of females at risk of unintended pregnancy (and their partners) who use contraception (baseline, 93% of females at risk used contraception)
- Objective 9-4: Reduce the proportion of females experiencing pregnancy despite use of a reversible contraceptive method (baseline, 13% females experienced pregnancy despite use of reversible contraceptive method)
- Objective 9-7: Reduce pregnancies among adolescent females (baseline, 68 pregnancies per 1,000 females aged 15 to 17 years).

Web-Based Resources on Reproductive Health Surveillance

The following organizations represent a sample of web resources for domestic and international reproductive health surveillance. Additional resources are listed throughout this volume.

ABORTION SURVEILLANCE

The Guttmacher Institute (U.S./International):

<http://www.guttmacher.org/index.html>

CDC Abortion Surveillance System (U.S.):

http://www.cdc.gov/reproductivehealth/Data_Stats/Abortion.htm

World Health Organization (International):

http://www.who.int/reproductive-health/unsafe_abortion/index.html

ASSISTED REPRODUCTIVE HEALTH SURVEILLANCE

Assisted Reproductive Technology system (U.S.):

<http://www.cdc.gov/ART/index.htm>

World Health Organization (International):

<http://www.who.int/reproductive-health/publications/infertility.html>

REPRODUCTIVE SURVEILLANCE RESOURCES

The Guttmacher Institute (U.S./International):

<http://www.guttmacher.org/index.html>

CDC Reproductive Surveillance (U.S.):

<http://www.cdc.gov/reproductivehealth/DRH/activities/Surveillance.htm>

CDC Reproductive Surveillance (International):

<http://www.cdc.gov/reproductivehealth/Global/index.htm>

The INFO project / Reproductive Health Gateway (U.S.):

<http://www.infoforhealth.org/RHGateway/index.shtml>

National Survey of Family Growth (U.S.):

<http://www.cdc.gov/nchs/NSFG.htm>

Adolescent Reproductive and Sexual Health (International):

<http://www.unescobkk.org/index.php?id=68>

World Health Organization (International):

<http://www.who.int/reproductive-health/>

Center for Leadership Education in
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Save these dates for upcoming conferences and events

SEPTEMBER 9, 2009

National Children's Study Speakers' Series
All in the Family: Fetal Effects of Maternal Overweight and
Obesity. Patricia C. Fontaine, MD, MS, Associate Professor,
Family Medicine and Community Health, University of
Minnesota.
3:00–4:00 p.m., Free
Wilder Foundation, 451 Lexington Parkway N, St. Paul
Registration: Laurie Ukestad, ukest001@umn.edu.

SEPTEMBER 15, 2009

Minnesota Reproductive Health Update
8:30 a.m.–5:00 p.m.
University of MN Continuing Education and Conference Center,
St. Paul Campus
Sponsored by: Health Care Educ. and Training, Inc., Healthy Youth
Development - Prevention Research Conference, MOAPPP
www.hcet.org or www.regionvtraining.org.

SEPTEMBER 22, 2009

Nurturing the Female Brain: How Biology and Culture Interact
to Influence Premenstrual and Perinatal Depression. Laura J.
Miller, MD, Vice Chair, Academic Clinical Services, Brigham and
Women's Hospital, Boston, MA.
10:00–11:00 a.m.
West Bank Office Building, Room 364, 1300 S 2nd St., Minneapolis
www.epi.umn.edu/mch
Sponsored by: C.L.E.M.C.P.H.
Deborah E. Powell Center for Women's Health

SEPTEMBER 21, 2009

6th Annual Deborah E. Powell Center for Women's Health
Women's Health Research Conference: A Focus on Women's
Mental Health and Neurosciences
12:00–5:30 p.m.
McNamara Alumni Center, University of Minnesota
Registration: <http://www.dhc.umn.edu/wmhlth/>

OCTOBER 8, 2009

3rd Annual Preconception Health Conference: Achieving
Preconception Health: Optimizing Family and Physical
Environments
9:00 a.m.–12:00 p.m., Free
Various video conference locations in Minnesota
Registration: <http://www.health.state.mn.us/divs/fh/mch/preconception/>
Sponsored by: MN Dept of Health March of Dimes, Center for
Leadership Education in MCPH, Medica, Ramsey County Public
Health

OCTOBER 29, 2009

Beyond Terminology: All Gender Inclusive Sex Education
9:00 a.m.–4:30 p.m.
Cost: \$30.00
Webster Open Elementary School,
425 5th St. NE, Minneapolis
Registration: www.moappp.org
Sponsored by: Trans Youth Support Network,
Out4Good, MOAPPP, Annex Teen Clinic,
Rainbow Health Initiative, and ProChoice Resources



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