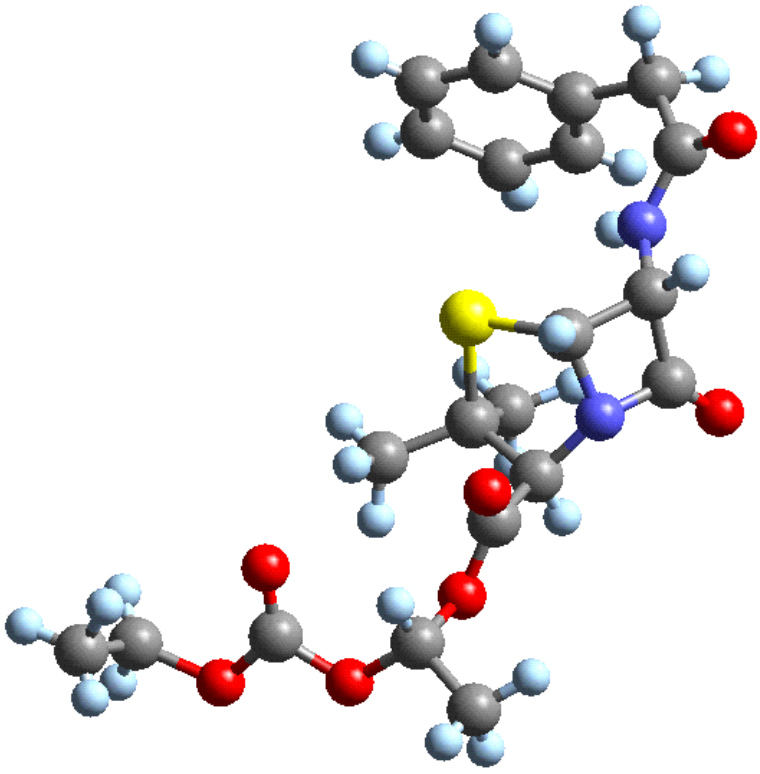
UAB SCHOOL OF PUBLIC HEALTH

2012

National Public Health Week "Wicked Problem" Case Competition



"Syphilis Epidemic in Jefferson County, Alabama"

Introduction: Case Scenario

In 2010, Jefferson County, Alabama, comprised primarily by the city of Birmingham metropolitan area and surrounding small cities and communities, was in the middle of the nation's largest syphilis epidemic. Health department officials were baffled by the sudden increase in cases. Contact surveillance programs had been very effective in the past at keeping the case rate reasonably under control, and a quick scan of the community at large did not identify any immediately obvious changes in social demographics. The Birmingham Police Department did not report any significant changes in gang-related activity and arrests for drug possession and prostitution had remained unchanged for three years.

Several months before the increase in syphilis cases was noted, the county Health Officer had announced the planned closure of the North Birmingham Health Clinic, much to the dismay of local community leaders. Over the next several months, clinic visits remained unchanged based on clinic records. Also during this period, visits to the Health Department's STD clinics did not substantially change.

Concern about this growing epidemic dramatically increased when the University of Alabama at Birmingham Department of OB-Gyn reported its first case of congenital syphilis in more than 15 years. The chair of the department contacted the county Health Officer and the director of the UAB Division of Infectious Diseases to develop a plan for addressing the epidemic. Everyone involved was acutely aware of the sensitivity around developing a comprehensive plan to reduce the number of cases in the County. Almost 90% of the reported increase was among young African Americans living north of I-20/59 and west of I-65. While there were anecdotal reports of syphilis cases in the over-the-mountain bedroom communities, these were generally not reported to the Jefferson County Health Department.

Section One: The "Wicked Problem" Description

Syphilis Epidemic

Syphilis is an infectious disease caused by the spirochete bacterium Treponema Pallidum, which is capable of infecting almost any organ or tissue in the body. Syphilis is acquired through sexual contact with an infected person or through contact with blood or other infected bodily fluids. Congenital syphilis is passed from the infected mother to her fetus through the placental blood.[i] Acquired syphilis can easily go unnoticed since the symptoms are generally painless, short-lived, self-healing and easy to mistake for other diseases. Because of this, syphilis has been known as "the great impostor" or "great imitator" of other diseases.

Syphilis presents in stages-- the primary stage is usually marked by the appearance of a single firm, round, small, painless sore (called a chancre). The chancre lasts 3 to 6 weeks, and it heals without treatment. However, if adequate treatment is not administered, the infection progresses to the secondary stage. Secondary syphilis is characterized by a skin rash (usually non-itchy, rough, red or brownish spots on the palms of the hands and soles of the feet) and lesions of the mucous membranes. Other symptoms of secondary syphilis may include fever, swollen lymph glands, sore throat, patchy hair loss, headaches, weight loss, muscle aches, and fatigue. The signs and symptoms of secondary syphilis will resolve with or without treatment, but without treatment, the infection will progress to the latent and possibly late stages of disease. The latent stage of syphilis begins when primary and secondary symptoms disappear. Without treatment, the latent stage can last for years. The late stages of syphilis develop in about 15% of people who have not been treated for syphilis, and can appear 10–20 years after infection was first acquired. In the late stages of syphilis, the disease may subsequently damage the internal organs, including the brain, nerves, eyes, heart, blood vessels, liver, bones, and joints. Signs and symptoms of the late stage of syphilis include difficulty coordinating muscle movements, paralysis, numbness, gradual blindness, and dementia. This damage may be serious enough to cause death.

Syphilis is usually detected by a rapid plasma reagin (RPR) test, which looks for non-specific antibodies in the blood that may indicate that *T. pallidum* is present. In addition to screening for syphilis, an RPR level can be used to track the progress of the disease over time and its response to therapy. Syphilis is easy to cure in its early stages. A single intramuscular injection of penicillin or doxycycline will cure a person who has had syphilis for less than one year. Additional doses are needed to treat infections of longer duration. After successful treatment, individuals are susceptible to reinfection.

The Centers for Disease Control and Prevention (CDC) recommend the following preventive measures: abstinence from sexual contact or being in a long-term mutually monogamous relationship with a partner who has been tested and is known to be uninfected; avoiding alcohol and drug use, as these may lead to risky sexual behavior; correctly and consistently using latex condoms (not lubricated with Nonoxynol-9).

Over the past several years, increases in syphilis among men who have sex with men (MSM) have been reported in various regions, including Chicago, Seattle, San Francisco, Southern California, Miami, and New York City. In recent outbreaks, high rates of HIV co-infection were documented, ranging from 20 to 70 percent. While the health problems caused by syphilis in adults are serious in their own right, it is now known that the genital sores caused by syphilis also make it easier to transmit and acquire HIV

infection sexually. According to the CDC, there is an estimated 2- to 5-fold increased risk of acquiring HIV if exposed when syphilis is present. With this in mind, the CDC's 2006 Sexually Transmitted Disease Treatment Guidelines recommend that MSM who are at risk for STDs be tested for syphilis annually.

Syphilis Trends in the United States

Syphilis rates in the United States decreased 89.7% during the 1990s; in 2000, the rate was 2.1 cases per 100,000 population, the lowest since reporting began in 1941. However, from 2001 to 2009, syphilis rates increased annually, with overall increases in rates observed primarily among men (increasing from 3.0 cases per 100,000 population in 2001 to 7.8 cases in 2009). [ii]

Syphilis remains a major health problem in the South and in urban areas in other regions of the country. From 2000 to 2003, the rate of syphilis among men increased from 2.6 to 4.7. Among women, the rate decreased from 1.7 to 0.8 over the same period. The male to female rate ratio increased steadily from 1.5 in 2000 to 5.3 in 2003. In 2004, the disparity between syphilis rates among blacks and whites increased for the first time since 1993 due to a substantial increase in cases among black men. [iii]

Increases in syphilis cases have also occurred among MSM and have been characterized by high rates of HIV co-infection and high-risk sexual behaviors. The estimated proportion of syphilis cases attributable to MSM increased from 7% in 2000 to 64% in 2004. As a result, in 2005, CDC requested that all state health departments begin reporting the sex of sex partners for persons with syphilis.

Jefferson County

Named after President Thomas Jefferson, Jefferson County is located in north central Alabama and is the most populous in the state of Alabama, having population of 658,466 residents (14.2% of the state's population). Fifty-three percent of the population is white and 42% is black or African American. The median age is 36. Per the 2010 Census, 83% of the population graduated from high school, and 28.8% have a bachelor's degree or higher. Median household income is $45,244, and 15.5% of the population lives below the federal poverty level. [iv] On November 9, 2011 Jefferson County became the subject of the most expensive municipal bankruptcy in US history, at $4.1 billion, with debts of $3.14 billion related to sewer work.

Syphilis in Jefferson County

The Jefferson County Department of Health (JCDH) maintains 6 health centers, one of which provides testing, evaluation, and treatment for sexually transmitted diseases, including syphilis. Although clinicians are mandated by the state legislature to report all cases of syphilis, an estimated 20% of syphilis infections are undiagnosed and unreported. In 2006, the syphilis rate in Jefferson County rose to 37.3 cases per 100,000 population, eleven times the national rate of 3.3 cases per 100,000 population. In 2010, the rate of primary and secondary syphilis in Jefferson County, at 14.0 per 100,000 population, was 3.5 times higher than the rate in the United States overall (3.9 per 100,000 population, provisional). [v]

While the observed increases in syphilis rates in the U.S. at large since the early 2000s have been primarily associated with transmission among MSMs, the investigation into the Jefferson County outbreak indicated re-emergence of syphilis among the black population, including heterosexual men. The rate of primary and secondary syphilis was 27.2 cases per 100,000 among blacks compared to 5.1 cases per 100,000 among whites in 2010. Among males of all races, the rate was 22.8 per 100,000 compared to 6 per 100,000 among their female counterparts. [vi]

Syphilis Response Activities to Date

In response to the significant increase in syphilis cases in 2005-2006, the Jefferson County Health Department (JCDH) developed and implemented a "Syphilis Outbreak Response Plan" involving a combination of increased staffing, supervisory training, public outreach, and education. Specifically, the STD clinic hours were extended 1.5 hours (until 6 pm) four days a week, and the number of staff dedicated to interviewing and providing partner services for syphilis patients was increased from five to seven. Additionally, the JCDH collaborated with a community-based organization, AIDS in Minorities, to provide education and referral for screening in high-morbidity areas and launched a media campaign using radio spots and billboards on ten public transit buses. Despite the apparent effectiveness of the public awareness campaign (in the first three months of 2008, 900 more people sought syphilis screening than in the last three months of 2007), the intended six-month run was terminated early due to concerns over a negative image and potential economic consequences for the county, voiced by then-mayor Larry Langford and County Commission President Bettye Fine Collins. [vii]

Mr. Lee Eakins, supervisor of JCDH STD Clinics, noted the following observations by JCDH during the 2002-2007 syphilis epidemic in Jefferson County:

- 80-85% of infected patients were Black

- The outbreak was tied to a marked increase in crack use; 70-80% of the infected were either users or partners of users.
- During the outbreak, there was a concerted effort by JCDH to "get the word out." This was done through press releases followed by media interviews, radio spots, etc.
- If JCHD staff identified an individual who was at particularly high risk, the person was treated with Bicillin, low-acting injectable penicillin that provides protection for up to 21 days. Some individuals were identified repeatedly, and as a result, were administered several courses of Bicillin.

Section Two: Jefferson County Department of Health:

Organization and Funding

- The JCDH was established in 1917 pursuant to Code of Ala. 1975, 2221, which established the Alabama Department of Public Health (ADPH) and authorizes the further establishment of local county health departments.
- The ADPH office is located in Montgomery, Alabama and governed by a 12 member Board of Health with members from the Medical Association of Alabama plus four council chairs as provided in Code of Ala 1975 2224 for a total of 16 members. The State Health Officer is appointed by the Board and is currently Dr. Donald E. Williamson.
- The Jefferson County Board of Health, likewise, governs the JCDH. The current membership of the board includes: F. Cleveland Kinney, Ph.D., M.D. Chair Emeritus, Laura Kezar, M.D. Chair, Katisha T. Vance, M.D., Steven J. Kulback, M.D., Jennifer R. Dollar, M.D. and Jefferson County Commission President David Carrington. The Jefferson County Medical Society appoints all positions on the Board, except the statutory position held by President of the Jefferson County Commission. The Board is charged with appointing the Health Officer. The current Health Officer is Dr. Mark E. Wilson. Previously, Dr. Michael Fleenor served as Health Officer in 2009-2010.
- The mission of the JCDH is to:
    - Prevent disease and assure access to quality health care
    - Promote a healthy lifestyle and a healthy environment
    - Protect against public health threats.
- JCDH General Financial Information as of 2009

- Revenues
  - Advalorem Tax Revenue (17% of budgeted revenues)Act 77-231 provides that the County (and municipalities within the County) shall pay to the Board of Health annually a sum not less than 2% or more than 6% of all advalorem taxes collected within the County excluding advalorem taxes collected for the State of Alabama and all Boards of Education located in the County.
  - For the last nine years JCDH has received a level sum of $7,454,400 which is approximately 3% of the total advalorem tax. This is forwarded to JCDH as the taxes are collected therefore approximately 100% is received during the months of December, January and February of each year.
  - Sales Tax Revenue (41% of budgeted revenues): The total amount of sales tax collected by the County (1%) is divided equally.
    - First half of 1%:
      - 1.5% to General Fund for collection costs (off the top)
      - 9.0% (after collection costs) to JCDH
      - Balance to Indigent Care Fund
    - Second half of 1%:
      - The first $1,200,000 is allocated to the Birmingham Jefferson Civic Center.
      - 31.0% of remainder to JCDH
      - 69.0% of remainder to General Fund
  - JCDH receives 18-20% of the total County sales tax that generally equates to $18,500,000 per year.
  - State & Federal Contracts (7% of budgeted revenues): These are (primarily) dollars received from the Alabama Department of Public Health (ADPH) resulting from contracts (or subcontracts) to administer certain public health responsibilities for State Public Health Area 4 (i.e., Jefferson County). Examples include developing community and educational programs and monitoring activity in nationally identified public health focus areas such as Family Planning, Immunization, Tuberculosis, Sexually Transmitted Diseases and Hepatitis.
  - Clinical Health Care Revenue (19% of budgeted revenues): This category represents the amount of reimbursement received for all clinical related services provided by the Department. These services include pediatric and adult primary care, family planning, and

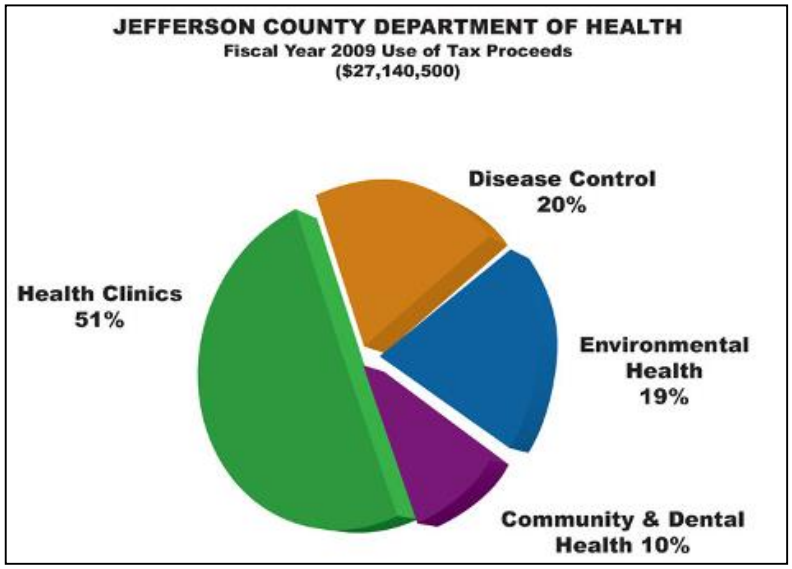
clinic dental care. A sliding fee schedule is used within the Health Centers to determine the amount (if any) of fees due from the patients. JCDH receives approximately 12% of the reimbursement from patients, 85% from Medicaid, 2% from Blue Cross, and the remaining 1% from all other payers combined (e.g., Medicare, etc.)

- Environmental Health Services (8% of budgeted revenues): This category represents reimbursement received (primarily) for Environmental Health (EH) services. State Law allows fees to be charged for many of the services provided by the EH staff such as restaurant inspections, septic system plans and inspections, air pollution permit fees, open burning permits, radiological equipment inspection and food handler training.
  Also included in this category are fees received for copies of vital records.
- Other Revenue (8% of budgeted revenues): This category is primarily reimbursement received for indirect costs (administration and building overhead) associated with Federal grants and contracts such as Healthy Start, WIC, Air Pollution, etc. Also included here are allowable fines levied for violation of public health laws (e.g., air pollution violations), rental fees and parking lot and meter receipts. This category also includes earnings and changes in the market value of the Department's cash and investments. All investments are based on a Board of Health approved Investment Policy that strictly follows State and County guidelines.

- Expenses
  - Expenses are generally classified by major public health program with administrative costs and the capital fund transfer separately identified. The general fund budgeted program costs for fiscal year 2008 included:

* Salaries and benefits	$32,875,200	6%
* Materials and Supplies	$7,944,600	17%
* Contract services	$2,475,500	5%
* Capital project fund	$4,837,000	10%
Total	$48,132,300	100%

  - The Department also has eight active Special Revenue Funds expected to total $5,048,900. These funds are operated in accordance with the funding requirements of special grants and appropriations.



Budget

JEFFERSON COUNTY DEPARTMENT OF HEALTH

Fiscal Year 2009 General Fund Results

			Tax Proceeds for Public Health Programs			
Public Health Program Description	Total Cost of Program	% of Total	Jeff Co Sales Tax	Jeff Co Advalorem Tax	Bham Advalorem Tax	Other Cities Advalorem Tax
Disease Control & EPR	$ (5,346,305)	20	$ 3,877,926	$ 825,903	302,278	$ 340,199
Community Health	(1,964,472)	7	1,424,924	303,474	111,070	125,004
Environmental Health	(5,269,329)	19	3,822,091	814,012	297,926	335,301
Dental Health	(688,100)	3	499,111	106,298	38,905	43,786
HEALTH CLINICS:						
Bessemer	(2,383,077)	9	1,728,558	368,140	134,738	151,641
Morris	(506,187)	2	367,161	78,196	28,620	32,210
BIRMINGHAM CLINICS:						
Central	(2,658,773)	10	1,928,533	410,730	150,326	169,184
Eastern	(2,425,122)	9	1,759,055	374,635	137,115	154,317
Northern	(1,804,299)	7	1,308,742	278,730	102,014	114,812
West End	(1,845,933)	7	1,338,942	285,162	104,368	117,461
Western	(2,248,879)	8	1,631,217	347,409	127,151	143,102
Cost of Bham Clinics	**$ (10,983,006)**	**40**	**$ 7,966,489**	**$ 1,696,667**	**$ 620,974**	**$ 698,876**
TOTAL COST	**$ (27,140,476)**	**100%**	**$ 19,686,259**	**$ 4,192,690**	**$ 1,534,511**	**$ 1,727,016**
			73%	15%	6%	6%
					TOTAL TAX	$ 27,140,476

- Additional Information - 2011 Bankruptcy Filing: On November 9, 2011, Jefferson County became the subject of the most expensive municipal bankruptcy ever in the US, at $4.1 billion, with debts of $3.14 billion relating to sewer work. As a result, cuts to the fiscal 2012 budget have effected all governmental service departments, including JCDH.
- See STD Program funding and expenditures below.

Jefferson County Health Department Organization as Related to STD Prevention

The Program Manager for Sexually Transmitted Diseases reports directly to the health department's Medical Director. Staff includes two program supervisors, with four preventions specialists reporting to each supervisor. Funding for staff comes through the indigent care fund with the exception of one of the supervisors who is funded directly through CDC. Although the roles and responsibilities for are the same for both supervisors, the CDC-funded supervisor is referred to as a Federal Advisor.

Programs

The Sexually Transmitted Disease (STD) Clinic is located in the Central Health Center at 1400 6th Avenue, South in Birmingham. The STD Clinic offers confidential testing, evaluation and treatment to individuals, their sex partners and unborn children who are at risk from syphilis and other sexually transmitted diseases. None of the satellite clinics provide testing and counseling for STDs, but instead, patients are referred to the STD Clinic. All of the satellite clinics provide prevention information on STD prevention in the form of prevention counseling and printed material.

Patients who test positive for syphilis are interviewed by JCDH staff members using the standard CDC interview form. Questions on that form include demographic variables, sex and number of partners, intravenous drug use, and contact tracing information.

At times of high incidence, STD Clinic staff has engaged in community screening, wherein communities that have experienced a high rate of incidence are canvassed by JCHD staff, and residents are encouraged to test. There has not been a need for community screening for over two years. Approximately 40-50% of sexual partners that are identified by an infected patient are located and tested relatively quickly. Another 30-40% take longer to trace, but are eventually found because of their relationships with other contacts.

The health department is often called on by parents in the community to provide "safe dating" counseling to young men and women. This is most often the case because the parents do not feel

comfortable discussing the topic of sex with their children, but they do want to make sure that their children get accurate information.

More recently the health department has been conducting "male summits" in Jefferson County high schools. These are non-judgmental programs that cover topics from "male family planning" to anger management. The discussions are frank and have been well received by participating youth.

STD Programs Budget

The annual budget for JCHD's STD Clinic is approximately $1.5 million. The only money budgeted specifically for syphilis control is a CDC grant through the Syphilis Elimination Effort (SEE), which is a national initiative to reduce syphilis rates in the United States. This year, based on lower syphilis rates in Jefferson County, the amount of the grant is $22,000. At the peak of the epidemic in 2006, SEE funding for JCHD was $50,000. The expectation is that: should Jefferson County's rate go up again, funding would go up as well.

Additionally, general funding from other departments at JCHD can be assigned specifically to syphilis control. For example, the public relations department has a budget that is not earmarked for any specific issue, but those monies can be directed to address specific health problems. In 2006, a significant portion of the public relations budget was spent purchasing public service announcements (PSAs) related to syphilis. Exact PR dollars spent is unavailable. Note that not all PSAs are free. Often, the arrangement is buy one, get one free.

Finally, patients who are tested for STDs are charged $5 for the test, however, anyone identified as a contact by another person is not charged to be tested. When there is an outbreak, no one is charged.

Section Three: What is Known

Natural History of Syphilis

Origins

The earliest known cases of syphilis in the Western world were noted in the 1490s.[viii] The Columbian theory of the origin of syphilis in Europe was that it came from the New World on Columbus' return. The Pre-Columbian theory is that treponemal disease already existed in Europe and mutated into syphilis around Columbus' time. The medical evidence to support this idea, however, has been determined to represent diseases other than treponematoses. Medical and anthropological research shows that treponematosis originated in Africa in the form of yaws, a disease which produces painful

open sores and disfiguring growths. Passing through Asia to North America, yaws spun off a mutation that produced bejel, which causes sores and disfiguring deformation of bones. Bejel also passed into North America. However, all these forms of treponema pallidum are transmitted non-sexually.[ix] The mutation of treponema pallidum that created sexually transmitted syphilis occurred in North America.[x]

Transmission and Progression of Syphilis

Syphilis is most commonly transmitted during sexual contact, including oral sex, through minor skin or mucosal lesions. The risk of developing syphilis after unprotected sex with an individual with early (infectious) syphilis is about 30-50%. It can also be transmitted in blood from infected persons.

The body's immunologic response to syphilis infection includes synthesis of a number of antibodies, some of which react specifically with pathogenic treponemes and some with components of normal tissues. These antibodies are useful in diagnosis of syphilis, but without antibiotics, natural immune reactions usually fail to eradicate the infection. The immune reaction may even contribute to tissue destruction in the late stages of the disease. Early treatment with penicillin or other antibiotics can cure the infection, but even cured patients do not gain immunity with the experience. They remain fully susceptible to re-infection.[xi]

Without treatment, early syphilis progresses to the latent (hidden) stage. It may become infectious again in the early part of this phase, when no symptoms are seen. The latent phase can last for years and signs and symptoms may never return, or the disease may progress to the tertiary (third) stage, also called late syphilis.[xii]

About 15 to 30 percent of people infected with syphilis, and not treated, will develop complications known as tertiary, or late, syphilis, manifesting in damage to the brain, nerves, eyes, heart, blood vessels, liver, bones and joints. These problems may occur many years after the original untreated infection.[xiii]

Late syphilis consists of so-called benign (gummatous) lesions involving skin, bones, and viscera; cardiovascular disease (principally aortitis); and a variety of central nervous system and ocular syndromes. These forms of syphilis are not contagious. The lesions contain few demonstrable spirochetes, but tissue reactivity (vasculitis, necrosis) is severe and suggestive of hypersensitivity phenomena.[xiv]

STDs in Jefferson County

The best resource for statistics regarding STDs in Jefferson County is the Alabama Department of Public Health STDS web page: http://www.adph.org/std/

Left hand links include:

- **Alabama Trends** (including a link to statistical data by Public Health Area. Jefferson County is PH Area 4)
- **Statistics** (Included for1994-2011 are: Chlamydia, Gonorrhea, and Syphilis; these statistics include Alabama totals for each year as well as a breakdown by county.)
- **Syphilis Eradication Effort (SEE)**

The website is very easy to use and the link will take you directly to the STD homepage for the ADPH.

Demographics of Syphilis in Jefferson County

According to the CDC's Morbidity and Mortality Weekly Report, May 8, 2009, an analysis of the syphilis outbreak in Jefferson County found increased incidence among heterosexuals. Specifically, women and men having sex with men were less likely than heterosexual men to present with primary syphilis.

While rates of syphilis were declining nationally, Jefferson County reported 580 primary and secondary syphilis cases, including 197 cases (34.0%) of primary syphilis and 383 cases (66.0%) of secondary syphilis—between 2002 and 2007.

Of the 568 cases for which data on race/ ethnicity were available, 494 cases (87.0%) were in blacks, 69 (12.1%) were in whites, four (0.7%) were in Asians, and one was in a Hispanic (0.2).

Of the 529 cases for which sex of partners data were available, 88 cases (16.6%) were in men having sex with men, 223 cases (42.2%) were in men having sex with women, and 218 cases (41.2%) were in women.

Reported primary and secondary rates (per 100,000 population) increased from 1.4 in 2002 to a peak of 36.2 in 2006, and then decreased to 25.2 in 2007.[xv]

Section Four: Social, Economic, and Political Backdrop

Social

- **Religion:** There are over 1,300 churches in the Metropolitan Statistical Area (an area that includes parts of counties besides Jefferson), with 60% of residents holding church membership.[xvi]
- **Reproductive health/education:** Alabama is viewed both by its citizens and by citizens of other states as socially conservative, particularly on reproductive health. However, Alabama has 15th highest teen pregnancy rate in the nation.[xvii] It is likely that a culture of openness about reproductive health does not exist in Jefferson County, resulting in reproductive health behaviors that are among the most deleterious in the country.
- **Segregation:** Birmingham has a well-known place in the Civil Rights movement. While the city has come a long way, segregation still exists. According to the 2010 census:
    - Jefferson County is 53% white and 42% black; but
    - Birmingham is 22.3% white and 73.4% black.

  Additionally, 3 of the larger cities in the most affected area of the epidemic are:
    - Fairfield, 4.2% white and 94.6% black;
    - Pleasant Grove, 53.7% white and 44.8% black; and
    - Forestdale, 26.2% white and 71.4% black.
    - In Birmingham, and in 2 of the 3 larger cities North of I-20 and west of I-65, the proportion of blacks is much higher than in Jefferson County overall. Although the proportion of whites and blacks is somewhat even in Jefferson County overall, the proportions within the cities in the affected areas shows clustering of races.
- **Violence**
    - In 2005, Birmingham had the 3rd highest murder rate (44.3 per 100,000) of all U.S. cities. [xviii]
    - Of the estimated 47 homicides in Jefferson County in 2010, approximately 24 of them (51%) occurred in Birmingham and Fairfield alone.[xix]

Economic and Political

- **Historical Political Environment and Syphilis in Jefferson County:**

  The political environment in the local area has influenced the business of the JCDH throughout its existence. An account of the Health Officer being "flogged" as a result of taking a strong position on

the safety of the local milk supply can be found in the history of JCDH available at: www.jcdh.org/About/History.aspx, and detailed below:

"The struggle to achieve a safe milk supply was perhaps the most dramatic of the department's early challenges. In 1917 the death rate from diarrhea and enteritis among children under the age of two was 182.5 per 100,000 population. These deaths were largely attributable to the unprotected milk supply. Fifty percent of the milk sold to the public was found to be adulterated to the extent of 10 percent added water. The average bacteria count was 780,000 per cubic centimeter.

Most of the suppliers were small, independently operated dairies. Cows were hand-milked and the milk sold raw. More than 100 such dairies were operating the county, many within the city limits.

By 1920, Health Officer, Dr. Judson Dowling had persuaded the city government to adopt an ordinance prohibiting the sale of milk with bacteria count exceeding 60,000 per cubic centimeter, a level difficult to achieve without pasteurization. The law provided for regular inspections of dairies and excluded sales of milk from dairies not passing inspection.

The dairy operators fought back. Dr. Dowling was kidnapped from his home, taken to a remote area where he was flogged and warned to leave town within 30 days. This act outraged the community and infused both the public and the local governments with enthusiastic support for Dr. Dowling's efforts.

By 1923, adulteration was limited to 3 percent of the milk supply, 80 percent of the milk sold here was pasteurized, and the death rate from infant diarrhea and enteritis was down to 29 per 100,000 population. Further, per capita milk consumption had increased 91 percent. In 1948 all sales of raw milk were prohibited by law."

Against this historical backdrop, coupled with the social and economic climate and the stigma associated with sexually transmitted diseases, many political leaders were not interested in having a public reminder of the presence of a syphilis outbreak in the local area. Thus, when the JCDH began a public awareness campaign that included bus ads, Birmingham Mayor Larry Langford insisted that the ads be pulled saying in an article in The Birmingham News: "It's hard enough to compete for business without having people to walk in and have that shock value added to it. We have a lot of issues, but you don't destroy your city. You find other ways to address those problems."[xx] The News article also featured comments from a representative of JCDH noting:

"Officials with the health department said they were surprised by the reaction. 'As keepers of public health here, it's our duty to educate the public,' said public relations coordinator Wanda Heard. 'I am so surprised to hear any negative comment, and that (the ads) are offensive because we've only heard positive reports.' Beside buses, the health department ads appear on billboards placed near busy streets. There are also television commercials. Heard said some patients came in for treatment after learning symptoms of the sexually transmitted disease through the campaign. 'We're not going to back away from education,' she said. 'If we have to take other routes, we definitely will do that. The epidemic is still here.'..."[xxi]

While not a public flogging, this reaction certainly incurred a chilling effect, which resulted in restraints on the avenues available to JCDH to fulfill its mission.

- **Current Economics, Government Structure and Politics in Jefferson County**

Jefferson County, located in north central Alabama, has a population of 658,466; with a racial/ethnic make-up of 53% White, 42% Black, .03% Native American, 1.4% Asian, and 3.9% Hispanic/Latino. Per the 2010 Census, 83% of the population graduated from high school, and 28.8% have a bachelor's degree or higher. Median household income is $45,244, and 15.5% of the population lives below the federal poverty level. [xxii]

The Jefferson County Commission

Jefferson County, Alabama is governed by a five-member commission that combines the legislative and executive duties for the county. The Commissioners are elected by a vote of the five individual districts in the county. By votes in the commission, the commissioners are given executive responsibilities for the various county departments, which fall under the categories of "Roads and Transportation", "Community Development", "Environmental Services", "Health and Human Services", "Technology and Land Development", and "Finance and General Services". The County Commission elects its own President, who is the chairman of all County Commission meetings, and who has additional executive duties. [xxiii]

The Commission Memberships and Offices:

Commissioner	Responsible Departments	District
David Carrington, President	Administrative Services	5
Joe Knight	Courts, Emergency Management, and Land Planning and Development	4
Jimmie Stephens	Finance and Information Technology	3
Sandra Little Brown, President Pro	Community Services and Roads and Transportation	2
George Bowman	Health Services and General Services	1

A county manager, Tony Petelos (former Mayor of Hoover, AL), was hired effective October, 2011. The position was mandated by the Alabama Legislature and had to receive a "super-majority" (4 of 5) commissioner votes. Mr. Petelos received unanimous support.

In addition, each commissioner chairs one oversight committee and members to each of the others.

Jefferson County Committee Oversight Responsibilities:[xxiv]

<table>
<tr>
<td>Committee of Health Services and General Services—Bowman, Chair

• All General Services Departments
• Cooper Green Hospital
• Jefferson County Rehabilitation and Health Center
• Coroner
• Laundry</td>
<td>Committee of Community Services and Roads and Transportation—Little Brown, Chair

• All Roads and Transportation Departments
• Office of Senior Citizens
• Community Development
• Economic Development
• Workforce Development</td>
</tr>
<tr>
<td>Committee of Finance and Information Technology—Stephens, Chair

• Finance
• Revenue
• Budget Management Office
• Purchasing
• Information Technology</td>
<td>Committee of Courts, Emergency Management, and Land Planning and Development Services—Knight, Chair

• Family Court
• Juvenile Court
• EMA
• Board of Registrars
• Land Planning
• Development Services</td>
</tr>
<tr>
<td>Committee of Administrative Services—Carrington, Chair

• Human Resources
• Minutes Clerk
• Public Information Officer

County Chief Financial Officer reports to County Manager
• Finance
• Revenue
• Budget Management Office
• Purchasing</td>
<td>Executive Responsibilities:
County Chief Operating Officer (County Manager)—Petelos

• All General Services Departments
• All Roads and Transportation Departments
• Land Planning and Development Services
• Cooper Green Hospital
• Jefferson County Rehabilitation and Health Center
• Coroner
• Laundry
• Office of Senior Citizens
• Community Development
• Economic Development
• Workforce Development
• Information Technology
• Family Court
• Juvenile Court
• EMA
• Human Resources
• Board of Registrars
• Public Information Office</td>
</tr>
</table>

Jefferson County Financial Problems and Corruption

Nearly two dozen Jefferson County employees, contractors and advisers involved in the county's $3.2 billion sewer rehabilitation work have been convicted in federal court, and most were convicted of bribery and conspiracy. The following former commissioners have been convicted in the scandal:

- A federal jury convicted former County Commission President and Birmingham mayor Larry Langford on 60 counts all stemming from his acceptance of bribes in exchange for him sending lucrative bond business to investment banker Bill Blount, a former chairman of the Alabama Democratic Party.[xxv]U.S. District Judge Scott Coogler sentenced Langford to 15 years in prison. [xxvi]
- Former county commissioner Mary Buckelew pleaded guilty to obstruction of justice for lying to a grand jury about her acceptance gifts from an investment banker as part of the sewer scandal. She was sentenced to probation and did not receive jail time. [xxvii]
- Gary White, also a former county commissioner, was convicted of bribery and conspiracy and sentenced to ten years in prison.[xxviii]
- Chris McNair was a former county commissioner who was convicted in 2006 of charges that stemmed from his receipt of over $850,000 in bribes from several sewer contractors. He was sentenced to five years in prison. [xxix]
- In 2009, a federal jury found former commissioner John Katopodis guilty on all 97 counts of mail and wire fraud stemming from his misuse of funds of the charity Computer Help for Kids. He was sentenced to three years and ten months in prison. [xxx]
- Jeff Germany was convicted in 2006 of on four counts of misapplying county funds and one count of conspiracy for using social service agencies to gain access to thousands of dollars in taxpayer money for personal gain. He helped the group Alabama New South Coalition's Jefferson County Chapter screen candidates seeking its endorsement. [xxxi]

Jefferson County filed for bankruptcy protection in December, 2011. It is considered to be the largest municipal bankruptcy filing in the history of the United States. It was challenged in court by various creditors and at least one group of taxpayers. A ruling issued by the federal bankruptcy court authorized the filing in March 2012. A large portion of the county's debt stems from a sewer system overhaul, which was paid for in part by complicated bonds that resulted from corrupt deals and from which the county ended up $3 billion in debt. Elected officials, public employees and business people were convicted of rigging the transactions that contributed to the fiscal debacle. [xxxii]

Origin of Jefferson County Debt

Approximately $3.2 billion of the county's debt is from overhauling the county's sewer system starting in the mid-1990s. In 2002, the County Commission rushed to issue more than $1 billion in sewer bonds shortly before elections so their chosen bond dealers and other financiers would reap the financial windfall. A bond swap plan added to the debt in 2003 when the refinancing of the original fixed-rate bonds and a corrupt local government that accepted kickbacks in exchange for mangling the county's

portfolio. The county switched to floating-rate bonds to benefit from the low interest rates and it purchased billions in interest rate swaps. Neither of the maneuvers produced a profit and instead, the county ended up losing money in fees—deepening the financial hole. Ultimately, a receiver was appointed. John Young was appointed by an Alabama Circuit Judge in September 2010 as requested by one of the bond holders, Bank of New York Mellon—which held almost $3.2 billion in bonds.

Occupational Tax found Unlawful

A significant portion of revenue for Jefferson County was raised by an occupational tax that was paid by all persons employed in the county. The tax had been under attack and ruled unlawful. A subsequent fix for the tax was passed by the legislature, however, that fix was also ruled unlawful. The tax was responsible for over $66 million in revenue to the county in 2010, amounting to 20% of the overall budget. It was originally enacted in 1988, found unlawful and reenacted in 1999, and a lawsuit filed in 2007 ultimately ended with the tax being ruled unlawful in 2009. Refunds were ordered to taxpayers, and Jefferson County found itself deeper in financial trouble. Attempts to establish a new occupational tax failed in 2010 and 2011.[xxxiii]

The combination of the sewer debt and loss of the occupational tax has severely restricted Jefferson County's ability to meet existing obligations and prompted actions to reduce obligations and find additional sources of revenue. The statutory indigent care fund from which the JCDH receives substantial revenue is one of the sources of additional revenue frequently mentioned. The idea of "unearmarking" some or all of the indigent care fund and redirecting those funds to the Jefferson County general fund is seen as a way to gain access to a large source of funding that would not represent a "new" tax. The indigent care fund generated $41.2 million for Cooper Green Hospital and $16.8 million for JCDH in fiscal year 2010 and 2009 respectively from a one cent sales tax that can only be used for healthcare for Jefferson County's Poor. [xxxiv]

While only Commission President Carrington exercised any direct influence on the JCDH as a member of The Jefferson County Board of Health, these events and potential events could have significant impact on the ongoing financial health of JCDH.

The City of Birmingham

Birmingham is the largest city in Alabama with a population of 212,237; with 22% of the population White, 73% Black, 1% Asian and 4% Hispanic/Latino. Per the 2010 Census, 82% of the population graduated from high school and 21% have a bachelor's degree or higher. Median household income was $31,827 and 26% of the population lives below the federal poverty level. [xxxv]

Birmingham Political Structure

Birmingham has a mayor-council form of government. William A. Bell, Sr. serves as Mayor and began his most recent term in January, 2010. The City Council consists of nine councilors elected by district. Representatives began the most recent terms in 2010 include:[xxxvi]

- Roderick V. Royal, Council President –District 9
- Steven W. Hoyt, Pro Tempore—District 8
- Lashunda Scales—District 1
- Kim Rafferty—District 2
- Valerie A. Abbott—District 3
- Maxine Herring Parker—District 4
- Johnathan Austin—District 5
- Carole C. Smitherman—District 6
- James "Jay" Roberson, Jr.—District 7

The city reported general revenues of $296 million for the fiscal year that ended June 30, 2010. [xxxvii]

The city of Birmingham, while and important stakeholder for JCDH, does not have any direct financial or oversight relationship with the department.

Section Five: The Team Charge

Summary and Team Charge

As a member of the Blue Ribbon Panel empowered by the Jefferson County Board of Health, you have been tasked with developing short- and long-term plans - including a plan for sustainability – to address the syphilis epidemic in Jefferson County, Alabama. Your panel will be assigned a UAB faculty member who will serve as the panel mentor. Your proposal should include feasible, effective and culturally appropriate strategies to address this epidemic, and to ensure sustainability for at least 7 years. In addition to current expenditures, your panel will be allowed a budget of $250,000 annually for the first 2 years and $150,000 per year thereafter to accomplish your goal(s). Given your budget limitations, your panel will be asked to provide a detailed plan demonstrating that your proposal is scientifically feasible, pragmatic and acceptable. Identifying ways to leverage these funds through additional grants or other revenue options should be important considerations. Following below and on the next page are a few points and questions to be considered that you may want to include in your plan:

Things to consider:

- Target population(s)
- Measurable objective (e.g. you aim to reduce syphilis cases by at least 50% in the most at risk population(s) population by year 2014)
- History of incidence rate reduction efforts in the past
- Scientific limitations (e.g. incubation period, transmissibility, etc.)
- Constituencies and stakeholders at the local level
- Collaborations needed at the city, county, state and national level

Your panel will be given approximately 72 hours beginning 12 noon, on Monday, April 2nd, to review the details of this case and prepare a strategy to present to a team of judges from the Jefferson County Board of Health at 12 noon, Thursday, April 4th. Be prepared to justify the decisions made by your panel and explain all choices made in the development of your plan. See potential questions on next page.

Questions for your consideration:

1. Given the difficulties encountered with syphilis control programs in Jefferson county in the past, what steps will you propose to address public awareness with regard to this epidemic and how will they be the same or differ from what was done before?
2. What budgetary modifications would you propose while ensuring that the plan you propose is sustainable?
3. What are the short- and long-term plans you propose for the amelioration of this problem?
4. What are the constituencies and/or stakeholders that need to be involved in this plan to ensure its success?
5. What are your long-term sustainability plans?
6. What population will your intervention target?
7. How does this epidemic compare with syphilis rates across the nation?
8. What does the epidemiology of syphilis indicate about the recent increase in cases in Jefferson County and what implications does that have for containment and reduction of syphilis cases long-term in Jefferson County.?

Appendices

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"Wicked Problem" Case Competition Judges

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Edward Hook, MD	Professor of Medicine and Epidemiology, Schools of Medicine and Public Health; Chief of the Division of Infectious Diseases	Dr. Hook graduated from Hobart College in Geneva, New York, with a BS degree and earned his MD degree at Cornell University Medical College. Dr. Hook has received numerous awards for teaching and scientific accomplishment. His focus on management and prevention of STDs includes directing clinical studies and an internationally recognized reference laboratory for STD pathogens and serving as a consultant and committee member for several national and international organizations, including the NIH, CDC, Institute of Medicine, and the World Health Organization.
Craig Wilson, MD	Professor of Epidemiology and Medicine, Schools of Public Health and Medicine; Director, Sparkman Center for Global Health	Dr. Wilson has extensive experience and expertise in international and global health, especially in Zambia participating in a number of trials involving maternal to infant transmission of HIV. His primary goal with the Sparkman Center is to work with other departments and units to recruit additional international health faculty to the School and to UAB.
Jim Alosi	STD Program Manager, Jefferson County Health Department, Retired 2011	Mr. Alosi began his career with the department of health in Environmental Health in the Food & Milk Division. He has served on the board of AIDS Task Force of AL (now AIDS AL), chaired the Jefferson County Ryan White Consortium and Co-Chaired the Jefferson County HIV Prevention Community Planning Group. Mr. Alosi served with Jefferson County Health Department for 33 years before retiring in 2011.

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