



Hamilton County Public Health - Epidemiology and Assessment

Syphilis Quarterly Report

David Carlson, MPH, Epidemiologist

Syphilis Prevalence by Month in Hamilton County, Ohio (January 2013 – June 2014)

Table 1. Syphilis Cases by Month for Hamilton County Residents

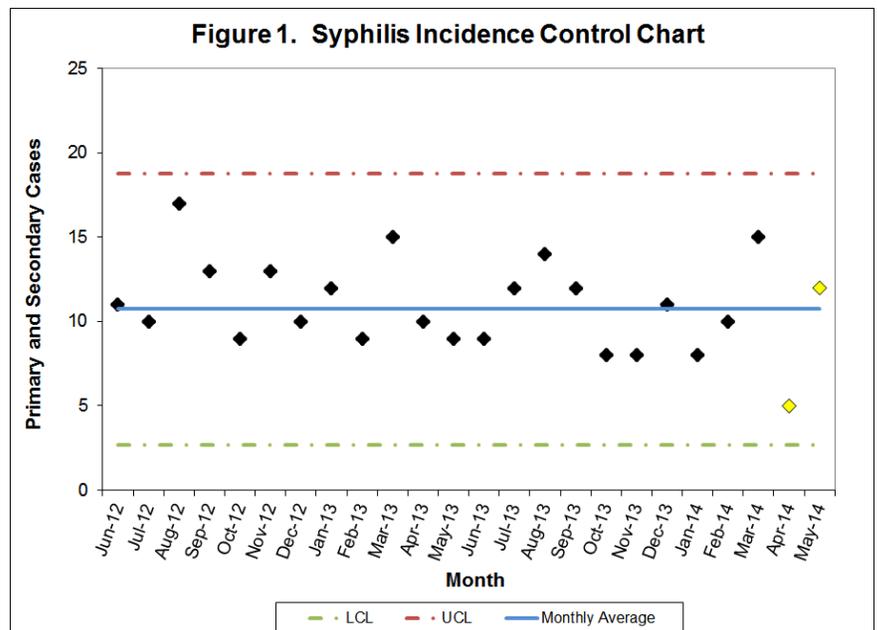
| Month | Cases of Syphilis 2013 | Cases of Syphilis 2014 |
|--------------|------------------------|------------------------|
| January | 30 | 20 |
| February | 34 | 16 |
| March | 33 | 23 |
| April | 31 | 24 |
| May | 28 | 15 |
| June | 23 | 21 |
| July | 35 | |
| August | 28 | |
| September | 30 | |
| October | 34 | |
| November | 17 | |
| December | 27 | |
| Total | 350 | 119 |

This report was created as a surveillance effort to help prevent new cases of syphilis within Hamilton County. Table 1 displays the breakdown of total syphilis cases for Hamilton County residents from 2013 and 2014 on a monthly basis. Only syphilis cases that have been reported to the CDC were counted for analysis purposes in this report. In 2013, the highest number of syphilis cases occurred in July (35 cases). In 2014, the highest number of syphilis cases occurred in April (24 cases). The average number of syphilis cases per month were 29.2 and 19.8 for the years 2013 and 2014, respectively. In the second quarter of 2014, there were 22 fewer cases of syphilis compared to the second quarter of 2013. A case definition change, occurring in January 2014, for late latent syphilis cases has been a major contributing factor in the decrease in the reported total syphilis cases. However, as seen in the next section, Hamilton County is experiencing a slight decline in primary and secondary cases as well.

Syphilis cases are derived from partner services data in the Ohio Disease Reporting System and represent only those cases reported to the CDC. These data are provisional and subject to change when additional data are reported. Cases are selected based on address at diagnosis. Source: Ohio Department of Health (ODH), STD Surveillance. Data reported as of 8/5/2014.

Syphilis Incidence in Hamilton County, Ohio (July 2012 - June 2014)

One way to monitor syphilis infections within Hamilton County is through the use of surveillance control charts. Factors that this control chart shows are the number of primary and secondary syphilis cases for each month (black diamonds), control limits (red or green dashed lines), and the average number of cases (solid blue line). Control charts are used to detect unexpected events, such as a single point outside of the control limit, consecutive points above or below the average line, or two to three consecutive points near a control limit. When anomalies such as these occur it may be beneficial to examine events surrounding the anomalies in order to devise a strategy to reduce the number of cases in subsequent months or to see which strategies already in place are effective. Figure 1 illustrates the control chart for primary and secondary syphilis infections from July 2012 to June 2014. The monthly average number of cases (10.75) was calculated from January 2012-December 2013. All of the months in this time frame fell below the upper control limit for number of syphilis infections. A slight downward trend in primary and secondary cases can be seen from 2012 to 2014.



Syphilis cases are derived from partner services data in the Ohio Disease Reporting System and represent only those cases reported to the CDC. These data are provisional and subject to change when additional information is reported. Cases are selected based on address at diagnosis. Source: ODH, STD Surveillance. Data reported as of 8/5/2014.



Demographics and Social Factors with High Risk for Syphilis Infection

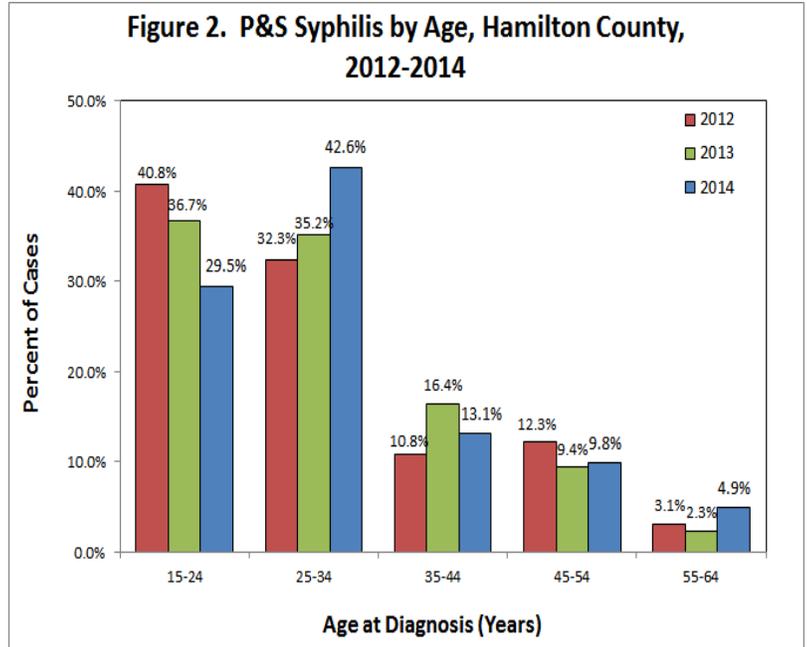
Syphilis incidence, or the number of primary and secondary (P&S) cases, is important to monitor as these stages of syphilis are the stages most likely to transmit the disease to another person. Table 2 and Figure 2 show the demographics and social factors that make up these P&S cases. Table 2 shows the percentage of P&S syphilis cases from 2013 and 2014 based on race, sex, and behavior. Approximately 60 percent of the P&S syphilis cases from 2013 and 2014 occurred among black Hamilton County residents. Additionally, 4 out of 5 P&S syphilis cases from 2013-2014 were among male Hamilton County residents. Figure 2 displays the shift in age distribution of P&S syphilis cases in Hamilton County. In 2012, the 15-24 year old group was responsible for the most cases of P&S syphilis out of any other group; however in 2013 and 2014 the age distribution has shifted towards Hamilton County residents 25-34 years old. Of the primary and secondary cases that occurred between 2013 and 2014 nearly 50% of the male cases were among MSM residents.

Table 2. Demographics of P&S Syphilis Cases

| | Jan. - Dec. 2013 | | Jan. - Jun. 2014 | |
|------------------|------------------|------|------------------|------|
| | # | % | # | % |
| Race | | | | |
| Black | 78 | 60.9 | 36 | 59.0 |
| White | 45 | 35.2 | 23 | 37.7 |
| Other | 5 | 3.9 | 2 | 3.3 |
| Sex | | | | |
| Male | 103 | 80.5 | 49 | 80.3 |
| Female | 25 | 19.5 | 12 | 19.7 |
| Behavior* | | | | |
| MSM | 55 of 100 | 55.0 | 19 of 47 | 40.4 |
| HRHF | 14 of 25 | 56.0 | 9 of 12 | 75.0 |

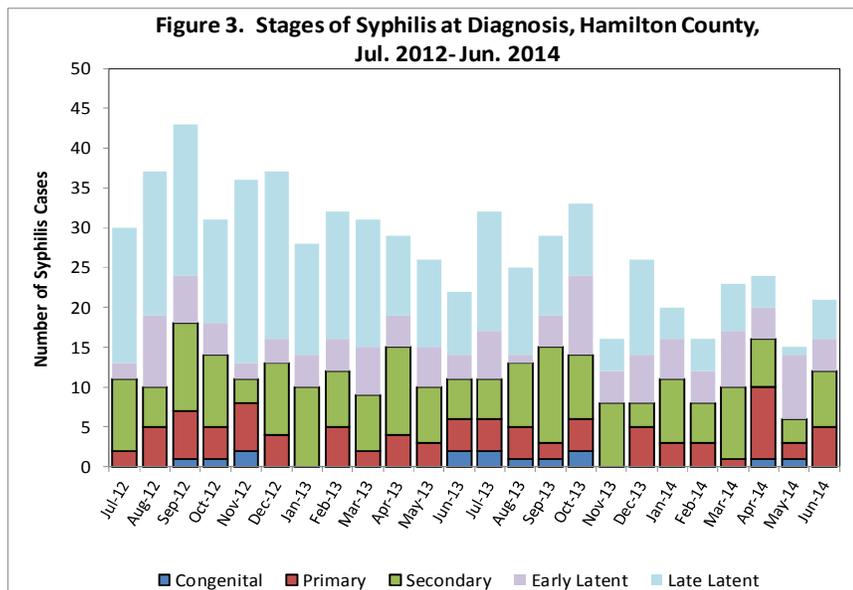
These data are provisional and subject to change when additional data are reported. Cases were selected based on address at diagnosis. Source: ODH, STD Surveillance. Data reported as of 8/5/2014. Percentages may not total to 100 percent due to rounding. *Cases were missing information from fields used to determine transmission. Percentages for behavior are sex-specific and based only on cases that had valid information within the required fields. High risk heterosexual females (HRHF) are women who self-identified as participating in sex with a known MSM, HIV+, IDU, or anonymous person. HRHF status is also determined from factors such as having sex while intoxicated, exchanging sex for drugs, or having previous STIs.

Figure 2. P&S Syphilis by Age, Hamilton County, 2012-2014



Stages of Syphilis Infection: Hamilton County

Figure 3. Stages of Syphilis at Diagnosis, Hamilton County, Jul. 2012 - Jun. 2014



Syphilis infections are organized into different stages based on the clinical presentation of disease and duration of infection. Congenital syphilis cases are cases of syphilis in which the infection is transferred from mother to infant during pregnancy or delivery. Congenital syphilis cases serve as key indicators of community health as this stage of infection is easily preventable when proper healthcare is present. Transmission of syphilis is possible during primary, secondary, and early latent stages of disease. In particular, primary and secondary infections are considered highly infectious stages. During late latent syphilis the patient may no longer be infectious and have no symptoms; however if the patient does not receive treatment the disease can develop into neurological problems, possibly leading to death.