Responding to a Syphilis Outbreak through Collaboration with Public and Private Partners
Genesee County, Michigan, 2008-2009

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BACKGROUND

Genesee County located in lower northeast Michigan, with a population of 428,790, is the fifth most populous county in the state representing 4.3% of the states' population. Flint, with a population of 102,446 which approximates 23.9% of the county's total population, is the urban and geographic center of the county. Approximately 77% of Genesee County residents are Caucasian and 19% are African-American. Sixty-eight (68%) of Genesee County's African-American population resides in the City of Flint[1]. In 2009, unemployment rates in Genesee County and Flint, 15.8% and 26.3%, respectively, were higher than in Michigan (14.0%)[2]. Flint has seen a dramatic shift in socioeconomic status over the last 20 to 30 years and has been plagued by higher unemployment than Genesee County as a whole. Neighborhoods in inner Flint, now designated as a Federal Community Enterprise Zone, suffer even higher levels of poverty.

Significant racial disparities in health have been seen among residents of Genesee County with African Americans suffering poorer health. The Genesee County Health Department (GCHD) is a grantee of the Center's for Disease Control and Prevention (CDC) Racial and Ethnic Approaches to Community Health Across the United States (REACH U.S.) national program aimed at eliminating racial and ethnic health disparities in the United States.

The GCHD administers over 40 services and programs in the areas of clinical, community, and environmental health with a staff of approximately 130. The vision of the GCHD is "Better Life Through Better Health" and the three long term outcomes outlined in the GCHD's 2008 – 2012 strategic plan are to prevent chronic disease, prevent infant mortality, and prevent communicable disease, especially sexually transmitted disease.

Although Genesee County has consistently experienced a very high burden of chlamydia and gonorrhea, there have been no significant outbreaks of primary and secondary syphilis in the county's history. In 2008, Genesee County experienced an increase in primary and secondary syphilis of almost 500% (82 cases in 2008 versus 14 cases in 2007). The majority of cases were among heterosexuals in the African-American community within the City of Flint.

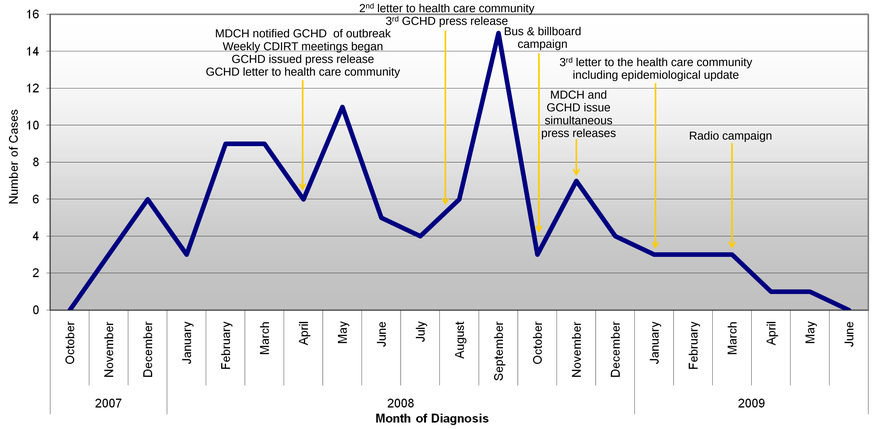
The investigation and response to syphilis cases in Michigan is conducted by Disease Intervention Specialists (DIS) from the Michigan Department of Community Health (MDCH). MDCH DIS are stationed throughout the state and have responsibility for multiple counties.

The GCHD has a cross divisional work group whose primary role is to coordinate the response to significant communicable disease events in Genesee County. This group is called Communicable Disease Investigation Response Team (CDIRT) which meets monthly. The members include the Epidemiologist, who serves as the chair, the Medical Director, the Emergency Preparedness Coordinator, the Community Health Director, the Environmental Health Director, the Communicable Disease and Immunization Supervisor, the Adult Clinic and Family Planning Supervisor, and the Environmental Health Food Program Supervisor.

OBJECTIVES

- Reduce the rate of infectious syphilis among the sexually active community
- Initiate collaboration between the Michigan Department of Community Health (MDCH) and the Genesee County Health Department (GCHD) to maximize public health resources
- Continually monitor and analyze case data and information to establish targeted interventions
- Educate the public about the outbreak
- Inform and routinely update the private medical community about the outbreak and engage them in the effort to control the outbreak through increased and targeted screening and patient education
- Utilize public health partners including community organizations and businesses to assist with public education campaigns

Figure 1: Primary and Secondary Syphilis Cases - Genesee County, MI 2007-2009



METHODS

In March of 2008 the GCHD was notified by MDCH that an infectious syphilis outbreak was occurring in Genesee County after the state DIS began seeing an increase in cases and the MDCH Sexually Transmitted Disease epidemiologist confirmed the outbreak. It was decided that CDIRT would lead the outbreak investigation and response and MDCH would serve as an adjunct to provide support and expertise. Additionally, more DIS were assigned to Genesee County for case investigation, contact tracing, and assistance with field work. Additional GCHD staff were added to CDIRT including the Adult Clinic coordinator, the health educator from the Community Health Division, coordinators from the REACH U.S. program, and staff from HIV Partner Counseling and Referral Services.

Overall strategy and objectives were formulated and weekly CDIRT meetings were held. Standing agenda items included discussion of new cases, updates of existing case investigations, data analysis of cases including demographic and geographic analysis, targeted testing opportunities, and information and education dissemination. The strategy utilized the expertise of MDCH personnel as well as other divisions within the GCHD that routinely work with the affected populations.

Extensive epidemiological analysis was performed on all available data gathered from case interviews. The distribution of case age, gender, and stage of infection was regularly updated and analyzed in addition to time trend analyses performed on these statistics. Risk factors including substance use, anonymous partners, and number of partners were also examined. Geographic analysis of cases was performed to identify locations to target outreach and testing.

Various types of communication avenues were employed to disseminate outbreak-related information. Local and statewide media releases were used to educate the public. A targeted public health information campaign included the use of billboard and bus advertising and radio announcements. The distribution of various publications and flyers throughout the affected community was utilized.

Throughout the outbreak the GCHD Medical Director worked with the private medical community by communicating updates on the outbreak through numerous letters and presentations to health care providers. Hospital emergency departments were visited to educate staff on the signs and symptoms of syphilis and encourage testing. Other useful tools including patient risk assessment questionnaires, testing criteria checklists, and CDC treatment guidelines were disseminated.

Partnerships with community-based organizations were forged. The faith-based community was engaged to disseminate information about syphilis. Health education materials were created specifically for several faith-based groups.

Several discussions were held with Prison Health Services of the Genesee County Jail and the Jail Administrator. Strategies to increase inmate testing were established. Persons arrested for sex-related crimes were targeted for syphilis testing. Immediate reporting of positive results via phone or fax was instituted and frequency of syphilis laboratory testing was increased from twice-weekly to daily.

Multiple targeted screening interventions were initiated. Various venues were used including clubs, bars, and housing complexes. Street outreach and screening were performed in areas of high prostitution.

RESULTS

As communications and targeted interventions grew, more infectious syphilis cases were discovered, but eventually these led to a decrease in syphilis case rates (Figure 1). In 2009, cases decreased almost 80%.

Data analysis throughout the outbreak revealed that the outbreak transitioned from an older population to a younger population (Table 1). The populations primarily affected were heterosexual and African-American (Table 2). High risk behaviors including anonymous partners and substance use were prevalent among cases. Of the 82 cases, 57 (70%) were located in the city of Flint and geographic analysis revealed concentrations of higher syphilis morbidity within the city (Figure 2).

Evaluation of at-risk individuals indicated that awareness of the outbreak and knowledge of syphilis increased subsequent to public health interventions. Before the targeted information campaigns, 47% of GCHD Adult Clinic clients reported knowledge of the outbreak compared to 77% afterwards.

Cross divisional work at the local public health level was utilized to assist efforts. Environmental Health staff were able to assist with approaching bars and clubs targeted for potential on-site testing due to established relationships with owners. The REACH US staff assisted by adding education about the outbreak and syphilis prevention to work already being performed in the community to reduce racial disparities in health.

CDIRT meetings were initially held weekly, then reduced to bi-weekly and eventually discontinued in July of 2009 as the outbreak abated. Collaboration between the GCHD and MDCH continued as needed.

CONCLUSIONS

The partnership between local and state public health was successful in managing an infectious syphilis outbreak. State public health is experienced at managing STD outbreaks and can offer guidance and expertise.

Creating relationships with key individuals throughout the medical community have proven to enhance all public health interventions and communications. New partnerships established will continue to facilitate STD intervention efforts.

Continuous examination of case data was crucial. The use of data to target public health messages to those at risk and those serving at-risk populations led to enhanced screening and detection of cases. Monitoring the epidemiological profile of the outbreak allowed for interventions to be redirected and new strategies formulated to target affected populations in a timely manner.

IMPLICATIONS

Collaboration among health department divisions as well as between local and state agencies and public and private partners is critical to manage a syphilis outbreak successfully.

Table 1: Average Case Age

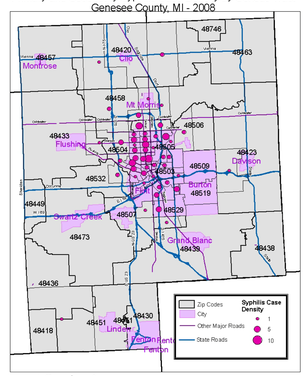
2008	Average Case Age
Jan-Mar	36.5 years
Apr-Jun	34.0 years
Jul-Sept	31.5 years
Oct-Dec	30.1 years

Table 2: Epidemiological Data

		#	%
Gender	Male:	47	57.3%
	Female:	35	42.7%
Race	White:	10	12.2%
	African American:	72	87.8%

Figure 2

Primary and Secondary Syphilis Case Density by Census Tract
Genesee County, MI - 2008



References

1. U.S. Census Bureau, 2008 American Community Survey
2. Michigan Department of Labor & Economic Growth, Employment Service Agency