

Marion County STI Assessment

Sexually Transmitted Infections

2011-2015 (Published:2016)



Marion County Health Department
3180 Center St NE, Salem, OR 97301
503-588-5357
<http://www.co.marion.or.us/HLT>

Table of Contents

Methodology of this report: 4

Overview of Syphilis: 5

Syphilis in Marion County 8

 Summary: 8

 Syphilis Stage at Time of Diagnosis: 10

 National Congenital Syphilis Rates: 11

Demographics of Syphilis Cases in Marion County 12

 Summary: 12

 Geography: 12

 Sex: 14

 Age: 15

 Race and Ethnicity: 17

 Men Who Have Sex With Men (MSM) Demographics: 19

Providers: 21

Clinical Considerations 22

 Co-Infections: 22

 HIV Co-infections: 24

 Syphilis patients with repeat infections: 26

Risk Factors: High Risk Activities and Behaviors 28

 Internet Use: 28

 Mobile Apps: 30

 Adult Shops: 32

Overview of Gonorrhea: 34

Gonorrhea in Marion County 37

 Summary: 37

Demographics of Gonorrhea Cases in Marion County 38

 Summary: 38

 Geography: 38

 Sex: 39

 Age: 40

 Race/ Ethnicity: 41

Clinical Considerations 42

 Gonorrhea Cases by Provider and Inadequate Treatment: 42

Overview of Chlamydia: 44

Chlamydia in Marion County: 47

 Summary: 47

Demographics of Chlamydia Cases in Marion County 48

 Summary: 48

 Geography: 48

 Sex: 49

 Age: 50

 Race and Ethnicity: 51

Next Steps: 52

Works Cited 53

Appendix 1: 55

 Data Limitations: 55

Appendix 2: 56

 Chlamydia Zip Codes: 56

Methodology of this report:

“ORPHEUS (Oregon Public Health Epidemiology User System) is a joint database development and integration effort co-sponsored by the Acute and Communicable Disease Prevention (ACDP) and the HIV, Sexually Transmitted Disease and Tuberculosis (HST) Programs within the Oregon Public Health Division.

ORPHEUS is an integrated electronic disease surveillance system intended for local and state public health epidemiologists and disease investigators to efficiently manage communicable disease reports.

ORPHEUS exemplifies health information exchange (HIE), as most case investigations are initiated by the electronic laboratory reports (ELRs), which are automatically imported and accessible to both local and state users, who can work together on cases. Orpheus uses a commercial off-the-shelf application (FileMaker Pro), which is compatible with national standards, and leverages the state's enterprise information architecture, such as the Citrix access gateway, to assure that it complies with the highest level of security and confidentiality.“

(ORPHEUS: About)

Data were collected out of the State Communicable disease reporting system ORPHEUS. The data were then coded and cross tabulated in a statistical analysis package, STATA (data analysis and statistical software). Zip code data were grouped into regions with large enough case counts to calculate stable incidence rates and then mapped using ArcGIS platform through Esri. Additional surveys were distributed to the LHD (local health department) clinic and Disease Investigators to supplement analysis of risk factors.

Overview of Syphilis:

** The following information is extracted from the most up-to-date Oregon State Syphilis Investigative Guidelines, June 2014 (Oregon Disease Investigative Guidelines: Syphilis, 2014)

Syphilis is a bacterial STI (sexually transmitted infection) caused by the etiologic agent *T. pallidum*. It is primarily spread through sexual contact with mucous membranes through oral, vaginal or anal sex. Syphilis can also be spread through mother to child transmission, during pregnancy or birth, or through blood borne transmission. Syphilis is characterized in stages and though most complications occur in the late stage of syphilis, some (like neurosyphilis) can present during any of the following stages.

The stages of syphilis are as follows:

Primary: This stage is characterized by an ulcerated lesion (chancre), which lasts between one and five weeks and appears between 10 and 90 days after infection. This painless sore is usually located in or around the anus, vagina, lips, or penis but can occur anywhere on the body. Since there is no discomfort associated with this sore and it is sometimes located out of view it is possible for individuals to miss the symptoms of primary syphilis infection. This sore is extremely infectious and contact with mucous membranes increases likelihood of transmission.

Secondary: After the primary lesion or chancre disappears there is a latency period of 0-10 weeks after which the secondary stage presents in about 25% of individuals with an untreated syphilis infection. Symptoms include a rash starting on the torso of the body, which then spreads to the arms, legs, or even palms of the hands and feet. Other symptoms that occur include alopecia (hair loss), and malaise. This stage lasts from 1-6 weeks; the infected person is infectious during this stage of disease.

Latent Syphilis: This stage is classified into two sections, *early latent* syphilis is categorized as a latent phase occurring within the first year of infection. *Late latent* syphilis is categorized as a latent phase occurring more than a year from the time of infection. During latent phases of the infection the individual is asymptomatic and non-infectious. Untreated latent phases can last for the remainder of the person's life without ever progressing to tertiary/late syphilis.

Tertiary Syphilis: in 15-30% of untreated patients, the latent phase ends and progresses to tertiary syphilis. This is rarely seen in the United States; clinical manifestations include “inflammatory lesions of the cardiovascular

system, skin and bone. Less commonly, tertiary syphilis causes clinical manifestations in other anatomic locations such as the respiratory tract, mouth, eye, viscera, lymph nodes, or skeletal muscles.”

It is essential to screen, diagnose and treat syphilis as quickly as possible, in its early stages, because of the complications associated with untreated infections such as organ and brain damage. Individuals with untreated syphilis are at higher risk of contracting the HIV virus due to cellular damage in the mucous membranes associated with the sores in the early stages of infection.

Complications of Syphilis:

Neurosyphilis can present during any of the stages of the infection, symptoms vary depending on disease stage. During the early stage of syphilis symptoms include manifestations of meningitis, ocular syphilis, hearing loss, and arteritis leading to stroke. This can resolve spontaneously and may also be asymptomatic. Late stage neurosyphilis may present as a progressive dementing illness including general paresis, and dementia paralytica, or tabes dorsalis, a disease of the posterior columns of the spinal cord and dorsal roots.

Congenital syphilis is a complication that occurs during pregnancy (most often in the early stages of infection). Syphilis can be transmitted to the fetus in utero or through contact with the lesions during delivery. It is extremely important to treat infected pregnant women as congenital syphilis can cause birth defects, abortion or stillbirth and may increase the chances of infant death due to pre-term delivery of low birth weight infants or from generalized systemic disease.

Testing: The most common test for syphilis is a blood test which confirms the presence of antibodies to the syphilis infection. This test does not distinguish between current and past infections.

CDC Syphilis Screening Guidelines 2015:

(2015 Sexually Transmitted Diseases Screening Guidelines: CDC, 2015)

Pregnant Women

- All pregnant women at the first prenatal visit¹¹
- Retest early in the third trimester and at delivery if at high risk¹²

Men Who have Sex with Men (MSM)

- At least annually for sexually active MSM¹³
- Every 3 to 6 months if at increased risk⁷

Persons with HIV

- For sexually active individuals, screen at first HIV evaluation, and at least annually thereafter^{14,15,16}

More frequent screening might be appropriate depending on individual risk behaviors and the local epidemiology¹³

Syphilis in Marion County

Summary:

Marion County has experienced a drastic increase in the incidence of syphilis in the last five years in comparison to national and state data. As seen in figure 1, 2, and 3 the county has surpassed national and state wide rates in many of the categories.

It is important to note that the county, state and national level the reporting is focused on different stages of syphilis which makes comparison across the board difficult. While Oregon State reports on early syphilis (includes primary, secondary, and early latent stages), the United States reports on primary and secondary rates only as their main indicator for incidence trends.

In order to compare rates with national and state data, Marion County has aligned its stages with national and state reporting guidelines in the following graphics.

Figure 1:

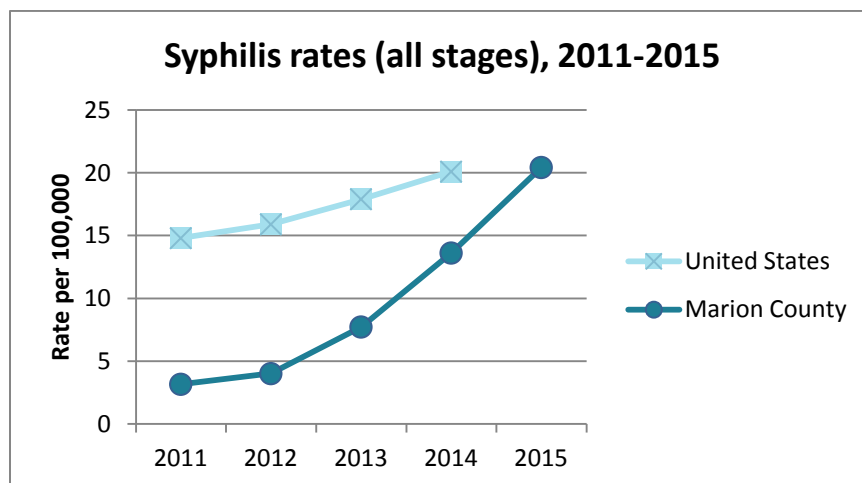


Figure 1: There has been an increase in incidence in both the United States and Marion County, Oregon. The United States has experienced a **35.8% increase in incidence per 100,000** (14.8 cases per 100,000 in 2011 to 20.1 cases per 100,000 in 2014), and a **537.5% increase in incidence per 100,000** in Marion County, from (3.2 cases per 100,000 in 2011 to 20.4 cases per 100,000 in 2015). Incidence rates are calculated based on all stages of syphilis. National incidence rates for all stages of syphilis are available at the (Center for Disease Control and Prevention: Sexually Transmitted Disease Surveillance 2014, 2015).

Figure 2:

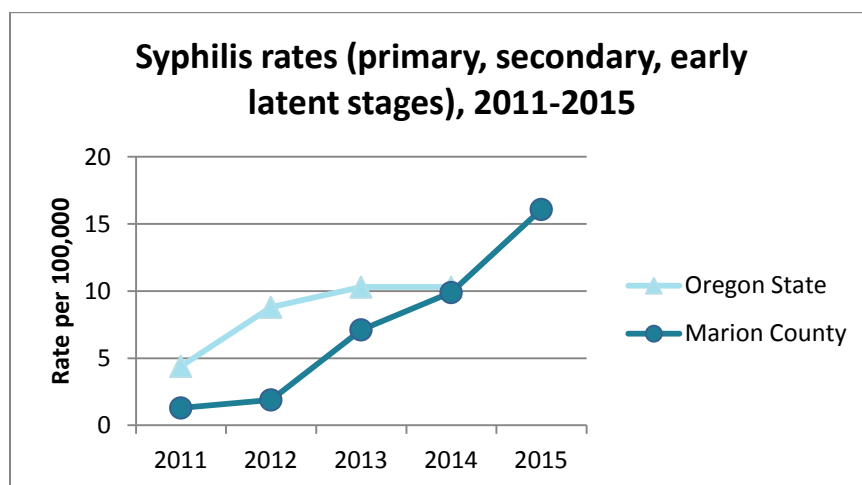


Figure 2: There has been an increase in incidence in both the Oregon State and Marion County. Oregon State has experienced a **134.1% increase in incidence per 100,000** (from 4.4 cases per 100,000 in 2011 to 10.3 cases per 100,000 in 2014) and a **1138.5% increase in incidence per 100,000** in Marion County (from 1.3 cases per 100,000 in 2011 to 16.1 cases per 100,000 in 2015). Incidence rates are calculated for primary, secondary and early latent stages of syphilis to align Oregon State’s reporting preferences. Oregon State’s incidence rates for early syphilis are available on the (Oregon STD Statistics, 2014)website.

Figure 3:

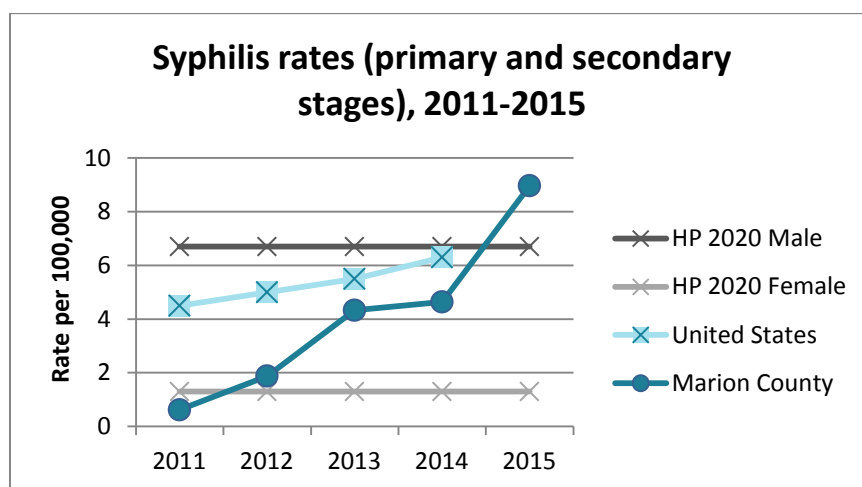


Figure 3: There has been an increase in incidence in both the United States and Marion County, Oregon. The United States has experienced a **40.0% increase in incidence per 100,000** (from 4.5 cases per 100,000 in 2011 to 6.3 cases per 100,000 in 2014), and a **1346.8% increase in incidence per 100,000** in Marion County (from .62 cases per 100,000 in 2011 to 8.97 per 100,000 in 2015). Incidence rates are calculated based on primary and secondary stages of syphilis to align with national reporting preferences. These are compared to Healthy People 2020 goal set by sex at 6.7 cases per 100,000 for males, and 1.3 per 100,000 for females. Healthy People 2020 targets are set based on a 10% decrease in national rates for males and females from the time they were set. (Healthy People 2020: Sexually Transmitted Diseases)

Syphilis Stage at Time of Diagnosis:

The figures below show syphilis cases by stage of diagnosis. The goal of looking at these figures is to understand how syphilis diagnosis has changed in Marion County in past years. Looking at the first figure for primary and secondary syphilis there is an increase in diagnosis between the years of 2011 and 2012 most notably. This is a positive trend as it is our goal as health professionals to catch cases early in their disease progression, limiting the chance for transmission during the disease's infectious stages. After the year of 2012, there is a reduction in the percent of cases diagnosed in primary syphilis and more diagnosed in the early latent phase.

Problems with the data: since numbers of syphilis are fairly small and here they are divided into stages, some of the charts contain numbers that are not statistically significant according to best practice, which is classified as ($n > 5$). These charts are to be used purely as a reference for health practitioners in order to establish goals for increased diagnosis and treatment in primary syphilis.

Figure 4:

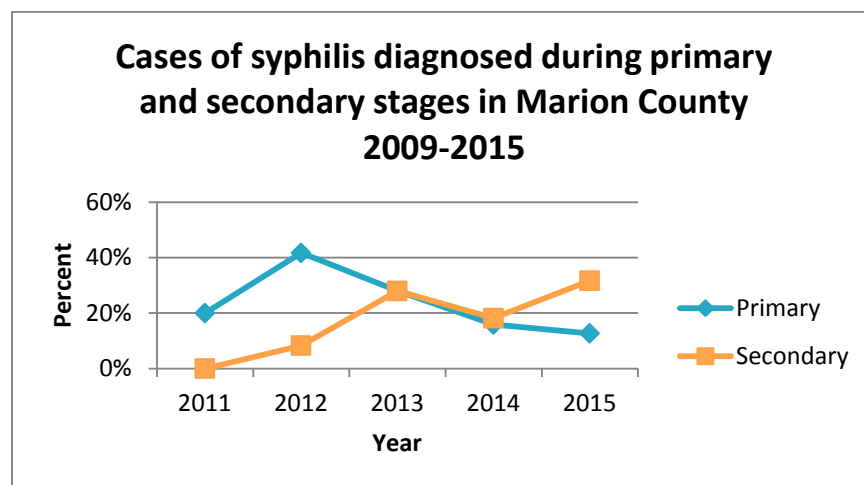


Figure 4: shows the percent of all syphilis cases in Marion County from 2011-2015 that were diagnosed during the primary vs. secondary stage of syphilis. It is important to catch cases at these stages when syphilis is infectious to reduce the spread from person to person.

Figure 5:

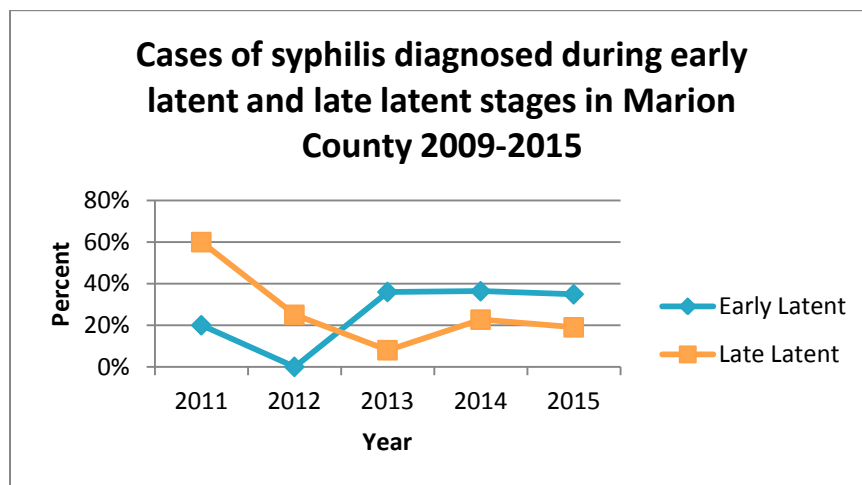


Figure 5 shows the percent of all syphilis cases in Marion County 2011-2015 that were diagnosed during the early or late latent stages of syphilis. Ideally the percent of cases diagnosed during the primary and secondary stages will be higher in relation to these figures.

National Congenital Syphilis Rates:

Nationally the incidence of congenital syphilis has increased from 8.4 in 2012 to 11.6 in 2014 cases per 100,000 live births (Increase in Incidence of Congenital Syphilis-United States, 2012-2014: Morbidity and Mortality Weekly Report, 2015). Oregon State reported one case of congenital syphilis in 2013. By 2015 there were 4 cases. There is growing concern nationally about the implications of increasing congenital syphilis rates. “Congenital syphilis is caused by the bacterium *Treponema pallidum*, which is passed from mother to child during fetal development or at birth. Nearly half of all children infected with syphilis while they are in the womb die shortly before or after birth.” (Congenital Syphilis: MedlinePlus Medical Encyclopedia, 2015)

Figure 6:

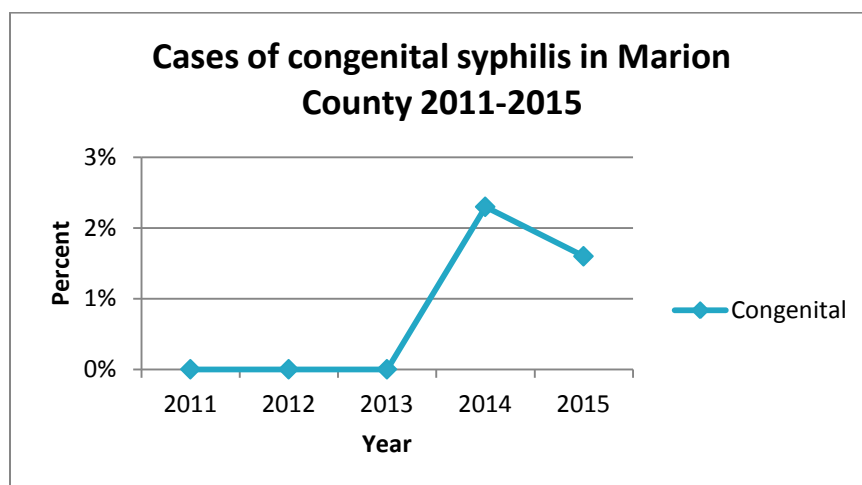


Figure 6: shows the increase in congenital syphilis cases from 2009-2015. This is a concern as rates of syphilis in women of childbearing age and syphilis is rising nationally.

Demographics of Syphilis Cases in Marion County

Summary:

In 2015 (as of December 14th) there were 61 cases of syphilis reported in Marion County. There has been an increase in incidence in all age groups, but particularly the 35-54 age group and notable increases in rates of syphilis in all racial and ethnic groups. Geographically, the highest incidence rates are centered in the Santiam Canyon region of Marion County with an incidence rate of 23.13 percent. There is also a notable increase in the burden of disease in men who do not report as MSM. This is leading to a slight increase in concerns about congenital syphilis in the county and state where increases are noted in the rates of syphilis in women.

Geography:

To create this map, zip codes were combined into known “community regions”; for example the south eastern region (pink) is locally known as Santiam Canyon which includes local cities of Aumsville, Detroit, Gates, Idanha, Jefferson, Mill City, Mehama, Stayton, Sublimity and Turner. The region in the middle on the west side is downtown Salem and surrounding areas. This map shows the highest rates of syphilis in the center of Marion County where Salem is located. Knowing where cases are occurring will allow targeted interventions to reduce STI rates in the specific regions with the highest incidence rates of syphilis.

It will be important to evaluate the regions with the highest incidence for their ability to access healthcare and screening services as well. “Access to high-quality health care is essential for early detection, treatment, and behavior-change counseling for STDs (sexually transmitted diseases). Groups with the highest rates of STDs are often the same groups for whom access to or use of health services is most limited” (Healthy People 2020: Sexually Transmitted Diseases)

Figure 7:

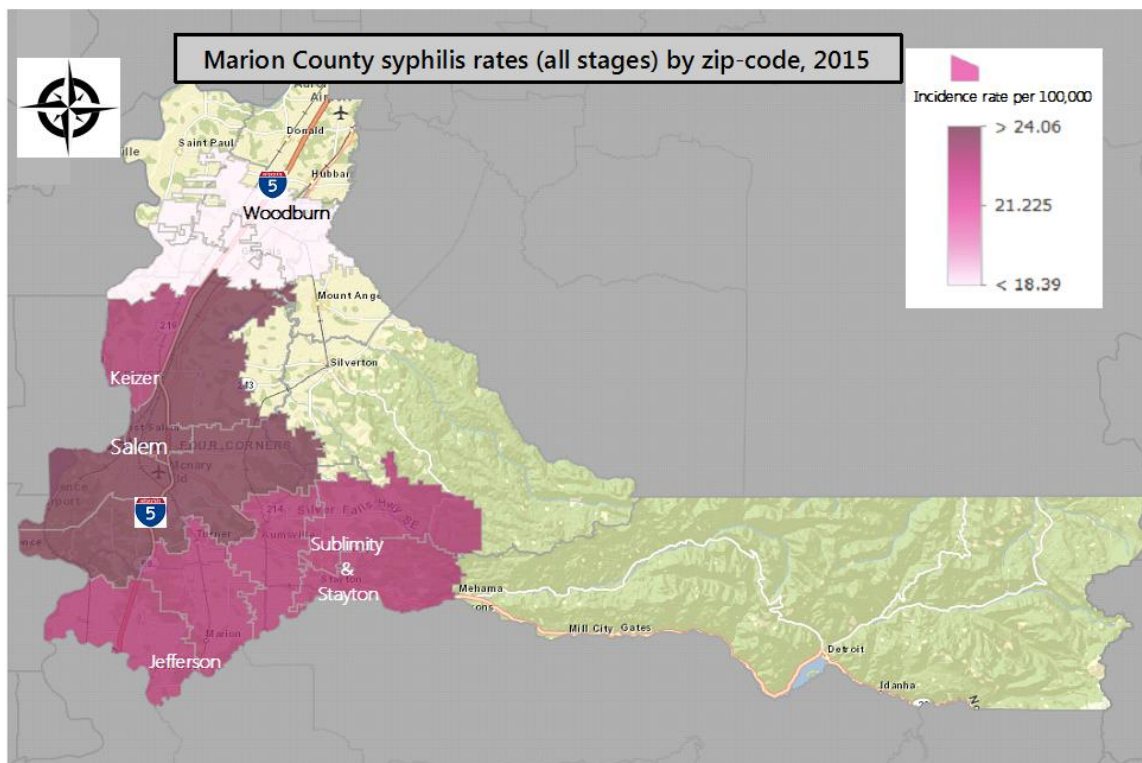


Figure 7: shows the incidence of syphilis cases per 100,000 in 2015 (n=66) by region. Regional rates and definitions are explained below:

Salem Region Includes: local cities and zip codes of the Greater Salem area as well as Four Corners and surrounding areas. (Rate=24.1 per 100,000). **Keizer Region Includes:** Keizer (Rate=23.3 per 100,000). **Santiam Canyon Includes:** Local cities of Aumsville, Detroit, Gates, Idanha, Jefferson, Mill City, Mehama, Stayton, Sublimity and Turner. (Rate=23.1 per 100,000). **North Area:** Woodburn, Aurora, Donald, Gervais, Hubbard, St. Paul (Rate=18.4 per 100,000)

Sex:

The majority of Marion County syphilis cases are male (see figure 9). This is mainly because of the high concentration of syphilis cases in the MSM (men who have sex with men) population. Though cases are increasing in the MSW and female population, this continues to be a disease focused within the male population (figure 10).

Figure 11:

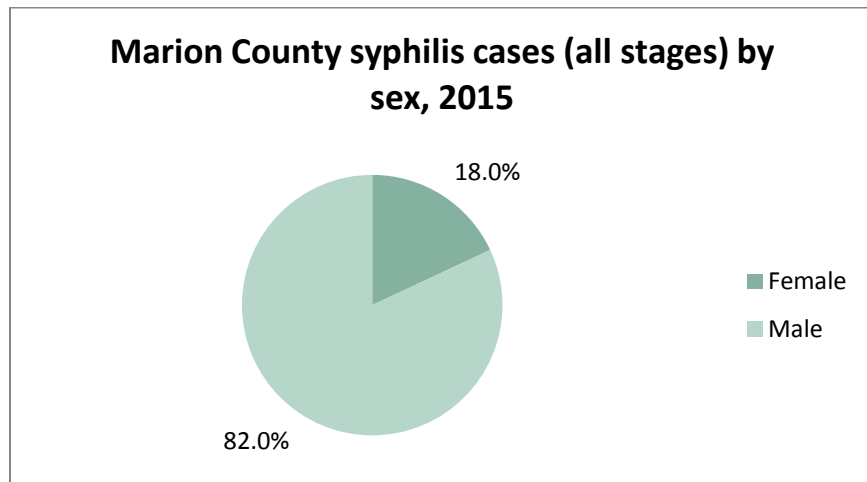


Figure 11: shows the percent of all syphilis cases in Marion County in 2015 (n=66) by sex, 82.0% are male and 18% are female.

Figure 12:

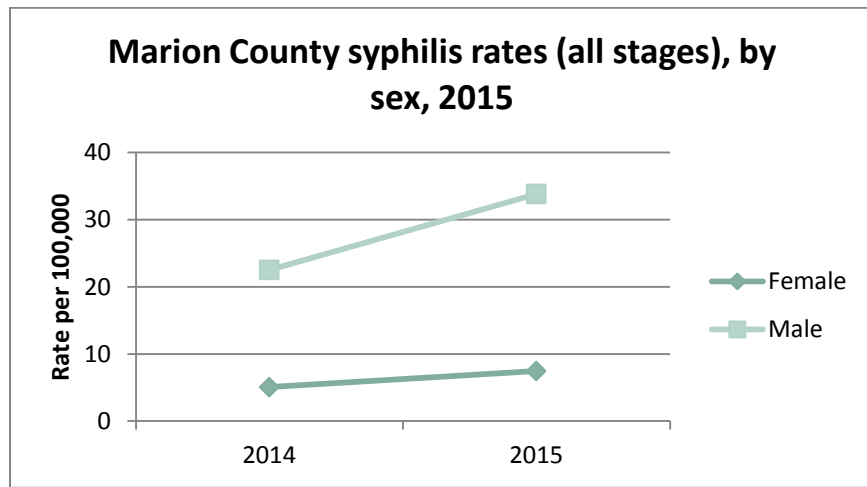


Figure 12: shows an increase in incidence rates of syphilis cases in both men and women between the years of 2014 (n=44) and 2015 (n=66). Men, showing an increase from 22.5 cases per 100,000 in 2014 to 31.3 per 100,000 in 2015, and women showing an increase in incidence from 5.0 per 100,000 in 2014 to 6.9 per 100,000 in 2015.

Age:

From 2014-2015 there was an unexpected upwards trend seen in older populations in comparison with national data. We expected to see more incidence rate growth in younger generations due to the increased use of things like mobile apps to find anonymous sex partners. Instead there was increase in the 35-54 age groups (see figures 6 and 7). This does not align with trends seen in primary and secondary syphilis reported in the (Center for Disease Control and Prevention: Sexually Transmitted Disease Surveillance 2014, 2015) of national data where, the highest incidence was seen in ages 25-29 with an incidence of 34.0 cases per 100,000.

When broken down by sexual orientation in Figure 8 it was discovered that this unexpected trend appears to be focused within the MSM population whereas there is an increase in MSM, MSW and the female population in the younger age groups. This second observation of increase of young MSW and female's re-enforces growing state and national concerns for congenital syphilis

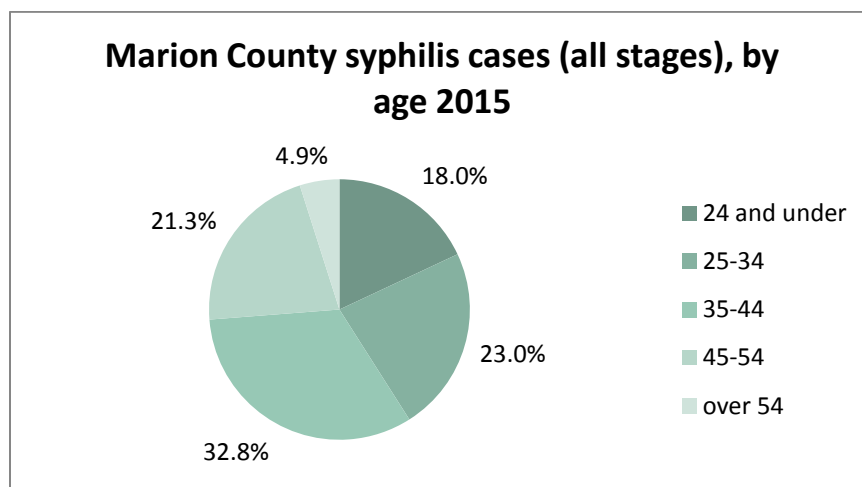
Figure 8:

Figure 8: shows Marion County syphilis cases by age group in 2015 (n=66). The age groups include 24 and under, 25-34 years, 35-44 years, 45-54 years, and over 54 years old. In this figure 35-44 year olds make up the largest proportion of the syphilis caseload in Marion County. This is different from incidence rates (shown in the following graph) which show disease burden within each age group.

Figure 9:

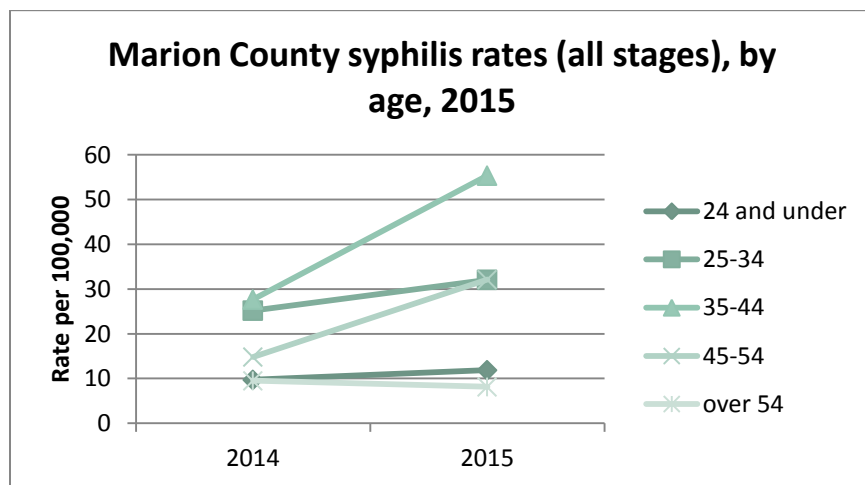


Figure 9: shows the increase in the incidence of syphilis cases in Marion County between 2014 (n=44) and 2015 (n=66). This depicts the burden of disease within age demographics. There are increases in every age bracket except for 54 and over, but notably there is a large increase in our 35-44 year old age bracket from 27.7 cases per 100,000 in 2014 to 50.3 cases per 100,000 in 2015 representing an 81.8% increase in incidence per 100,000.

Figure 10:

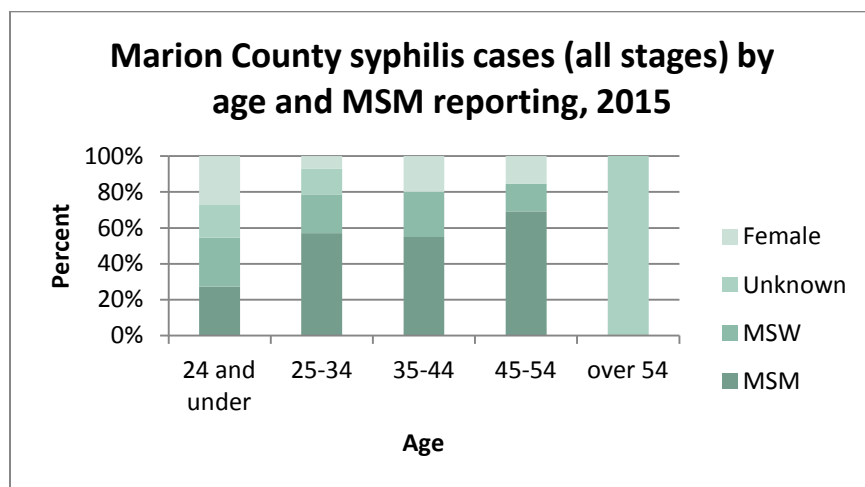


Figure 10: represents a breakdown within age brackets between self reported sexual orientations of syphilis cases in Marion County in 2015 (n=66). Within each age bracket the bar is broken down by how each individual reporting identifies. In the previous graph we saw an unusual increase in the 35-44 and 45-54 age brackets. In this figure we can see that these two age groups consist largely of self reporting MSM's (men who have sex with men). Note that some categories consist of a number of cases too small to be considered statistically significant.

Race and Ethnicity:

In Marion County the increase in syphilis cases by race and ethnicity are consistent with national trends reported by the CDC (figure 11 and 12). “The epidemiology of syphilis among men, including MSM, has shifted since 2009, with larger increases occurring among Hispanic and white men. Despite this increase, disparities in primary and secondary syphilis between black men and other racial/ethnic groups remain large.” (Primary and Secondary Syphilis-United States, 2005-2013: Morbidity and Mortality Weekly Report, 2015)

“Race and ethnicity in the United States are correlated with other determinants of health status, such as poverty, limited access to health care, fewer attempts to get medical treatment, and living in communities with high rates of STDs” (Healthy People 2020: Sexually Transmitted Diseases) This information has been shown to be a core determinant of health and is important to understand if effective interventions are to be implemented.

Figure 13:

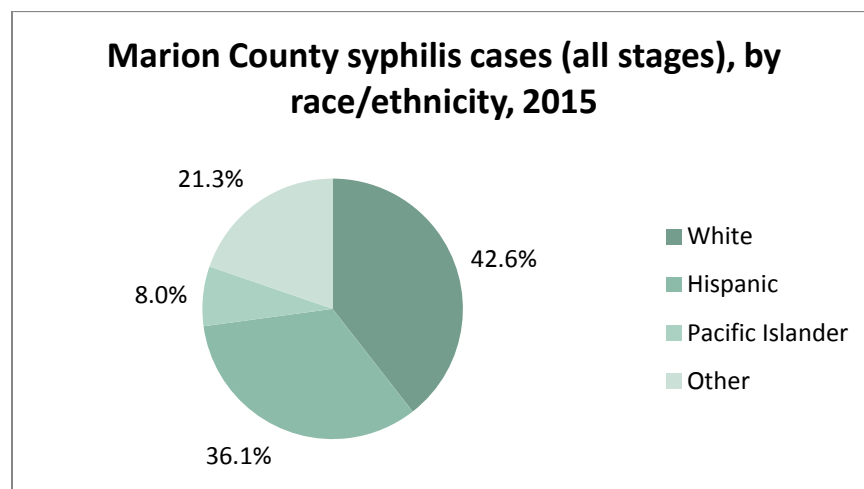


Figure 13: shows the percent of all syphilis cases in Marion County broken down by race and ethnicity in 2015 (n=66). For the purposes of this figure we used only the categories that qualified as statistically significant (n>5). All other race/ethnic categories fall under “other”. The figure above shows that 42.6% of our cases are white, 36.1% are Hispanic, and 21.3 are “other”. The “other” category includes: Asian, Pacific Islander, Alaskan and American Native, Black/ African American, unknown or unreported, or multiple race/ethnic categories. This demographic information is reported to Disease Investigators during patient interviews.

Figure 14:

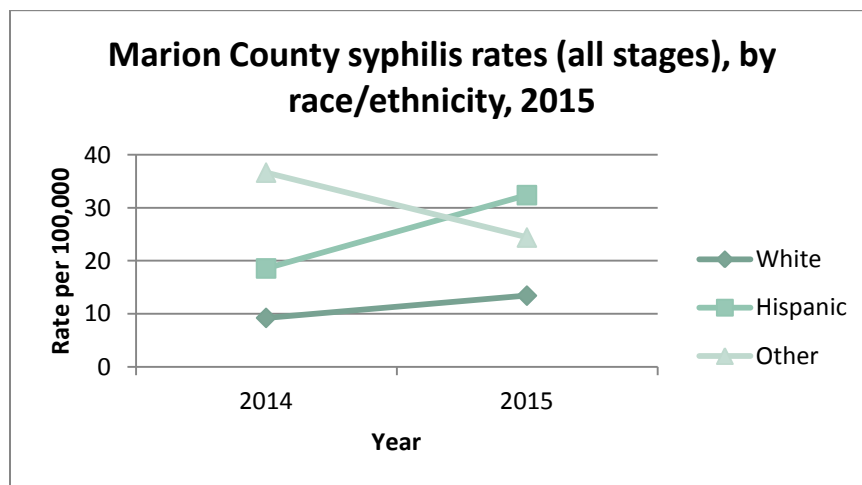


Figure 14: shows increases in incidence rates of syphilis in Marion County in all racial and ethnic categories between the years of 2014 (n=44) and 2015 (n=66). Incidence increases in cases identifying as white from 9.2 cases per 100,000 in 2014 to 13.4 cases per 100,000 in 2015, cases identifying as Hispanic increase from 18.6 cases per 100,000 in 2014 to 32.4 cases per 100,000 in 2015.

For the purposes of this figure we used only the categories that qualified as statistically significant (n>5). All other race/ethnic categories fall under “other”, this category includes: Asian, Pacific Islander, Alaskan and American Native, Black/ African American, unknown or unreported, or multiple race/ethnic categories. This demographic information is reported to Disease Investigators during patient interviews.

Men Who Have Sex With Men (MSM) Demographics:

The data described below is the result of self reporting to our disease investigators during STI interviews conducted after positive test results are received. It may be subject to reporting bias, due to stigma in the community, fear of reporting, or limitations in the interview questions. MSM (men who have sex with men) in this data set is defined as men who have any sex with men. This includes those identifying as engaged in bisexual relationships or sexual behaviors. MSW (men who have sex with women) is defined as men who only have sex with women.

Just over 50% of our syphilis cases in 2015 are within the MSM population. Though the figure below shows a decline from Marion County's 61.4% in 2014, it is difficult to say if this is due to a reduction of syphilis in that population or an increase in syphilis in the men who have sex with only women (MSW) population. Nationally in 2014 it was reported to the CDC that among primary and secondary syphilis cases 61% identified as MSM, 12.6% as MSW, 9.2% as women, and 17.0% as unknown.

Because reports like the census do not collect data on the exact population who identify as MSM it is not possible to calculate an incidence rate for this population. Incidence rates would be much more valuable in this case because of their ability to look at trends in time within each identifying population. This being said, it is important to note that the graphic below does not necessarily suggest a decrease in the *number* of cases who identify as MSM, but may also suggest that the increase in our case load is coming from outside of this population.

Finding and treating partners of MSMs is important to the control of syphilis in the community. The CDC has noted that "Many barriers to contacting and treating sex partners exist, including delays in reporting cases to the health department, anonymous partners, physicians who rely on patients to notify their partners (2), and the observed tendency of MSM to notify a smaller proportion of their sex partners than do heterosexuals (3)." (Primary and Secondary Syphilis-United States, 2005-2013: Morbidity and Mortality Weekly Report, 2015)

Figure 15:

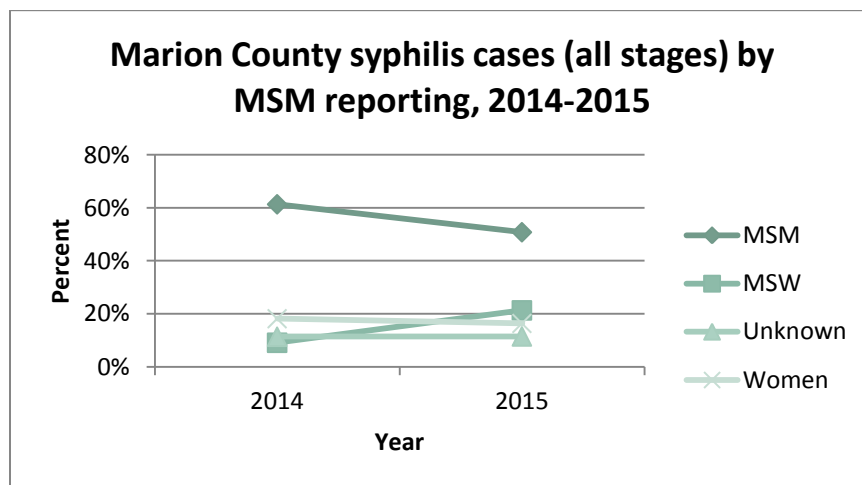


Figure 15: shows trends in percent of syphilis cases in Marion County between 2014 (n=44) and 2015 (n=66) identifying by MSM status. MSM (men who have sex with men) in this data may include men who have sex with men and women. MSW (men who have sex with women) includes men who only report having sex with women. “Women” is represented here because they cannot report as one of the above. As shown above, the percent of cases shows a decrease in MSM percentage of syphilis cases from 61.4% in 2014 to 50.8% in 2015, and an increase in percent of cases in MSW from 9.1% in 2014 to 21.3% in 2015. It is important to note that this only represents the proportion of cases identifying by sexual activity and does not mean that there was a decrease in number of cases in the MSM population only a decline in the proportion of MSM to MSW as stated on the previous page.

Providers:

The following figure demonstrates who is seeing positive syphilis cases in Marion County. This could be affected by many factors including; access to services, geographic location, cultural inclusion, services offered, availability of appointments, cost of services, and types of insurance accepted etc.

As seen in Figure 15, Marion County Health Department sees 26.8% of the syphilis cases in Marion County. At the health department the cost to the patient is often lower than in other settings when insurance cannot be presented; as there is a sliding scale implemented when patients cannot afford the full price. The health department is also noticing a trend in referrals from other practices. These patients are either referred here for diagnosis and/or treatment or when the diagnosing provider does not carry the proper treatment in their office.

Figure 16:

Marion County syphilis cases (all stages) by provider seen, 2015		
Rank	Provider	Percent of cases
1	MCHD	26.8%
2	O	12.5%
3	B	10.7%
4	P	7.1%
5	F	7.1%
6	E	5.4%
7	D	3.6%
8	Q	3.6%
9	R	3.6%
10	S	3.6%

Figure 16: This chart represents the top 10 provider offices in Marion County diagnosing and treating syphilis cases. The highlighted sections represent provider offices that are also in the top ten providers diagnosing and treating gonorrhea cases (Figure 40). The names of clinics have been removed to protect practitioner confidentiality.

Clinical Considerations

Co-Infections:

Having one STI traditionally makes it easier to acquire another one in the near future; especially when presenting with symptoms such as the primary lesion of syphilis. The presence of an STI creates damage in the mucous membranes and decreases the body's ability to fight off other viruses and bacteria. Figure 17 shows a decline in the percent of syphilis cases with co-morbidity over the last year.

For the purposes of this data, we have classified co-morbidity or co-infection as one or more of the following reportable STIs: Chlamydia, Gonorrhea, or HIV. There is a separate data set for HIV related data, since this co-infection has its own special considerations. For other infections to be classified as co-infections in our data, diagnosis must be established within one month (before or after) of syphilis diagnosis with accordance to state recommendations.

Figure 17:

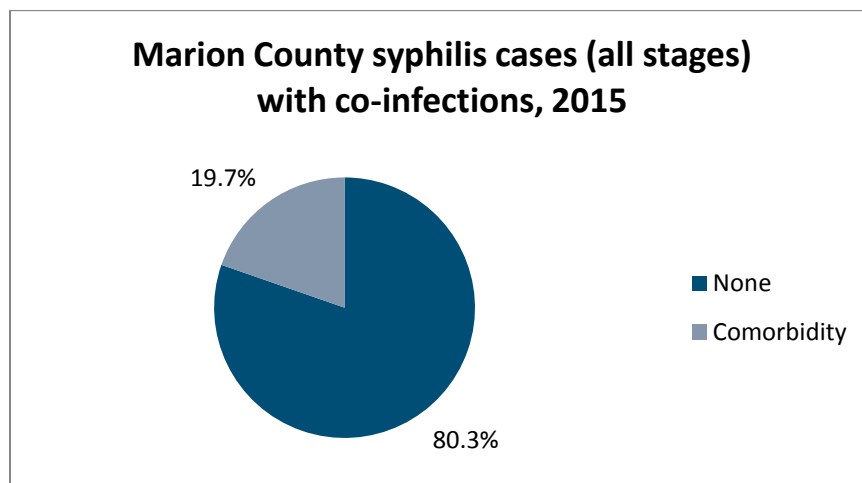


Figure 17: shows co-infections in syphilis cases in Marion County in 2015 (n=66). Co-infections in this figure include other sexually transmitted infections including Chlamydia, gonorrhea, and chronic hepatitis. HIV co-infections are covered in a separate figure. Co-infection in this data is defined as any of the sexually transmitted infection mentioned above, diagnosed within a month (before or after) of syphilis diagnosis. This definition follows CDC and OHA (Oregon Health Authority) guidelines for reporting co-infection. Figure 17 shows there was a 19.7% co-infection proportion in Marion County for 2015.

Figure 18:

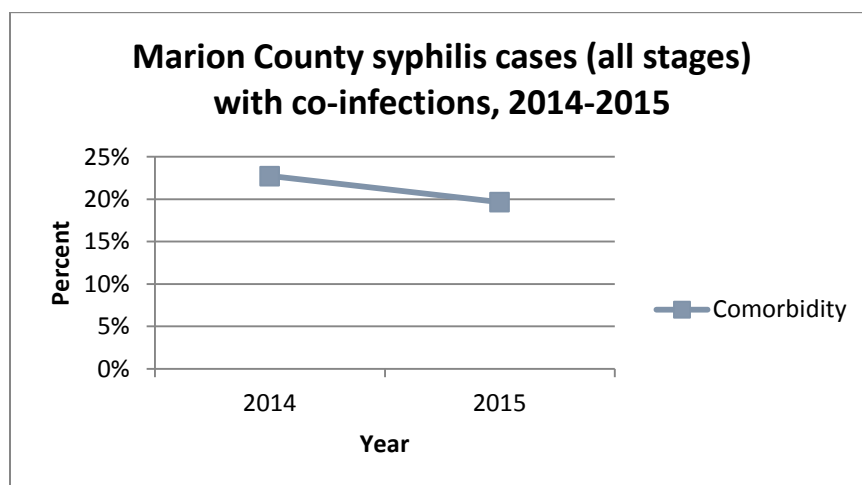


Figure 18: shows co-infection in syphilis cases in Marion County between 2014 (n=44) and 2015 (n=66). Co-infection in this figure includes other sexually transmitted infections including Chlamydia, gonorrhea, and chronic hepatitis. HIV co-infections are covered in a separate figure. Co-infection in this data is defined as any of the sexually transmitted infection mentioned above, diagnosed within a month (before or after) of syphilis diagnosis. This definition follows CDC and OHA guidelines for reporting co-morbidity. Figure 18 shows a decrease in percent of syphilis cases with co-infections in Marion County from 22.7% in 2014 to 19.7% in 2015 representing a 13.5% decrease in percent of cases with co-infection.

HIV Co-infections:

As shown in Figure 18, 26.23% of Marion County syphilis patients are co-infected with HIV. This has decreased in the last year by a small percentage. Syphilis is increasing in the MSW population, and as seen in Figure 21 over 80% of our HIV co-infections also identify as MSM. It is likely that the percent has decreased because of the increase in MSW and female syphilis cases. This number could also be reflecting the overall decrease in HIV rates in Marion County. Since 2009 there has been a 33.33% decrease in diagnosed cases of HIV. This could be because of the use of PREP (a HIV pre-exposure prophylaxis which has become available to high risk community members in recent years), or community selected strategies such as sero-sorting among MSM and high risk populations or other interventions present in the community.

The CDC 2014 STD Surveillance Report for national data shows that within their reported information from primary and secondary syphilis rates in the year of 2014, 51.2% of syphilis cases with a positive HIV status identify as MSM, 10.7% as MSW, 5.9% are women, and the rest are unknown.

Figure 19:

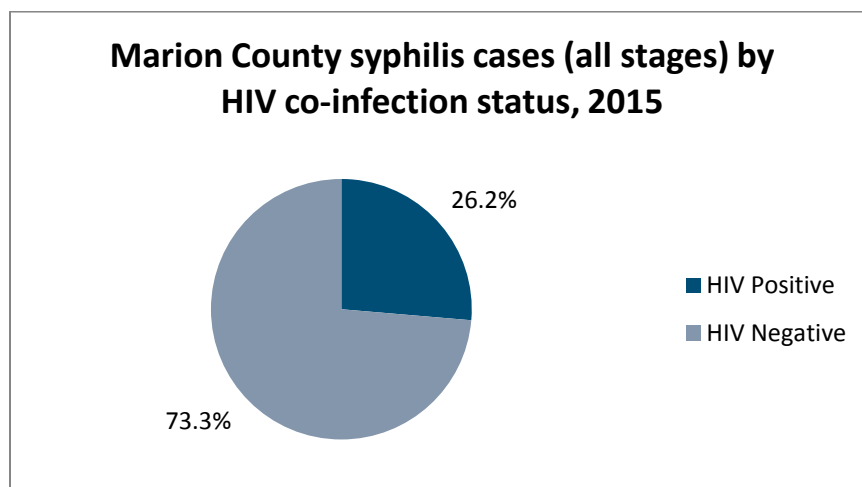


Figure 19: shows HIV co-infections in syphilis cases in Marion County in 2015 (n=66). In 2015 26.2% of syphilis cases were HIV positive.

Figure 20:

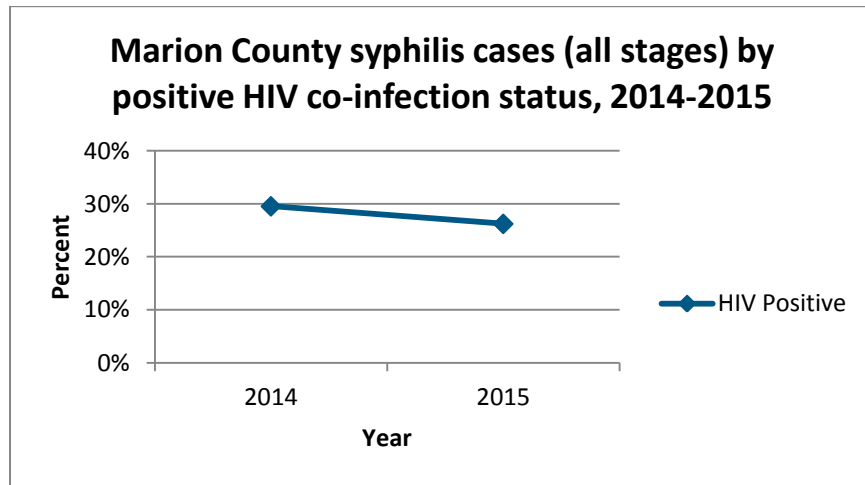


Figure 20: shows the percent of HIV co-infections in all syphilis cases in Marion County from 2014 (n=44) to 2015 (n=66). There has been a decrease from 29.6% of syphilis cases having confirmed HIV positive status in 2014, to 26.2% in 2015 representing a 11.2% decrease in percent of syphilis cases with HIV positive test results.

Figure 21:

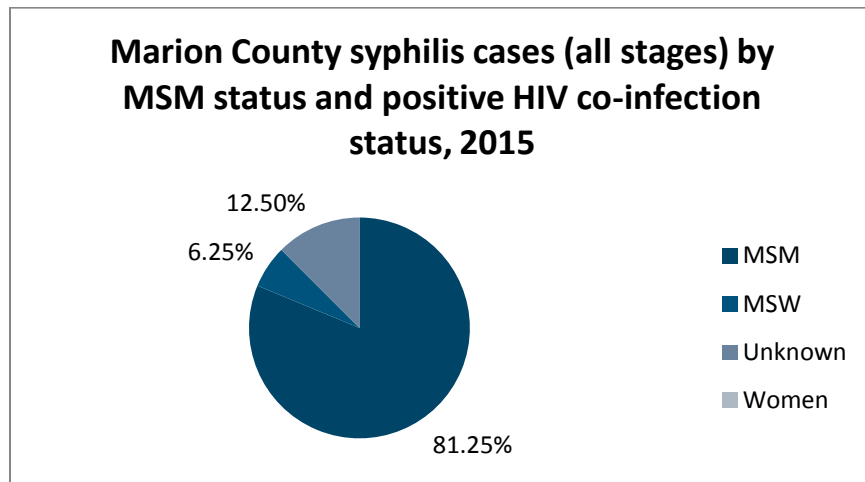


Figure 21: shows the percent of HIV/syphilis co-infections based on their MSM status in Marion County in 2015 (n=66). MSM co-infections make up 81.3% of the HIV co-infections, MSW co-infections make up 6.3% and unknown/unreported 6.3% of HIV co-infections.

Syphilis patients with repeat infections:

The data used in the following figures were calculated by recording if the patient has ever had a syphilis infection in their life-time, not just immediate re-infection. This information is recorded in ORPHEUS.

As seen below, we have seen an increase in the number of repeat infections in the community in the last year. In 2014 just over 10% of our cases were experiencing a repeat infection, as opposed to 2015 where nearly 25% of cases seen in Marion County were identified as repeat cases. Contributing factors may include lack of education on STI risk or risk of re-infection, lack of adherence to education on risk or risk of re-infection, changes in testing, diagnosis, or treatment, increase in risk behaviors such as unprotected sex or increases in number of sexual partners, and decrease in safe sex behaviors such as abstinence, or condom use, shown to reduce risk of infection.

Figure 22:

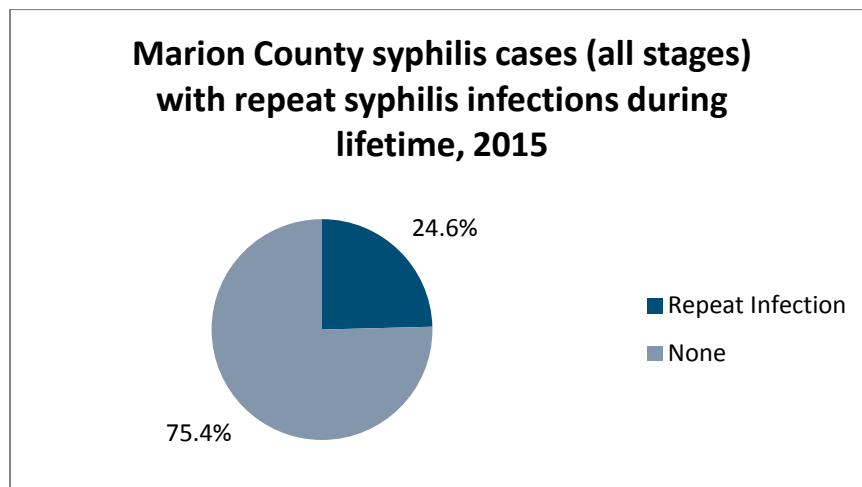


Figure 22: shows the percent of all syphilis infections in Marion County with repeat infections in 2015 (n=66). In 2015, 24.6% of syphilis cases were classified as repeat infections. For the purposes of this report, a repeat infection is defined as a syphilis infection in the patient's medical history.

Figure 23:

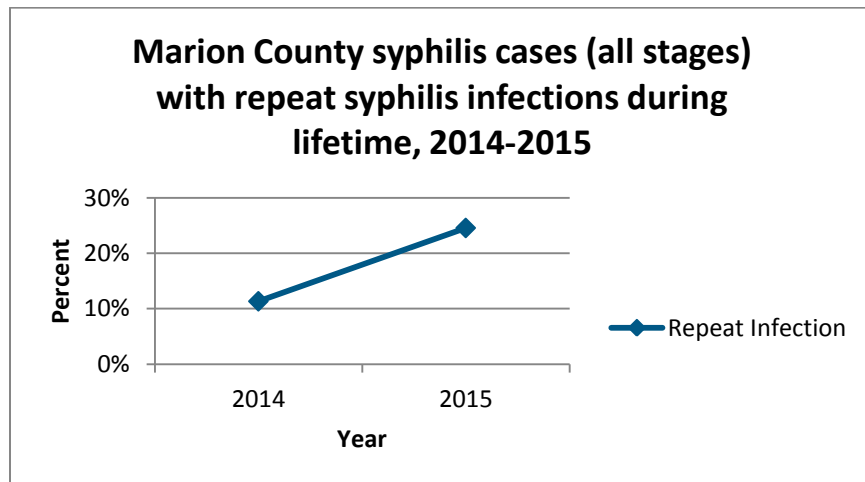


Figure 23: shows the increase in the percent of repeat infections (throughout patient's lifetime) of syphilis in all Marion County cases from 2014 (n=44) to 2015 (n=66). There has been a 116.5% increase in the percent of repeat infections from 2014 to 2015 (from 11.4% in 2014 to 24.6% in 2015).

Risk Factors: High Risk Activities and Behaviors

The following figures address patients involved in high risk behaviors such as using digital mediums to seek out anonymous partners, meeting in adult shops, etc. There is a major gap in the data when it comes to reporting on condom use which is a major indicator for evaluating risk. Marion County is currently addressing this by adding additional questions to our investigative practice at Marion County Health Department in order to establish some statistically significant data for this report.

Internet Use:

In Marion County we are seeing an increase in internet use to find anonymous sexual partners. Though this is not as drastic as trends seen in app use among syphilis patients (44.25% increase in comparison with a 134.43% increase in mobile app use from 2014-2015), it is still notable that this is becoming more and more of a preferred method of seeking out sex partners in the community when in comparison with other methods such as adult shops or bath-houses.

Figure 24:

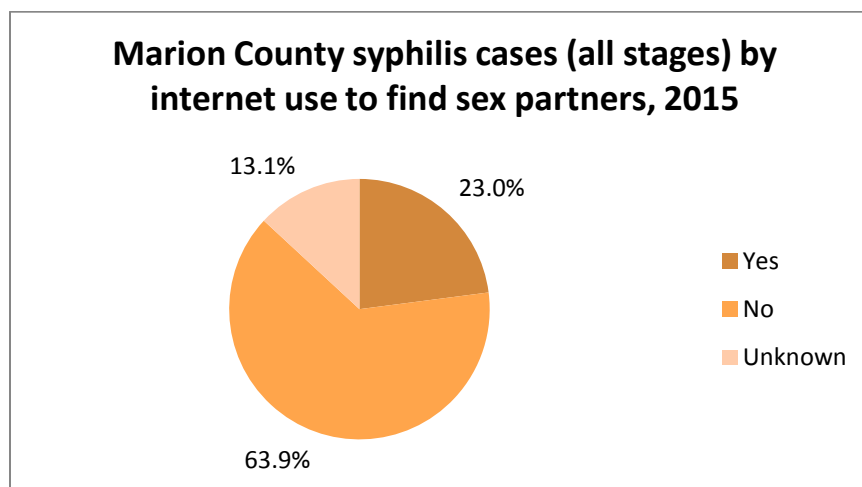


Figure 24: shows the percent of cases in Marion County in 2015 (n=66) who used the internet to find anonymous sex partners. 23.0% of cases reported finding partners via internet site such as Grinder, Craigslist etc.

Figure 25:

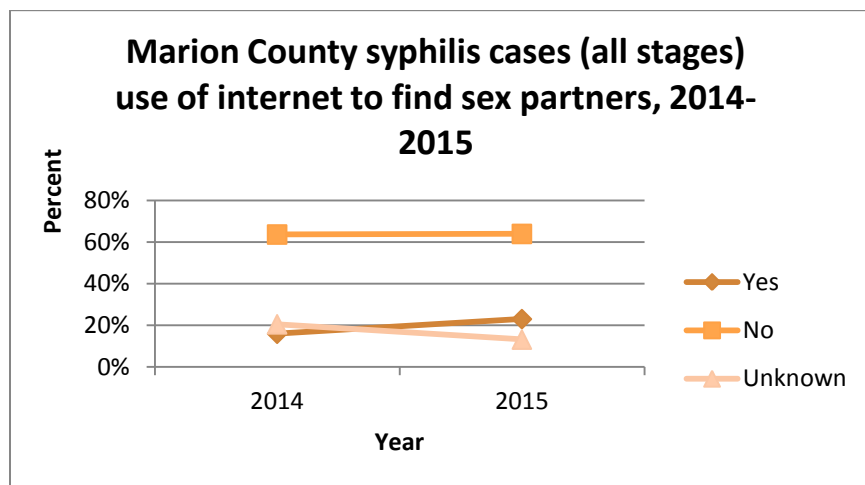


Figure 25: shows an increase in internet use by syphilis cases to find anonymous sex partners from 2014 (n=44) to 2015 (n=66) from 15.9% in 2014 to 23.0% in 2015 representing a 44.3% increase.

Mobile Apps:

The increase of mobile app use to find anonymous sex partners in the community is generally thought to have huge implications for the spread of STI's in communities. "As part of their investigation, public health workers ask people infected with syphilis if they use phone apps such as Grindr or Adam4Adam to find sex partners. Grindr, a free app, uses global positioning technology to allow men to find nearby sex partners...people often use these apps to arrange anonymous hookups. 'It is alarming to see the number of people who use these apps...They are significantly contributing to the spread of sexually transmitted disease'... 'It's often impossible for public health investigators to track down an infected person's anonymous sex partner or partners they met through a phone app' (Syphilis-USA: (New York) Increased incidence, men who have sex with men, mobile phone applications: PROMed, 2014). It is important to note that nearly 62% mobile app users also report being MSM.

Figure 26:

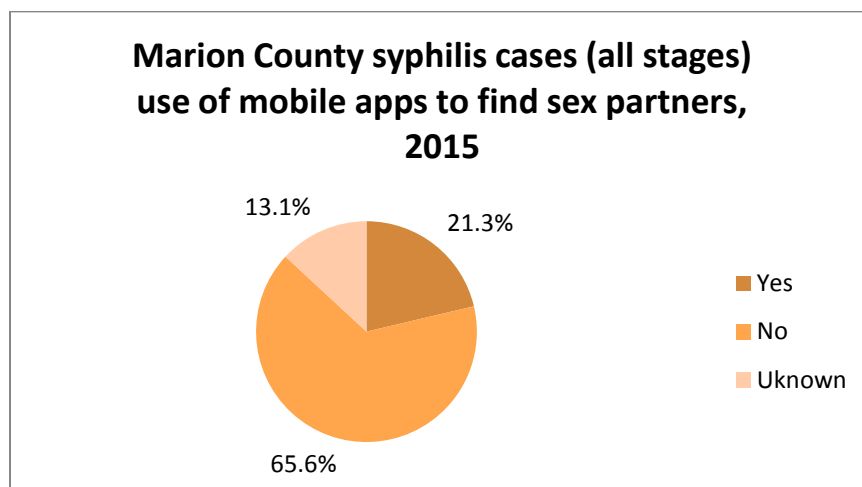


Figure 26: shows the percent of cases in Marion County in 2015 (n=66) who reported using a mobile app to find anonymous sex partners. 21.3% of cases reported using an app such as Tinder, Grindr, Adam4Adam to find a sex partner.

Figure 27:

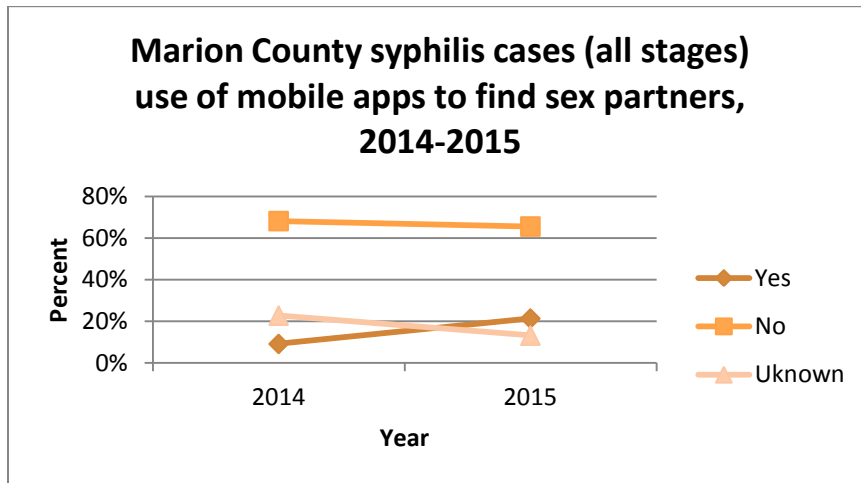


Figure 27: shows an increase in the percent of syphilis cases in Marion County between the years of 2014 (n=44) and 2015 (n=66) who reported using a mobile app to find an anonymous sexual partner. We see an increase from 9.1% in 2014 to 21.3% in 2015 representing a 134.4% increase in reported app use in syphilis cases.

Figure 28:

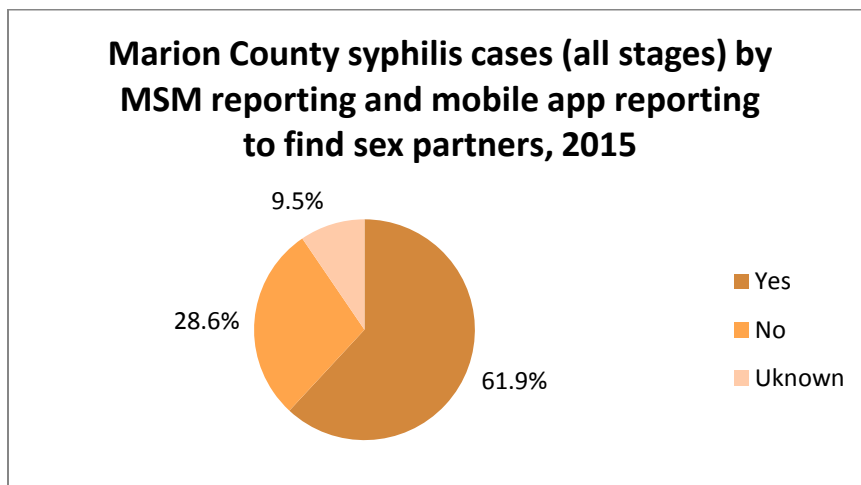


Figure 28: shows the percent of cases in Marion County in 2015 (n=66) who reported being a MSM who used an app to find a sex partner. 61.9% of MSM cases reported using an app to find a partner in 2015.

Adult Shops:

There is a decrease in the use of adult shop use to find anonymous partners observed and reported over the last year. This is very probably the result of an increase in the use of new technologies to seek out partners such as internet and mobile app use as mentioned above.

Figure 29:

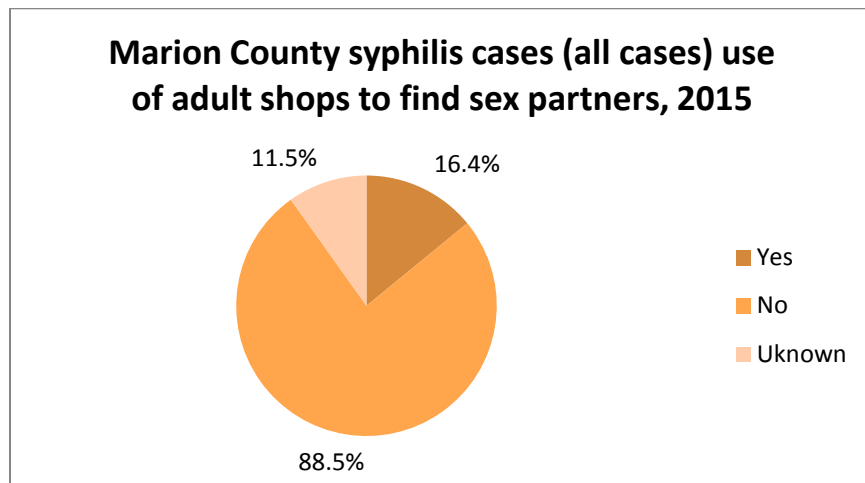


Figure 29: shows the percent of cases in Marion County in 2015 (n=66) using an adult shop to find a sex partner. 16.4% of cases reported using an adult shop to find a sex partner in 2015.

Figure 30:

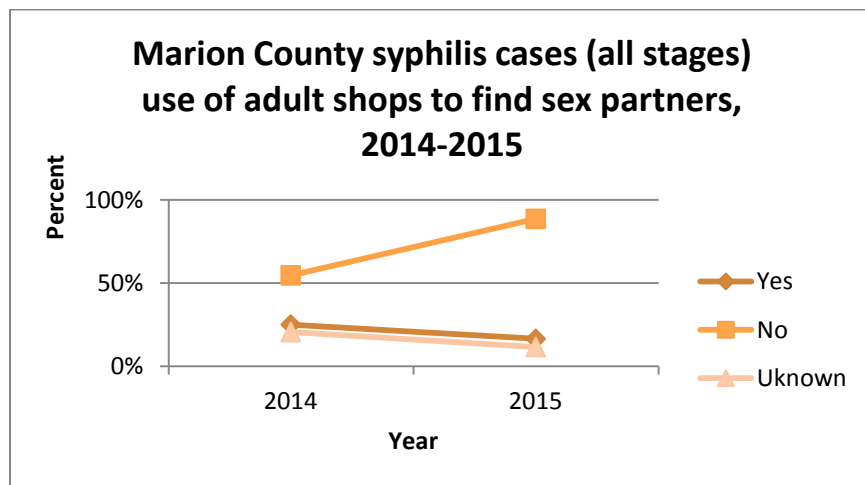


Figure 30: shows a decrease in percent of cases reporting using an adult shop to find a sex partner between the years of 2014 (n=44) and 2015 (n=66). There is a decrease from 25.0% in 2014 to 16.4% in 2015 representing a 34.4% decrease in percent of cases reporting using an adult shop to find a sex partner.

Overview of Gonorrhea:

Gonorrhea is a bacterial sexually transmitted infection caused by the agent *N. gonorrhoeae*. It can be spread through vaginal, oral, and anal sex, or through vertical transmission (mother to child). Sites of infection may include the urethra, endocervix, rectum, pharynx, and occasionally infection of the eye which is most often the result of mother to child transmission. Gonorrhea is communicable from the time of infection to the time of cure. Even asymptomatic individuals can transmit the disease.

Gonorrhea can be asymptomatic in males and females. Symptomatic males may experience urethral infections, urethral discharge containing pus and dysuria (painful or difficult urination). Females may experience vaginal discharge, abnormal menses, pelvic pain, and dysuria.

Gonorrhea infection can lead to pelvic inflammatory disease, infertility or tubal pregnancy in females and epidymitis and urethral stricture in males. “If gonorrhea remains undetected and/or untreated, the additional morbidity may be severe and includes pelvic inflammatory disease, infertility, ectopic pregnancy, first trimester abortion, neonatal conjunctivitis leading to blindness and, less commonly, male infertility and disseminated gonococcal infections. Gonorrhea also enhances the transmission of HIV” (Magnus Unemo, 2013)

Screening Guidelines CDC 2015:

(2015 Sexually Transmitted Diseases Screening Guidelines: CDC, 2015)

Women

- Sexually active women under 25 years of age¹
- Sexually active women age 25 years and older if at increased risk⁹
- Retest 3 months after treatment¹⁰

Pregnant Women

- All pregnant women under 25 years of age and older women if at increased risk¹¹
- Retest 3 months after treatment¹⁰

Men Who have Sex with Men (MSM)

- At least annually for sexually active MSM at sites of contact (urethra, rectum, pharynx) regardless of condom use¹⁰
- Every 3 to 6 months if at increased risk⁷

Persons with HIV

- For sexually active individuals, screen at first HIV evaluation, and at least annually thereafter¹⁰

More frequent screening for gonorrhea might be appropriate depending on individual risk behaviors and the local epidemiology¹⁰

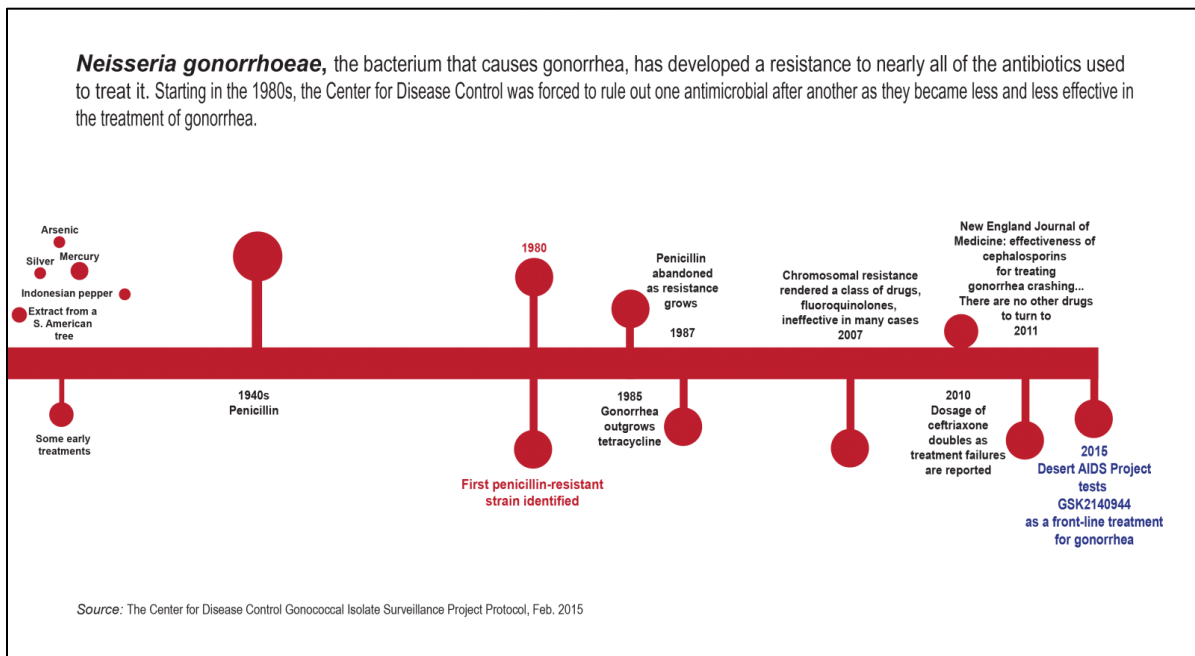
Expedited Partner Therapy (EPT): The following information on (Guidance on the Use of Expedited Partner Therapy in the Treatment of Gonorrhea: CDC, 2015)“For heterosexual men and women with gonorrhea for whom health department partner-management strategies are impractical or unavailable and whose providers are concerned about partners’ access to prompt clinical evaluation and treatment, EPT with cefixime 400 mg and azithromycin 1 g can be delivered to the partner by the patient, a disease investigation specialist, or a collaborating pharmacy as permitted by law. With this approach, provision of medication must be accompanied by written materials to educate partners about their exposure to gonorrhea, the importance of therapy, and when to seek clinical evaluation for adverse reactions or complications. Educational materials for female partners should include information about the importance of seeking medical evaluation for PID (especially if symptomatic); under treatment of PID in female partners and missed opportunities to diagnose other STIs in women are of concern. EPT should not be considered a routine partner management strategy in MSM with

gonorrhea because of a high risk for co-existing infections (especially HIV infection) and because no data exist on efficacy in this population (Gonococcal Infections in Adolescents and Adults: CDC, 2015).

“Oregon pharmacists can legally fill expedited partner therapy prescriptions for treatment of partners exposed to sexually transmitted disease that do not include the name of the person for whom the medication is intended. In order to fill a prescription for expedited partner therapy that does not include the person's name, the prescription must include an indication that the prescription is for the purpose of "EPT," or equivalent. “ (Oregon Disease Investigative Guidelines: Gonorrhea, 2014, 2014)

Antibiotic Resistance:

It is extremely important to screen, diagnose, and treat cases of gonorrhea correctly because of an increase in microbial drug resistance, which is on the rise in the United States. As a response to this, the CDC has changed its treatment guidelines in order to combat growing drug resistance; for more information please see: Centers for Disease Control and Prevention (Sexually Transmitted Diseases Treatment Guidelines: Center for Disease Control and Prevention, 2015). It is essential for practitioners to treat with recommended dosage and drug if antibiotic resistance in gonorrhea is to be prevented in Marion County.



**The image above is a timeline produced by the CDC representing changes in antibiotic resistance in gonorrhea infections.

Gonorrhea in Marion County

Summary:

Marion County has experienced increasing gonorrhea rates in the last 5 years in comparison to national and state data.

“In 2014, a total of 350,062 cases of gonorrhea were reported in the United States, yielding a rate of 110.7 cases per 100,000 population. The rate increased 5.1% since 2013, and increased 10.5% since 2010 (Table 1. Sexually Transmitted Diseases- Reported Cases and Rates of Reported Cases per 100,000 Population. United States 1941-2014, 2014).

Figure 31:

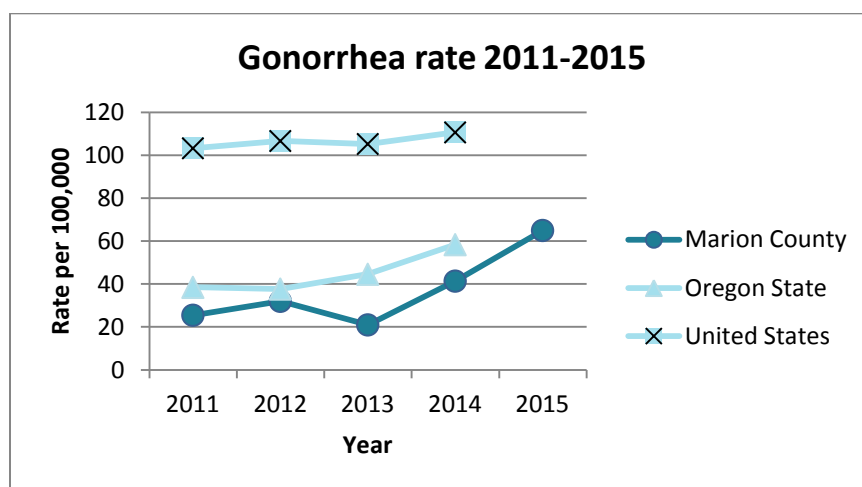


Figure 31: There has been an increase in incidence of gonorrhea in the United States, Marion County, and Oregon State since 2010. The United States has experienced a **6.5% increase in incidence per 100,000** (103.3 cases per 100,000 in 2011 to 110.7 cases per 100,000 in 2014), a **51.7% increase in incidence per 100,000** in Oregon State, from (38.5 cases per 100,000 in 2011 to 58.4 cases per 100,000 in 2014), and a **205.9 % increase in incidence per 100,000** in Marion County, from (25.5 cases per 100,000 in 2011 to 78.0 cases per 100,000 in 2015). National incidence rates for gonorrhea are available in the CDC’s 2014 STD report. State and County incidence rates for gonorrhea are available on the Oregon Health Authority website.

Demographics of Gonorrhea Cases in Marion County

Summary:

In 2015, there were 252 cases of gonorrhea reported in Marion County. The largest percent of cases were diagnosed in the 20-29 year old age group. White and Hispanic racial/ethnic categories make up the largest percent of cases seen; however Native American/ American Indian, and African Americans represent the highest incidence of gonorrhea per 100,000. Just over half of the case load in Marion County is male.

Geography: To create this map, zip codes were combined into known “community regions”. This map shows the highest rates of gonorrhea in south Marion County in the Santiam Canyon area (see description below*). Knowing where cases are occurring will allow targeted interventions to reduce STI rates in the regions with the highest incidence rates of gonorrhea.

Figure 32:

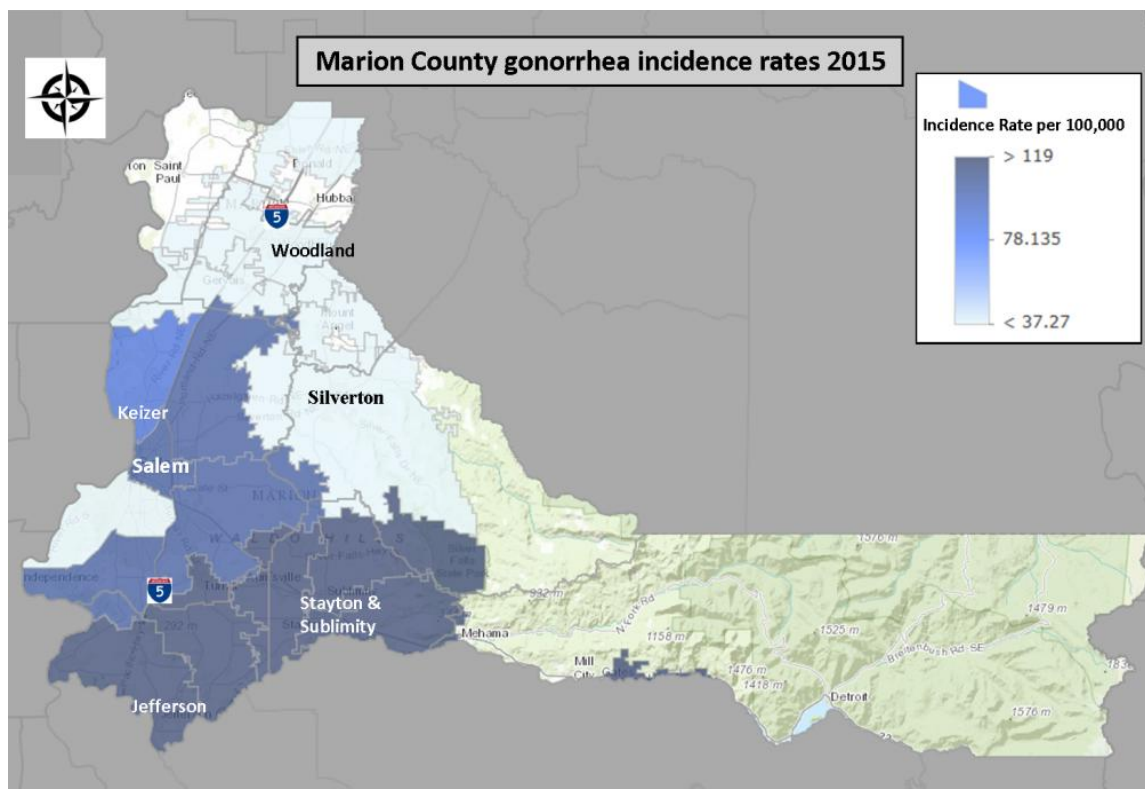


Figure 32: Salem Region Includes: local cities and zip codes of the Greater Salem area as well as Four Corners and surrounding areas: Rate= 106.67 per 100,000. **Keizer Region Includes:** Keizer: Rate= 90.1 per 100,000. **Santiam Canyon Includes:** Local cities of Aumsville, Detroit, Gates, Idanha, Jefferson, Mill City, Mehama, Stayton, Sublimity and Turner: Rate= 119.0 per 100,000. **North Area:** Woodburn, Aurora, Donald, Gervais, Hubbard, St. Paul: Rate= 33.6 per 100,000. **Silverton, Scotts Mills, and Mount Angel:** 31.5 per 100,000

Sex:

“National Trends in Sex: During 2010–2014, the rate among men increased 27.9%, while the rate among women decreased 4.1%. The magnitude of the increase among men compared with a decrease among women suggests either increased transmission or increased case ascertainment (e.g., through increased extra-genital screening) among gay, bisexual, and other men who have sex with men (collectively referred to as MSM). However, most jurisdictions do not routinely report sex of sex partner or site of infection for gonorrhea cases, so trends in gonorrhea rates among MSM over time cannot be assessed.” (Center for Disease Control and Prevention: Sexually Transmitted Disease Surveillance 2014, 2015)

Figure 37:

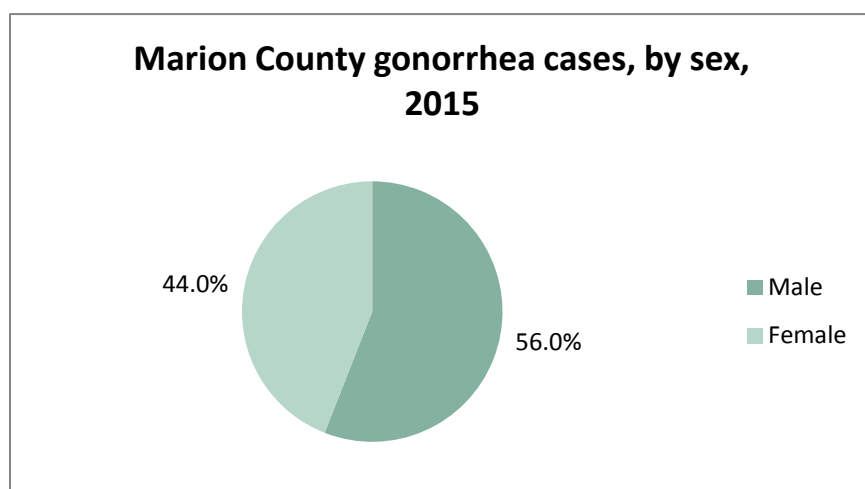


Figure 37: shows the percent of gonorrhea cases in Marion County in 2015 (n=252) by sex. Male cases make up the majority of the caseload in Marion County. 56.0% of cases in Marion County are male, and 44.0% are female.

Figure 38:

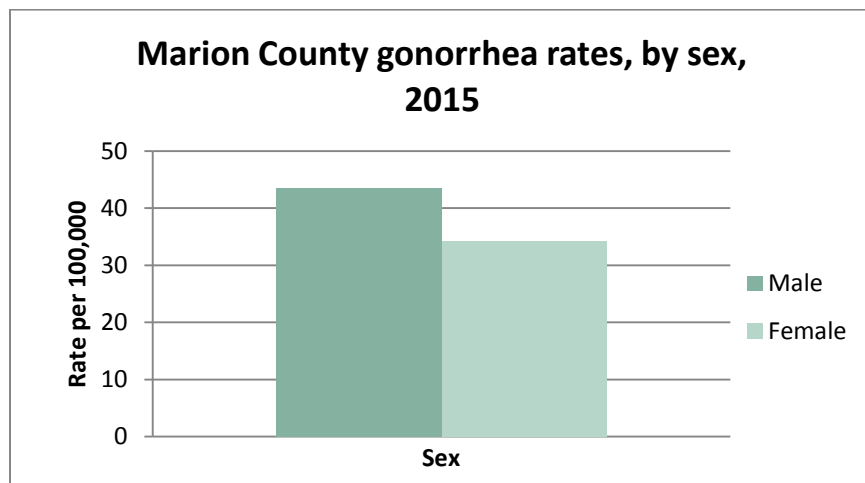


Figure 38: shows the incidence rates of gonorrhea cases in Marion County in 2015 (n=252) by sex. In 2015 males had an incidence rate of 43.6 per 100,000 and females had an incidence rate of 34.3 per 100,000.

Age:

“Marion County has a larger proportion of individuals between the ages of 0-24 years old than Oregon and the United States. The median age in Marion County is 35.5. In Oregon the median age is 39.1. Different age groups experience different health problems, for example, young children and elderly adults over 65 are more likely to die of the flu than adults.” The age demographic of gonorrhea cases in Marion County is representative of national trends seen in the spread of infection. In the county 25-34 year olds and the 24 and under age group are the majority of cases seen in clinics, they also have the highest burden (or incidence) per age group.

Figure 33:

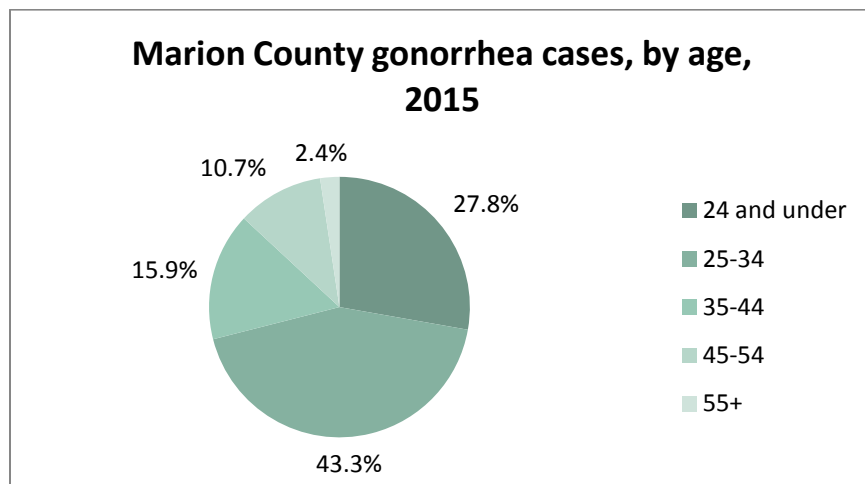


Figure 33: shows the percent of gonorrhea cases in Marion County in 2015 (n=252). The highest percent of our cases in the county are in 25-34 year old population at 43.3% followed by ages 24 and under population 27.8%.

Figure 34:

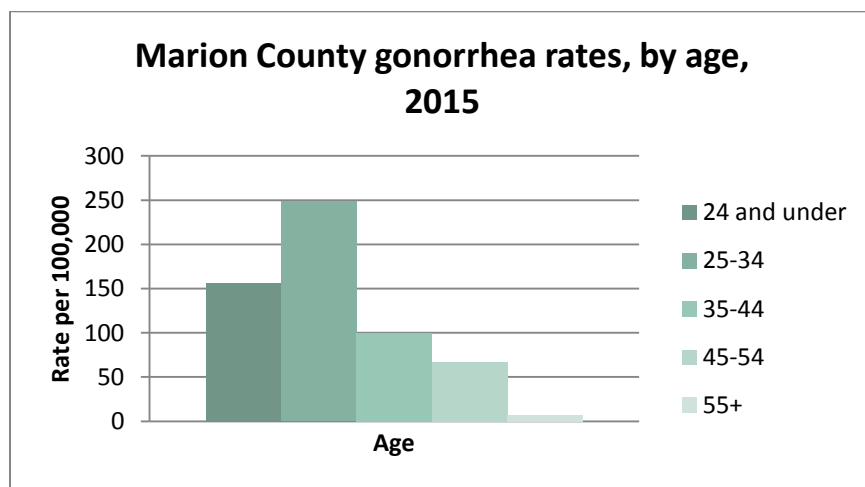


Figure 34: shows the gonorrhea incidence rate by age in Marion County in 2015 (n=252). The highest gonorrhea incidence rates per 100,000 are in the 24 and under and 25-34 age ranges. The 24 and under age group has an incidence of 155.9 per 100,000, and 25-34 year olds at 248.6 per 100,000

Race/ Ethnicity:

“Certain racial and ethnic groups (mainly African American, Hispanic, and American Indian/Alaska Native populations) have high rates of STDs, compared with rates for whites. Race and ethnicity in the United States are correlated with other determinants of health status, such as poverty, limited access to health care, fewer attempts to get medical treatment, and living in communities with high rates of STDs (Healthy People 2020: Sexually Transmitted Diseases). In this category Marion County incidence rates align with national trends. Most of the patients seen in clinics are White, or Hispanic. However, the highest incidence rates were groups included, Black/African Americans, Native Indian/ Native Alaskan, and the “other” category which includes, Asian, and Pacific Islanders, Native Hawaiians, two or more races, and other.

Figure 35:

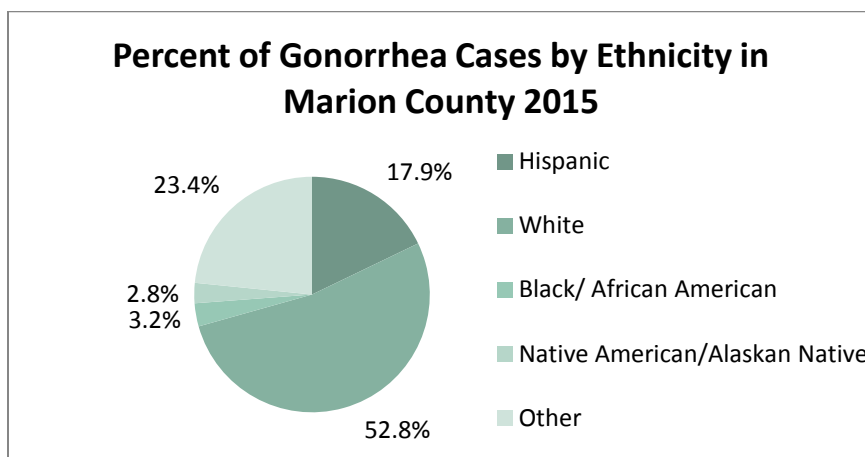


Figure 35: shows the percent of gonorrhea cases in Marion County in 2015 (n=252) by race and ethnicity. This depicts which racial or ethnic groups make up the bulk of the caseload in Marion County. 52.8% of the cases report as White, and 17.9% as Hispanic.

Figure 36:

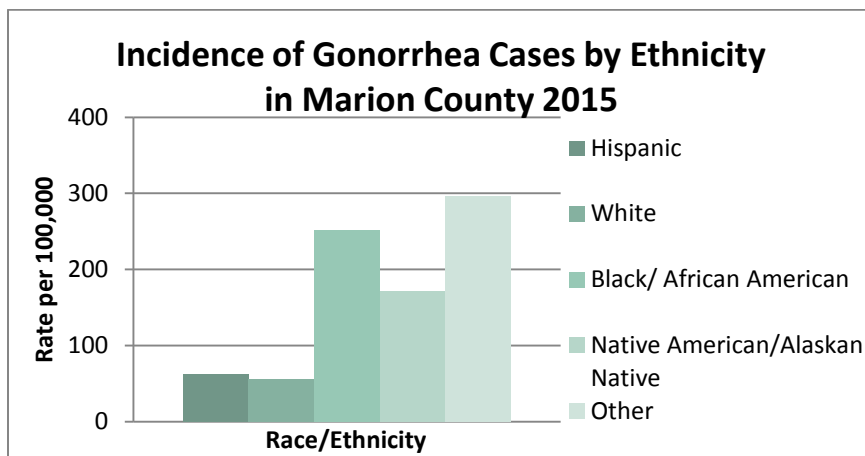


Figure 36: shows the incidence rates of gonorrhea cases in Marion County, by race and ethnicity in 2015 (n=252). Black/ African American: 251.4 per 100,000 and American Indian, Alaskan Native: 171.9per 100,000 account for the highest incidence rates.

Clinical Considerations

Gonorrhea Cases by Provider and Inadequate Treatment:

Below is a figure showing who is seeing the majority of the gonorrhea cases in Marion County, and if they are treating them properly. In the left side of the figure, there are our local practitioners who have seen cases, ranked by percent of all cases seen in the county. For example Marion County Health Department saw around 19% of all of the gonorrhea cases in the county at some point during their diagnosis, consultation, or treatment and education process in 2015. On the right side of the graphic the top ranking providers for inadequate-treatment are listed. For example the clinic ranked #1 on the right side of the graphic is responsible for 17% of all the inadequate treatments recorded by the health department in the county.

With antibiotic resistant gonorrhea on the rise nationally, Marion County providers must work to provide the most up to date treatment to all cases. Based on 2015 data, 18.7% of all gonorrhea cases in the county were treated inadequately according to the latest CDC recommendations. Inadequate treatment increases the risk of developing drug resistant gonorrhea strains.

In this graphic the colors show which clinics occur in both the right and left hand side of the figure. The graph shows that though a clinic may be seeing a large proportion of the cases in the county, it does not mean that they are treating them correctly. This inadequate treatment may be occurring for several reasons, many of the clinics are large, have many physicians, and have a hard time making sure that all of the physicians are up to date on their treatment guidelines. They may not have the resources, or a lack of up to date education on where they can go to find the latest treatment guidelines from the CDC.

Data limitations: Data were collected through ORPHEUS. Through this system it is not possible to determine who has seen a patient for diagnosis, versus treatment, versus lab reports. To combat some of this distortion, all lab reports, and duplicate practitioner and patient information have been removed. The names of the clinics and facilities have been replaced by letters to protect confidentiality.

Figure 39:

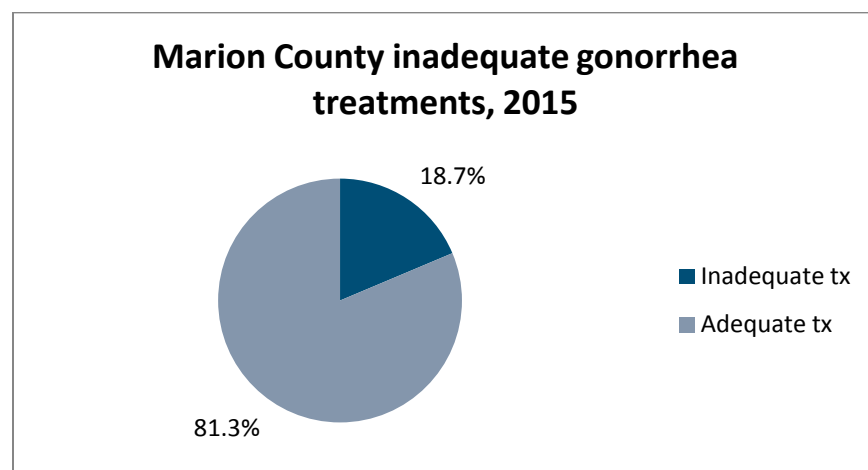


Figure 39: shows the percent of gonorrhea cases in Marion County in 2015 (n=252) by inadequate treatment. 18.7% of gonorrhea cases in Marion County were treated inadequately according to state and CDC recommendations.

The left side of the figure 40 shows the ten facilities in Marion County with the most gonorrhea cases in 2015. The right side shows the percent of the facility’s cases that were not treated according to the CDC’s most recent treatment guidelines. The colors help indicate facilities that appear in both columns.

Figure 40:

Gonorrhea 2015 (n=252)			Gonorrhea Inadequate Treatment 2015 (n=47)		
Rank	Provider Name	% of all cases	Rank	Provider Name	% of all inadequate tx
1	MCHD	19.2%	1	B	17.0%
2	B	11.0%	2	K	14.9%
3	C	10.5%	3	C	8.5%
4	D	7.3%	4	J	6.4%
5	E	6.8%	5	D	6.4%
6	F	5.9%	6	F	4.3%
7	G	4.1%	7	L	4.3%
8	H	3.7%	8	M	4.3%
9	I	2.7%	9	N	4.3%
10	J	2.3%	10	H	4.3%

Figure 40:

- Left hand side shows top 10 providers seeing gonorrhea cases in Marion County
- Right hand side shows top 10 providers recorded as inadequately treating gonorrhea cases
- Read as “Provider B sees 11% of all cases in Marion County, and is responsible for treating 17% of all recorded inadequate treatments in the county”

Overview of Chlamydia:

Chlamydia is a sexually transmitted infection (STI) caused by the bacterium *Chlamydia trachomatis*.

Historically it is the most commonly reported notifiable disease, and the most prevalent sexually transmitted disease reported in the United States. Chlamydia infections are extremely common in young women and can be either symptomatic or asymptomatic. Chlamydia may be spread through vaginal, anal or oral sex, or vertical transmission during birth. These forms of transmission can result in chlamydial infections of the urogenital tract, rectum, pharynx, and occasionally the conjunctiva.

Symptomatic chlamydial infections in women may involve abnormal discharge, abnormal menses, pelvic pain, or dysuria. Untreated chlamydia may result in complications such as pelvic inflammatory disease (PID), and subsequent infertility or tubal pregnancy. It is also possible for pregnant mothers with chlamydia to transmit infection to their child during birth, which may result in neonatal ophthalmia or pneumonia. Symptomatic infections in men may involve urethral discharge, and dysuria, left untreated this may lead to epididymitis. Chlamydia, much like most other sexually transmitted diseases may also facilitate the transmission of HIV.

It is important to note that most chlamydia infections are not symptomatic; therefore chlamydia is historically extremely underreported. Though there has been more reported Chlamydia in recent years this may be because of the use of more sensitive diagnostic tests, -more thoroughly implemented screening guidelines, or increased rates in the community.

Center for Disease Control (CDC) Screening Guidelines 2015:

(2015 Sexually Transmitted Diseases Screening Guidelines: CDC, 2015)

Women

- Sexually active women under 25 years of age¹
- Sexually active women aged 25 years and older if at increased risk²
- Retest approximately 3 months after treatment³

Pregnant Women

- All pregnant women under 25 years of age¹
- Pregnant women, aged 25 and older if at increased risk²
- Retest during the 3rd trimester for women under 25 years of age or at risk^{3,4}
- Pregnant women with chlamydial infection should have a test-of-cure 3-4 weeks after treatment and be retested within 3 months¹

Men

- Consider screening young men under the age of 25 in high prevalence clinical settings⁵ or in populations with high burden of infection (e.g. MSM)⁶

Men Who have Sex with Men (MSM)

- At least annually for sexually active MSM at sites of contact (urethra, rectum) regardless of condom use⁶
- Every 3 to 6 months if at increased risk⁷

Persons with HIV

- For sexually active individuals, screen at first HIV evaluation, and at least annually thereafter⁸

More frequent screening might be appropriate depending on individual risk behaviors and the local epidemiology⁸

Expedited Partner Therapy (EPT):

“If provider or health department assistance with partner referral and treatment is unavailable, the health care practitioner should be encouraged to give additional medicine or a prescription for chlamydia to a heterosexual patient to deliver to their partner or partners. This practice is known as patient delivered partner therapy, expedited partner therapy, or (EPT).” (Oregon Disease Investigation Guidelines: Chlamydia, 2014, 2014).

Treatment:

Chlamydia is treatable with a course of antibiotics. It is important to diagnose and treat chlamydia properly, especially in special circumstances such as pregnancy. Please see the CDC website for their updated STD treatment guidelines from 2015 (Sexually Transmitted Diseases Treatment Guidelines: Center for Disease Control and Prevention, 2015)

Chlamydia in Marion County:

Summary: Marion County has experienced a dramatic increase in the incidence of chlamydia in the population since 2010 and has surpassed both state and national incidence of chlamydia since 2013.

Figure 41:

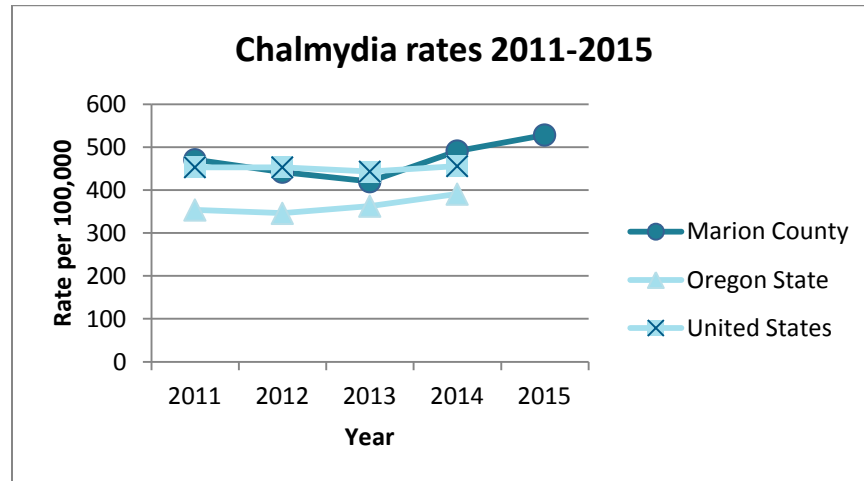


Figure 41: There has been an increase in incidence of chlamydia in the United States, Marion County, and Oregon State. The United States has experienced a **0.6% increase in incidence per 100,000** (453.4 cases per 100,000 in 2011 to 456.1 cases per 100,000 in 2014), a **10.5% increase in incidence per 100,000** in Oregon State, from (353.9 cases per 100,000 in 2011 to 390.9 cases per 100,000 in 2014) and a **12.2% increase in incidence per 100,000** in Marion County, from (471.0 cases per 100,000 in 2011 to 475.9 cases per 100,000 in 2015). National incidence rates for chlamydia are available in the CDC's 2014 STD report. State and County incidence rates for chlamydia are available on the Oregon Health Authority website.

Demographics of Chlamydia Cases in Marion County

Summary: In Marion County the chlamydia rates follow national trends closely. The chlamydia patients in the county are mostly young, female, and the largest disparities are seen when looking at the incidence rates of racial or ethnic minorities in the community.

Geography: To create this map, zip codes were combined into known “community regions”. This map shows the highest rates of chlamydia in south Marion County with a pocket in the mid and upper west region of Salem and Marion County. Knowing where cases are occurring will allow targeted interventions to reduce STI rates in the specific regions with the highest incidence rates of syphilis.

It will be important to evaluate the regions with the highest incidence for their ability to access healthcare and screening services as well. “Access to high-quality health care is essential for early detection, treatment, and behavior-change counseling for STDs. Groups with the highest rates of STDs are often the same groups for whom access to or use of health services is most limited” (HP2020)

Figure 42:

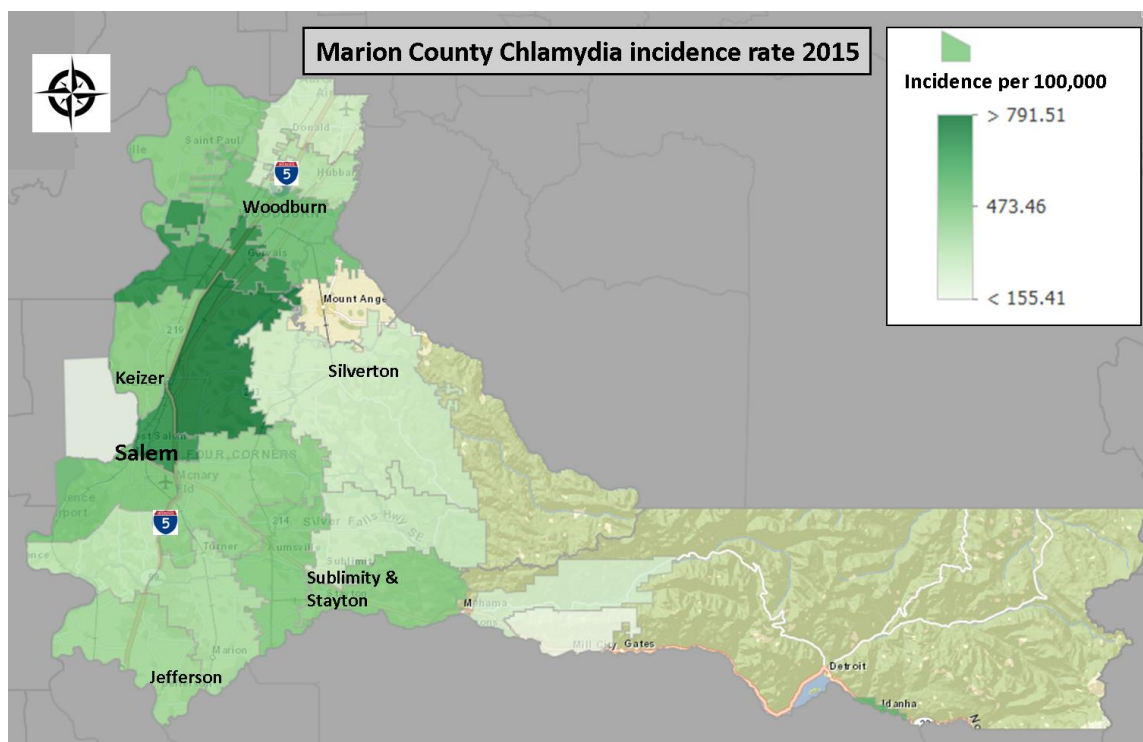


Figure 42: Please see appendix for additional information on zip_codes.

Sex:

Chlamydia in Marion County follows typical national trends between sex categories. Historically young women are disproportionately affected by this STI. In Marion County over 70% of the cases are in the female population.

Figure 43:

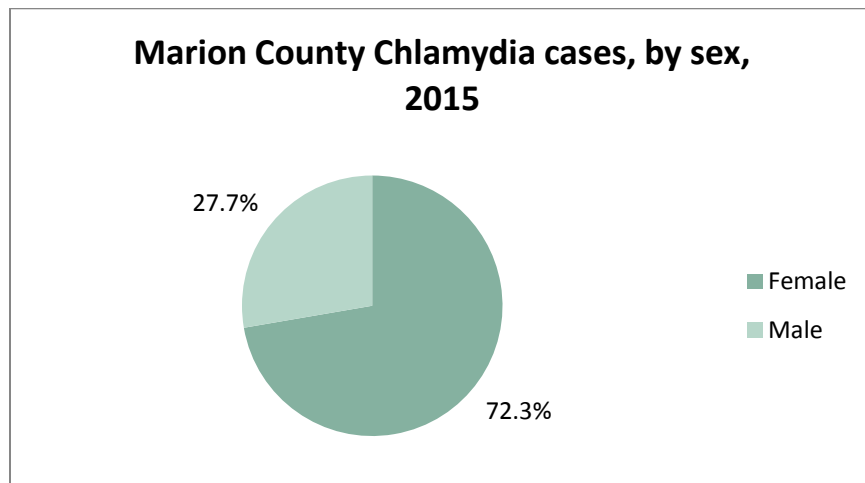


Figure 43: shows the percent of chlamydia cases in Marion County in 2015 (n=1711) by sex. This depicts which sex make up the majority of the caseload in Marion County. 27.7% of cases in Marion County are male, and 72.3% are female.

Figure 44:

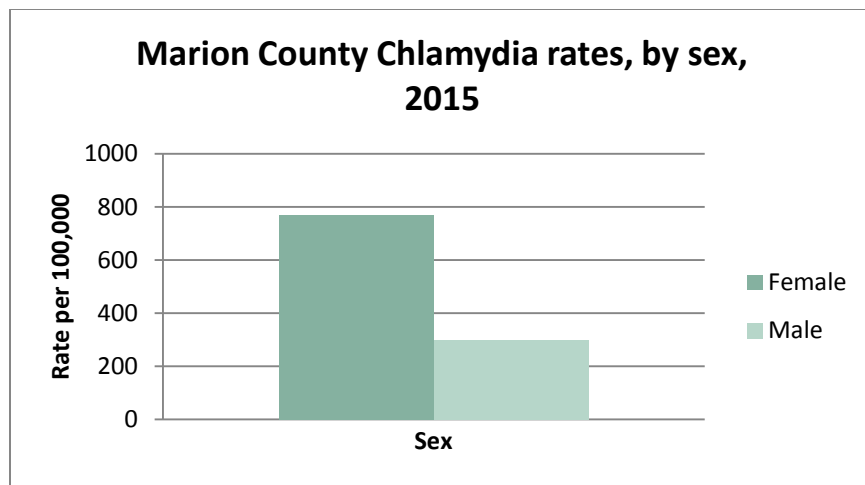


Figure 44: shows the incidence rates of chlamydia cases in Marion County in 2015 (n=1711) by sex. In 2015 males had an incidence rate of 297.1 per 100,000 and females had an incidence rate of 768.5 per 100,000.

Age:

Marion County follows national trends when breaking down chlamydia cases by age group. Primarily young adults age 20-24 are affected by chlamydia.

Figure 45:

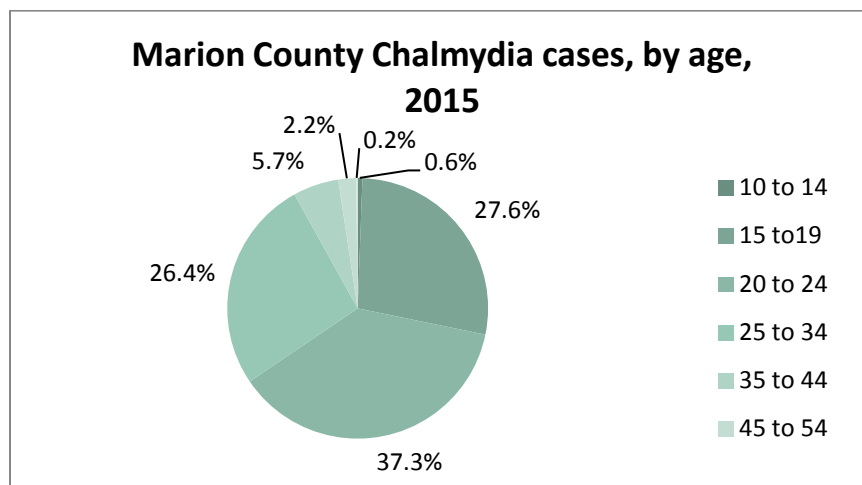


Figure 45: shows the percent of chlamydia cases in Marion County in 2015 (n=1711) by age. This depicts which age groups make up the majority of the caseload in Marion County. 37.3% of cases are found in 20-24 year olds followed by 15-19 year olds at 27.6%. Please note the difference between age categories. There were so many cases in the 10-19 age range; it was useful to break it up into smaller categories to determine which age group most of the cases were occurring in.

Figure 46:

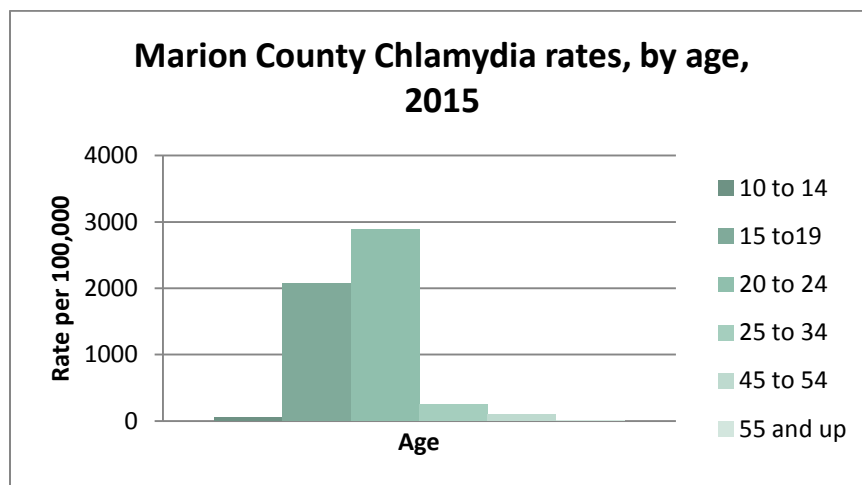


Figure 46: shows the incidence rates of chlamydia cases in Marion County in 2015 (n=1711) by age group. In 2015 20-24 year olds had an incidence rate of 2894.3 per 100,000 and 15-19 year olds had an incidence rate of 2,069.9 per 100,000. Please note the difference between age categories. There were so many cases in the 10-19 age range; it was useful to break it up into smaller categories to determine which age group most of the cases were occurring in.

Race and Ethnicity:

Chlamydia, along with other STI’s often has the highest incidence rates in racial or ethnic minorities. “Race and ethnicity in the United States are correlated with other determinants of health status, such as poverty, limited access to health care, fewer attempts to get medical treatment, and living in communities with high rates of STDs” (Healthy People 2020: Sexually Transmitted Diseases). In Marion County the highest incidence rates are seen in African Americans/Black, the Hispanic population, and the Pacific Islander population, while the majority of our caseload is White, Hispanic, or Other.

Figure 47:

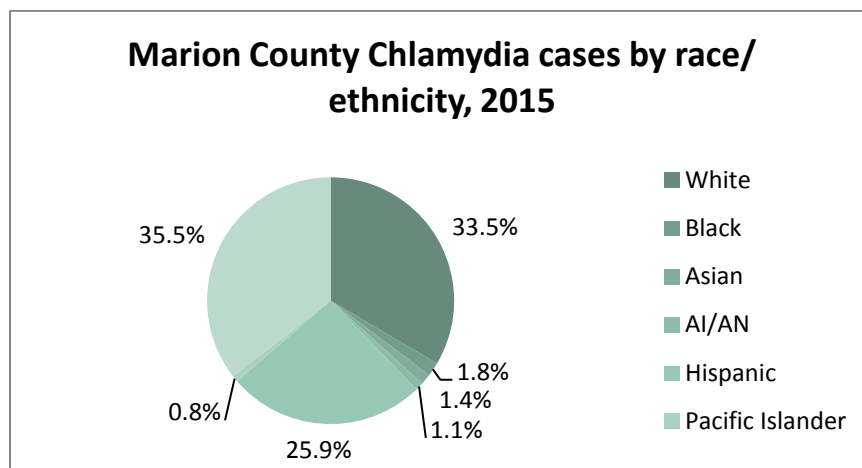


Figure 47: shows the percent of chlamydia cases in Marion County in 2015 (n=1711) by race and ethnicity. This depicts which racial or ethnic groups make up the bulk of the caseload in Marion County. In this Figure “Other” refers to individuals of unknown, or multiple races or ethnicities.

Figure 48:

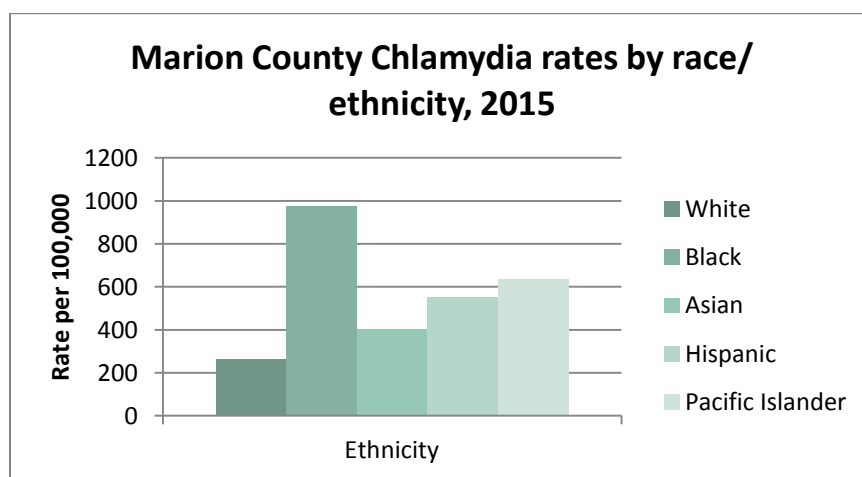


Figure 48: shows the incidence per 100,000 of chlamydia cases in Marion County in 2015 (n=1711) by race and ethnicity. Consistent with national trends, racial/ethnic minorities face the highest disparities in chlamydia rates. The highest incidence rates in Black/African Americans at 973.9 per 100,000 followed by Pacific Islanders at 634.6 per 100,000.

Next Steps:

Practitioner outreach:

Based on the increasing STI incidence rates and the percent of inadequately treated gonorrhea cases Marion County Public Health Department decided to prioritize practitioner outreach. The intent of this outreach is to increase provider awareness of the issue in addition to increasing appropriate screening and treatment practices.

Targeted population outreach:

This report identified high incidence groups within Marion County. In order to make the best use of limited resources Marion County Public Health will focus resources on these groups with the intent to increase appropriate screening and treatment among these populations. From the results of this report we have decided to focus our outreach on local LGBTQ organizations, as well as Hispanic organizations such as school based programs and the local Hispanic farm workers group. We will expand this outreach as resources allow.

Social media/ media release:

According to an article series published in the American Sexually Transmitted Diseases Association media campaigns impact STI related behaviors and “add to evidence that greater exposure is associated with greater behavior change” (Thomas Peterman, 2016). Based on these findings Marion County Health Department will launch a month long social media campaign along with a media release to increase community exposure to STI related information.

Internal program evaluation:

In order to ensure that Marion County Public Health Clinic is filling a gap in services rather than duplicating services we will conduct an internal program evaluation. The Marion County Health Department STI Program Evaluation will serve to evaluate our role in the community and how we can improve our services to address any gaps in service identified. The goal of this evaluation is for it to result in a Quality Improvement project in order to increase our quality of services to the community.

Works Cited

Sexually Transmitted Diseases Treatment Guidelines: Center for Disease Control and Prevention. (2015). Retrieved 2015, from Center for Disease Control and Prevention: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6403a1.htm>

2015 Sexually Transmitted Diseases Screening Guidelines: CDC. (2015). Retrieved November 2015, from Center for Disease Control and Prevention: <http://www.cdc.gov/std/tg2015/screening-recommendations.htm>

American Fact Finder. (n.d.). Retrieved October 2015, from United States Census Bureau: http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml

Center for Disease Control and Prevention: Sexually Transmitted Disease Surveillance 2014. (2015). Retrieved October 2015, from U.S. Department of Health and Human Services: <http://www.cdc.gov/std/stats14/syphilis.htm>

Congenital Syphilis: MedlinePlus Medical Encyclopedia. (2015). Retrieved January 2016, from U.S. National Library of Medicine: <https://www.nlm.nih.gov/medlineplus/ency/article/001344.htm>

Freightman, J. (2013). *Marion County 2012 Sexually Transmitted Disease Report.* Salem, OR.

Gonococcal Infections in Adolescents and Adults: CDC. (2015). Retrieved 2015, from Center for Disease Control and Prevention: <http://www.cdc.gov/std/tg2015/gonorrhea.htm>

Guidance on the Use of Expedited Partner Therapy in the Treatment of Gonorrhea: CDC. (2015). Retrieved November 2015, from Center for Disease Control and Prevention: <http://www.cdc.gov/std/ept/gc-guidance.htm>

Healthy People 2020: Sexually Transmitted Diseases. (n.d.). Retrieved October 2015, from Healthy People.gov: <http://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases/objectives>

Increase in Incidence of Congenital Syphilis-United States, 2012-2014: Morbidity and Mortality Weekly Report. (2015, 11 13). Retrieved 11 30, 2015, from Center for Disease Control and Prevention: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6444a3.htm?s_cid=mm6444a3_w

Magnus Unemo, R. A. (2013). Emergence of multidrug-resistant, extensively drug-resistant and untreatable gonorrhea. *HHS Author Manuscripts: US National Library of Medicine* .

Oregon Disease Investigation Guidelines: Chlamydia, 2014. (2014). Retrieved October 2015, from Oregon Health Authority: <https://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/ReportingCommunicableDisease/ReportingGuidelines/Documents/chlamydia.pdf>

Oregon Disease Investigative Guidelines: Gonorrhea, 2014. (2014). Retrieved October 2015, from Oregon Health Authority.

Oregon Disease Investigative Guidelines: Syphilis. (2014). Retrieved October 2015, from Oregon Health Authority: <https://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/ReportingCommunicableDisease/ReportingGuidelines/Documents/syphilis.pdf>

Oregon STD Statistics. (2014, October). Retrieved November 2015, from Oregon Health Authority: <http://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/DiseaseSurveillanceData/STD/Pages/index.aspx>

ORPHEUS: About. (n.d.). Retrieved October 2015, from Oregon Health Authority: <https://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/ReportingCommunicableDisease/Pages/Orpheus.aspx>

Primary and Secondary Syphilis-United States, 2005-2013: Morbidity and Mortality Weekly Report. (2015). Retrieved October 2015, from Center for Disease Control and Prevention: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6318a4.htm>

Syphaware. (2014, November). Retrieved November 2015, from Syphaware.org: <http://www.syphaware.org/>

Syphilis-USA: (New York) Increased incidence, men who have sex with men, mobile phone applications: PROMed. (2014, 03 12). Retrieved November 2015, from International Society For Infectious Disease: <http://www.promedmail.org/post/2327516>

Table 1. Sexually Transmitted Diseases- Reported Cases and Rates of Reported Cases per 100,000 Population. United States 1941-2014. (2014). Retrieved October 2015, from Center for Disease Control and Prevention: <http://www.cdc.gov/std/stats14/tables/1.htm>

Thomas Peterman, M. C. (2016, February). *Effective interventions to reduce STDs in the community.* Retrieved May 2016, from American Sexually Transmitted Diseases Association: <http://journals.lww.com/stdjournal/toc/2016/02001>

Appendix 1:

Limitations:

General findings:

In order to protect patient confidentiality and calculate stable incidence rates zip codes had to be combined in some circumstances. Therefore, incidence rates for the region may not be representative of zip codes. High risk individuals such as intravenously drug users and people who trade sex for drugs or money may be less likely than others to seek or have access to healthcare and therefore cases in this population may not be accurately represented.

Data collection methods:

Data are collected from physicians as part of a passive surveillance system, which relies on practitioner to report cases to the Local Health Department accurately, on a consistent basis so case counts may be underreported. The Health Department aims to increase reporting of communicable diseases through regular communication with reporting entities. Data were collected out of ORPHEUS. These data are entered during the course of a case investigation and rely on the interviewee to report information accurately. Although Marion County staff are trained to complete case investigation interviews due to some of the personal questions about sexual orientation and practices, these data are subject to response bias. Information on mobile apps is not systematically collected during the interview. Since there is no standard reporting system, or structured question, the validity of this data may be less than the data from other questions, however, questions on internet use are asked in a standard format.

Data analysis:

The ORPHEUS database does not discern which practitioners were seen for diagnosis, treatment, or lab data. The majority of the time it is possible to remove labs which resulted in cleaner results, but it was not possible to differentiate between diagnosing provider and treating provider, this will affect figure 40.

Appendix 2:**Chlamydia Zip Codes:**

ZipCode	Incidence per 100,000
97002	266.76
97020	379.26
97026	733.94
97032	337.1
97071	531.19
97137	459.06
97301	707.98
97302	492.84
97303	460.38
97304	14.05
97305	791.51
97306	321.63
97317	435.22
97325	468.7
97350	549.45
97352	392.57
97358	232.91
97360	136.63
97381	258.31
97383	448.52
97385	276.32
97392	366.01