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INFORMATIONAL HEARING

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California's Sexually Transmitted Disease Epidemic: Causes, Costs, and Control

“This is a hidden epidemic...Most people are not aware of how many STDs are out there, the risks that they run and the need for getting regular testing...and treatment – and having their partners treated.”

- Dr. Stuart Berman, U.S. Centers for Disease Control and Prevention (CDC)

I. Sexually transmitted diseases (STDs) in California

STDs are an immense public health problem nationally and in California. According to the National Coalition of STD Directors and The American Social Health Association, at least one in three sexually active Americans will have contracted an STD by age 24.

The most common STDs in the U.S. are:

- Chlamydia;
- Gonorrhea;
- Syphilis;
- Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS);*
- Hepatitis B;
- Human Papilloma Virus (HPV);
- Genital herpes; and,
- Trichomoniasis.

STDs can cause physical pain, anxiety, shame, anger, stigma, and numerous health consequences. Examples of potential health consequences from STDs include:

- Chlamydia and gonorrhea, if untreated, can lead to pelvic inflammatory disease (PID), which can be painful and can cause infertility, ectopic pregnancy, and neonatal infections;
- HPV infections can lead to cancers of the cervix and anus;
- Hepatitis B infections can lead to liver cancer and cirrhosis; and,

* Note: HIV/AIDS is often treated as a separate topic from other STDs, partly because funding and programs for addressing HIV/AIDS are typically separate from those for other STDs. This informational hearing and background brief place more emphasis on STDs other than HIV/AIDS, although many of the concerns and solutions could apply to all STDs, including HIV/AIDS.

- Some STDs, such as chlamydia and trichomoniasis, are also known to increase the risk of HIV transmission by two to six times.

STDs also exact a tremendous economic toll: The CDC estimates that direct medical costs of STDs in the U.S. may be as much as \$14.7 billion annually in 2006 dollars.

STD Trends in California

The incidence of some STDs has been increasing in California. Data from the STD Control Branch of the California Department of Public Health (DPH) show alarming trends in California in the occurrence of three reportable STDs -- gonorrhea, chlamydia, and syphilis.[†]

- Gonorrhea declined by over 85% over two decades to a rate of 56 per 100,000 in 1999, when the trend reversed and rates began to climb again. In 2006, DPH reported 33,776 cases of gonorrhea, a rate of 90 per 100,000. In addition, DPH found through targeted surveillance in five urban STD clinics that gonorrhea in male patients was increasingly likely to be antibiotic-resistant. Whereas in the 1990s, less than 1% of gonorrhea cases were antibiotic-resistant, by 2006, more than one-third of gonorrhea cases were antibiotic-resistant.
- Chlamydia rates also reversed and began rising in the 1990s. In 2006, there were 136,123 reported cases of chlamydia, making it the most common reportable disease and accounting for 76% of reported STDs in California.
- Syphilis is the least common of the eight STDs, with 1,839 cases reported in 2006, but even this number is about six times higher than the incidence in 1999, when syphilis rates were at historic lows and DPH (then Department of Health Services (DHS)) targeted syphilis for elimination in California by 2005.

STD Data

DPH estimates for STD incidence have some important limitations. First, DPH's estimates are generally based on reportable diseases. Three STDs: HPV, trichomoniasis, and genital herpes -- are not legally required to be reported, so health care providers and clinical laboratories do not report cases of these diseases to health authorities, and DPH does not routinely track them. Researchers at the Public Health Institute (PHI) estimate that in 2005 the combined incidence of HPV (590,000 cases), trichomoniasis (250,000 cases), and genital herpes (67,000 cases) far exceeded the estimated incidence of chlamydia, gonorrhea, and syphilis among 15-24 year olds.

A second important limitation to reported data is that it is based on individuals who seek treatment. If a person has an STD but does not have symptoms, or if he or she has barriers to obtaining care, the STD is unlikely to be diagnosed and reported, even if it is reportable. Chlamydia, for example, is reportable, but usually asymptomatic and therefore underreported. A 2007 study by PHI estimated that 15-24 year old Californians acquired 180,000 chlamydia infections in 2005, although only about 84,000 cases were reported. PHI also estimated that there were almost as many unreported cases of gonorrhea as reported cases.

[†] Generally, statewide data are only available for the five STDs that are reportable: chlamydia, gonorrhea, syphilis, HIV/AIDS, and hepatitis B. Reporting is explained under "STD Reporting."

Because of these data limitations, incidence estimates based on disease reporting miss much of the picture. The PHI study estimated that the annual incidence of STDs among 15-24 year old Californians exceeds reported STDs by a factor of ten. Much of this discrepancy is due to the three non-reportable diseases (genital herpes, HPV, and trichomoniasis), which accounted for over 80% of the total STD incidence estimate. Even among most of the reportable STDs, PHI researchers estimated that unreported cases exceeded reported cases.

Who is affected by STDs?

The incidence of STDs varies with age, gender, race/ethnicity, location, and behavior. STDs disproportionately affect young people. In California, 15-24 year olds acquire more than half of all new STDs. The PHI study estimated that in 2005, there were about 1.1 million new cases of STDs among California's 5.4 million 15-24 year olds.

Males and females have different susceptibility to STDs, as shown by DPH data for 2006:

- Chlamydia was reported more than twice as often for females (521 cases per 100,000) as for males (204 cases per 100,000), though DPH suggests that this disparity likely reflects differences in the use and provision of health care services.
- Gonorrhea was reported somewhat more frequently for men (96 cases per 100,000) than for women (84 cases per 100,000).
- Primary and secondary stage syphilis was reported about 13 times as often among men (9 cases per 100,000) as among women (0.7 cases per 100,000).

Race/ethnicity is an extremely important factor in the incidence of STDs, particularly for African-Americans, as shown by DPH data for 2006:

- Chlamydia is reported about eight times as often for black 15-19 year old females (6,279 cases per 100,000) as for their white counterparts (789 cases per 100,000), and the rate for all black females has nearly tripled since 1990. The rates for females of other race/ethnic groups have also increased since 1990, but not as rapidly.
- Gonorrhea was reported far more frequently for African Americans (398 cases per 100,000) than for whites (34 cases per 100,000). Among 15-19 year old females, the rate for African Americans (1,747 cases per 100,000) was 17 times the rate for whites (100 cases per 100,000).
- Primary and secondary stage syphilis was reported more frequently for African Americans (12.4 cases per 100,000) than for whites (5.2 cases per 100,000).
- Infants of African American and Latina mothers were eight and four times more likely to be born with syphilis than infants of non-Latina white mothers respectively.

STD rates vary widely by county, as shown by 2006 data from DPH:

- San Francisco had the highest reported incidence of gonorrhea and syphilis. San Francisco's gonorrhea rate (312 cases per 100,000) was nearly double that of Fresno, which had the second highest county gonorrhea rate (162 cases per 100,000).

- Kern County had the third highest reported incidence rates of chlamydia (511 cases per 100,000, compared with 363 cases per 100,000 statewide) and gonorrhea (160 cases per 100,000; compared with 90 cases per 100,000 statewide).
- Sacramento County had the second highest reported chlamydia incidence (550 cases per 100,000, compared with 363 cases per 100,000 statewide) and the fifth highest gonorrhea incidence (150 cases per 100,000; compared with 90 cases per 100,000 statewide).
- Fresno County reported the highest incidence of chlamydia, with 582 cases per 100,000, compared with 363 cases per 100,000 statewide.

STDs are also associated with high-risk behaviors, according to DPH reports based on STD screening and studies in selected settings:

- In juvenile detention facilities, 13% of 15-19 year old females tested positive for chlamydia in 2006. By contrast, in teen clinics and managed care organizations, 6% of 15-19 year old females tested positive for chlamydia.
- Primary and secondary stage syphilis is more common in men who have sex with men (MSM). Among MSM with syphilis, 61% reported also being HIV-positive in 2006.
- A small DHS study showed that between 2001 and 2006, about 10%-20% of men and women with syphilis also reported methamphetamine use.

Economic Burden of STDs

The 2007 PHI study estimated the direct medical costs of STDs among 15-24 year old Californians. The authors estimated that the 1.1 million new cases of the eight STDs likely resulted in direct medical costs of \$1.1 billion in 2005. The cost estimate includes lifetime medical costs and is based on incidence rates, undiagnosed and untreated disease, and treatment costs. The cost estimate does not include indirect costs, such as lost wages or productivity. PHI reported that the magnitude of the estimated cost reflects the large number of infections in this age group, and the high cost of treating viral STDs, particularly HIV/AIDS. The authors note that even small reductions in STD incidence could result in considerable reductions in treatment costs. Because some STDs can facilitate the transmission of HIV, prevention of these STDs could also result in reductions in HIV infections and associated costs.

II. STD Control in California

State activities

The DPH Division of Communicable Disease Control (DCDC) is designated as the lead state agency and works with California's 61 local health departments (LHDs) to protect Californians from infectious diseases, including STDs. According to a 2000 DHS report, Communicable Disease Control in California, infectious disease control is a core public health function, and involves at the state level:

- Surveillance to monitor incidence, trends, and outbreaks;
- Epidemiological investigations of cases and outbreaks;
- Laboratory-based diagnostic and reference services and applied research services;

- Consultation to LHDs, health care providers, and other government agencies;
- Comprehensive prevention and control programs for specific diseases;
- Professional and public education and training on current infectious diseases and issues; and,
- Exercise of police powers to control disease spread.

According to DPH, the STD Control Branch aims to provide statewide leadership, guidance, training, and technical assistance, surge capacity and safety net support to prevent and control STDs. The STD Control Branch works with LHDs, health care providers, non-governmental organizations, and other partners to fulfill the infectious disease control responsibilities listed above for STDs. The STD Control Branch's activities include:

- Health education, awareness, and promotion, specifically risk reduction counseling;
- Screening to identify asymptomatic individuals;
- Diagnostic testing;
- Treatment of infected individuals to interrupt disease transmission and prevent complications;
- Partner services, including notification, and expedited partner therapy;
- Vaccination; and,
- Program evaluation and quality improvement.

In addition to case-based surveillance of reportable STDs, the STD Control Branch monitors STD prevalence, meaning that health care providers actively test for STDs (rather than diagnosing STDs when a patient seeks treatment specifically for the STD) in selected sites and provide information to the STD Control Branch. In 2006, DPH conducted prevalence monitoring for chlamydia and gonorrhea in 34 family planning and 20 STD clinics in California. In addition, Kaiser Permanente Northern California provided chlamydia and gonorrhea testing data for all patients tested in 2006 and participates in electronic transmissions of these prevalence data to DPH as part of the Public Health Improvement Project. The Chlamydia Screening Project provides chlamydia screening for adolescents at entry into juvenile detention facilities through partnerships between juvenile justice and LHDs.

According to DPH, resources preclude a comprehensive STD control program, so the STD Control Branch prioritizes interventions based on cost-effectiveness, performance, funding, and staff capacity, with a focus on syphilis and chlamydia screening and partner services.

Local Health Departments

Counties are required by law to “preserve and protect” the public health and to provide public health services such as communicable disease control, and serve as the providers of last resort for people who have limited access to mainstream medical care and related services. Counties also provide the basic framework for protecting the health and well-being of the broader community, including public health nursing services, communicable disease control, disaster response, and outbreak investigation.

According to DPH, some LHDs have local general funds to support comprehensive STD control programs with dedicated STD clinics, health educators, and disease investigation specialists (DIS) or public health nurses. However, many LHDs have no local funds dedicated to STD control and must rely on state staff for disease investigations. In these jurisdictions, clients obtain STD clinical services from the general medical system, where, according to DPH,

expertise and diagnostic and treatment services may not be as comprehensive and timely as they would be in a dedicated STD clinic.

Local Health Officers (LHOs) have broad authority and responsibility related to communicable diseases, including the authority to order testing of individuals and communities. Communicable disease reporting, described below, is also an important responsibility of LHOs, and implicit in this obligation is the responsibility to track illnesses, injuries, and deaths to identify trends, epidemics, and other threats to the well-being of the public.

STD/Communicable Disease Reporting

More than 80 diseases, five of which are STDs: chlamydia, gonorrhea, syphilis, HIV/AIDS, hepatitis B -- are *reportable*, meaning that health care providers and clinical laboratories are required to report cases to the LHO, and LHOs are required to report them to the state.

Title 17 of the California Code of Regulations defines reportable diseases and the related responsibilities of health care providers, laboratories, and health officials. When a health care provider knows of or suspects a case of a reportable disease, or a clinical laboratory finds evidence of a reportable disease, they must report to the LHO for the jurisdiction where the patient resides. Providers must report information about the disease (including dates of onset and diagnosis), the patient (name, contact information, and occupation and other demographic data), laboratory findings about the specific causative agent of the disease, and complications of gonorrhea and chlamydia infections. Under California law, laboratories are required to report less information than providers.

LHOs are responsible for using provider and lab reports to prioritize follow-up of cases for care and finding partners who might also be infected and need testing and treatment. LHOs must also report these cases in aggregate (i.e., numbers of cases for each reportable disease) to DPH each week. For some diseases, including AIDS, PID, and syphilis, LHOs must also provide individual case reports. LHOs may submit the data in two ways. Most health jurisdictions use either the Automated Vital Statistics System (AVSS) communicable disease module, or enter case data into a non-AVSS database. A few health jurisdictions report case data through paper-based transactions.

In 2003, the State initiated development of a statewide web-based reporting system, called Web-CMR, but deemed the product unsatisfactory and is pursuing another approach using off-the-shelf software. The State anticipates phased implementation of the system in 2008-2009.

Cost-Effectiveness of STD Control

In addition to preventing and reducing suffering from STDs, STD control programs have been shown to be cost-effective:

- A jail-based chlamydia screening program that provided partner notification services for male inmates who tested positive for chlamydia was found to reduce medical costs by averting complications for female partners.
- CDC researchers found an association between federal STD- and HIV-prevention expenditures and subsequent reductions in gonorrhea incidence. CDC noted that because

gonorrhea is a marker for risky sexual behavior, the findings are likely generalizable to other STDs to some degree.

- For young women in populations with a high prevalence of chlamydia, annual screening followed by semiannual screening for those with a history of infection has been shown to be potentially cost-effective because it prevents the long-term costs of PID.
- In San Francisco, a social marketing campaign aimed at increasing testing for syphilis was shown to significantly increase knowledge and testing for syphilis. After the campaign, syphilis rates also decreased among the campaign's target population of MSM. The project suggests that the campaign likely contributed to the reduction in syphilis rates and thus averted expensive treatment costs.
- A large social marketing campaign and condom distribution program in Louisiana was shown to increase condom use among African Americans by 30%. This behavior change was estimated to have prevented 170 new HIV infections, saved many years of healthy life, and saved over \$30 million in medical expenditures.

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