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CD Summary

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Syphilis and Chronic Hepatitis C Co-infection in Oregon, 2019-2024: Epidemiology and Implications for Integrated Screening

Introduction

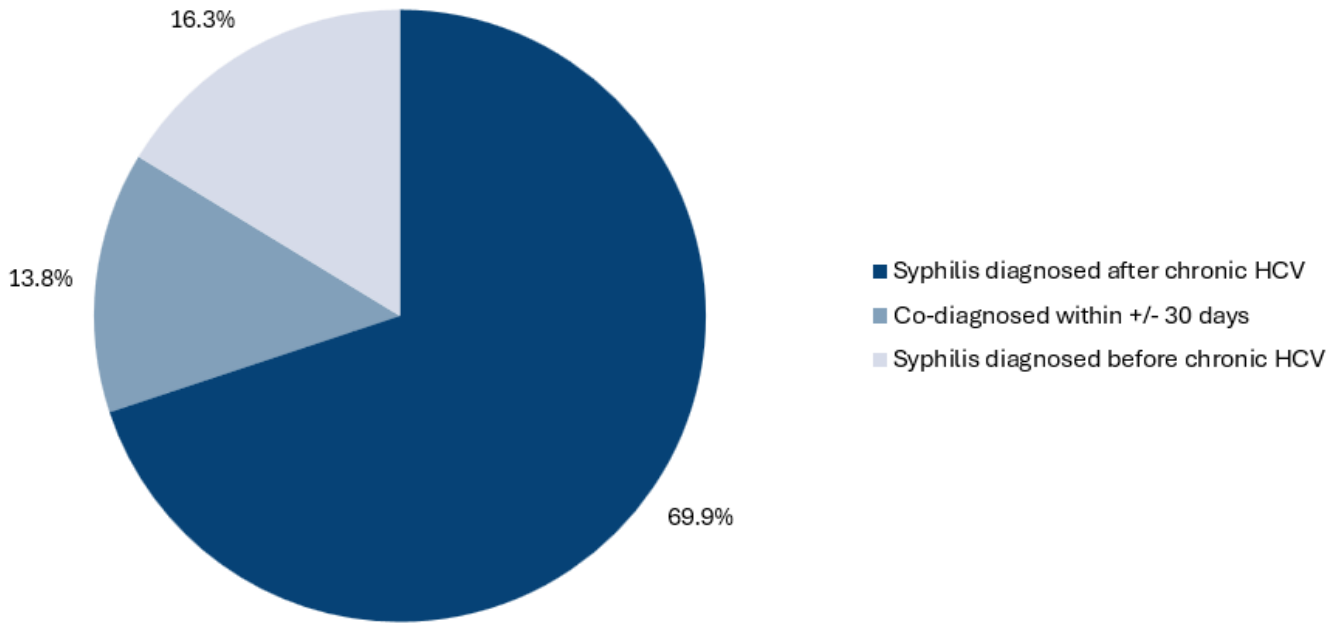
Syphilis and chronic hepatitis C virus (HCV) remain important public health concerns in Oregon. Both infections are reportable conditions and may occur in overlapping populations due to shared risk factors, such as substance use, sexual and social risk factors[1]. Research conducted outside the United States has identified syphilis infection as a comorbidity of chronic HCV infection[2,3]. In Houston, a study found that syphilis infection was a more common comorbidity than any other sexually transmitted infections of chronic HCV infection[4]; however, limited information exists regarding demographic characteristics and risk factors among co-infected persons in Oregon. This analysis summarizes demographic characteristics, temporal patterns and reported risk factors among syphilis cases co-infected with chronic HCV in Oregon during 2019-2024 to help inform evidence-based screening approaches.

Methods

Co-infection was defined as a syphilis case reported to the Oregon Health Authority between 2019 and 2024 with a co-occurring report of chronic hepatitis C regardless of the timing of the HCV report. Each incident case of co-infection was treated as a unique occurrence, including 90 syphilis reinfections. Our final sample included 1,297 incident syphilis cases co-infected with chronic HCV. Cases were classified according to Council of State and Territorial Epidemiologists and Centers for Disease Control and Prevention (CDC) case definitions. All syphilis cases met the presumptive classification criteria[5], and all chronic HCV cases met confirmed or presumptive case classification criteria[6].

This analysis examined demographic and epidemiologic patterns among co-infected cases. Risk factor data was collected during public health case investigation on syphilis cases. Beginning in 2022, non-

FIGURE 1: PERCENTAGE OF CASES BY ORDER OF DIAGNOSIS, OREGON 2019-2024



injection drug use was added as a data field to syphilis case investigations to improve characterization of substance use behaviors among reported cases. Univariate analysis was used to describe demographics and bivariate analysis to assess differences between geographic regions and risk factors associated with syphilis diagnosis.

Results

Between 2019 and 2024, there were 10,755 syphilis cases reported and about 12 percent had a chronic HCV infection.

Temporal patterns

Minimal variation was observed throughout the study period (2019-2024) in the annual number of cases diagnosed with both syphilis and chronic HCV during the same year, averaging 46 annually (range, 42-55).

Separately, temporal patterns in the timing of syphilis and chronic HCV diagnosis were assessed for the entire study cohort, regardless of calendar year. Overall, 69.9 percent of cases had syphilis diagnosed after chronic HCV, 16.3 percent had syphilis diagnosed before chronic HCV and 13.8 percent received both diagnoses within 30 days of one another (**Figure 1**).

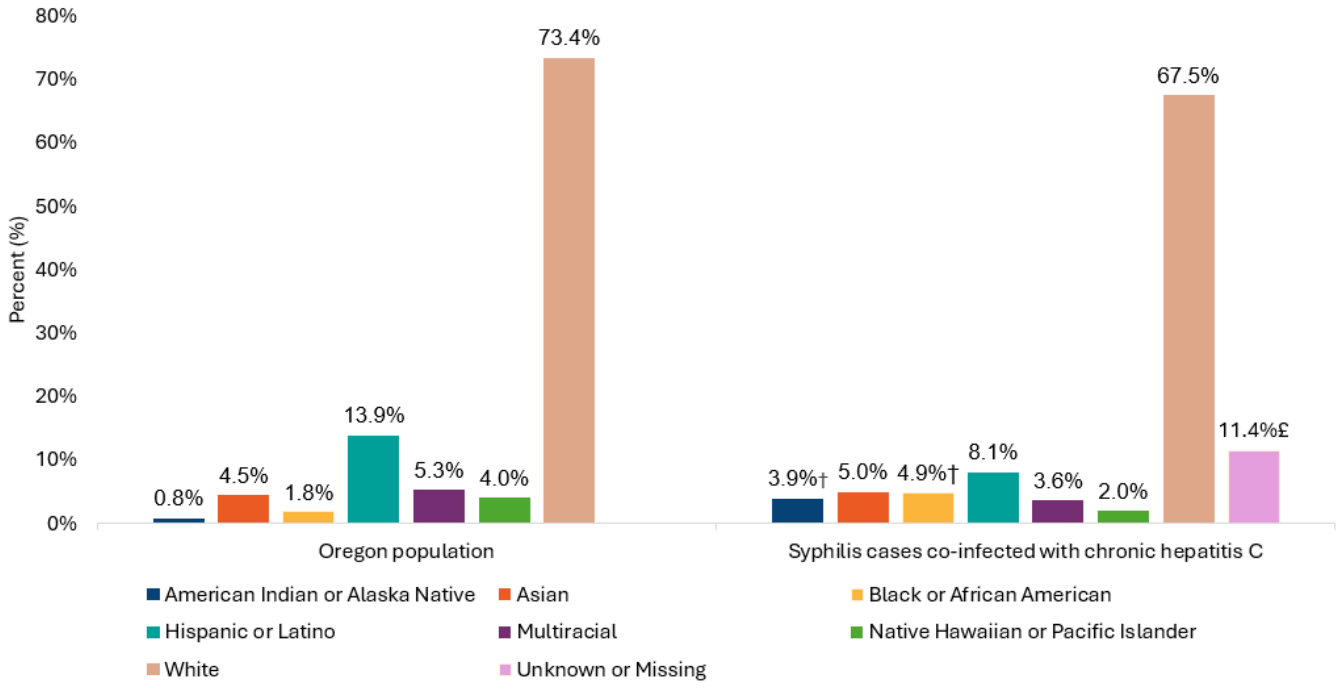
Demographics

Most syphilis cases co-infected with chronic HCV occurred among White, Hispanic, or Latino males. However, when the racial and ethnic distribution of co-infected cases was compared with the broader Oregon population, American Indian, Alaska Native, and Black and African American persons were disproportionately represented. Because 11.4 percent of syphilis cases co-infected with chronic HCV had race and ethnicity information that was unknown or missing, the magnitude of these disparities may be underestimated, and additional disproportionately affected groups may not be fully identified (**Figure 2**).

Additionally, we assessed the interval between syphilis and chronic HCV diagnosis by age group. More than one half of chronic HCV diagnoses occurred before 40 years of age, whereas syphilis diagnosis occurred at older ages. Individuals diagnosed with chronic HCV at younger ages tended to have longer mean intervals until a syphilis diagnosis during the study period; however, differences across age groups were not statistically significant. Since both syphilis and chronic HCV may be asymptomatic — syphilis during its latent stage and chronic HCV often for years and even decades[7,8] — the observed intervals likely reflect patterns of healthcare access or screening rather than the timing of infection.

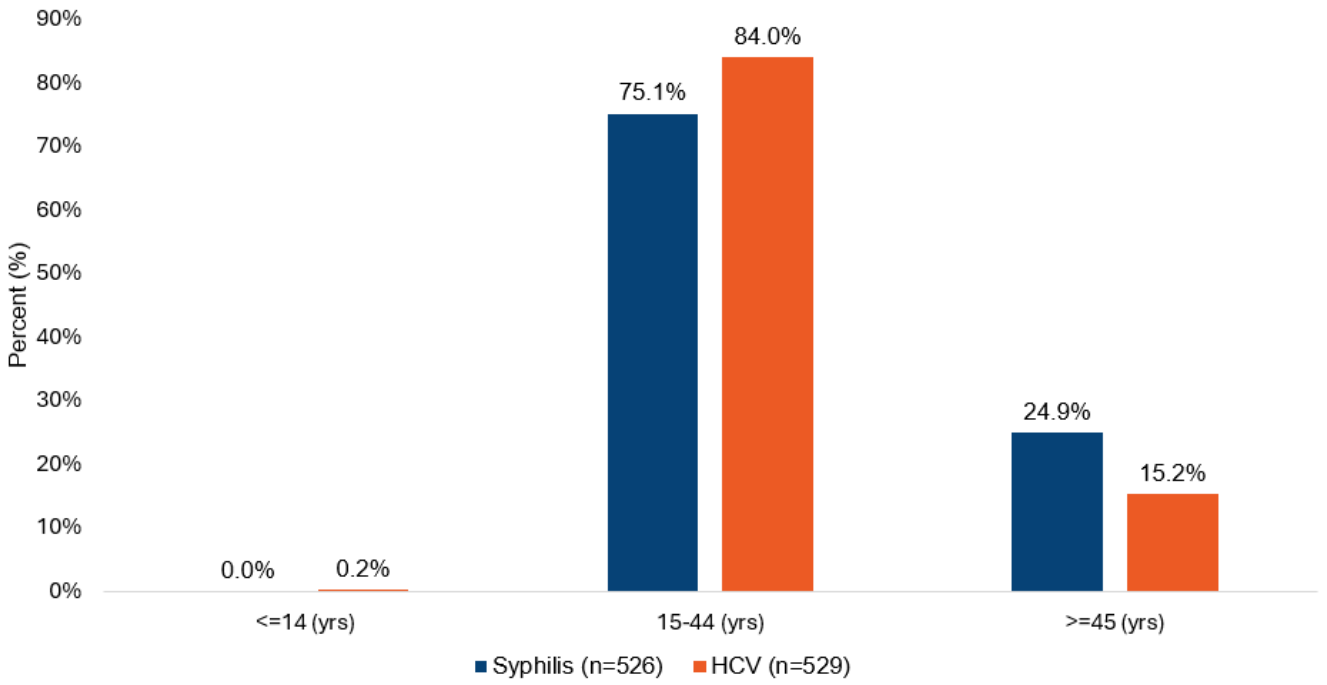
Among females, the mean age at chronic HCV diagnosis was 33.6 years compared to 37.6 years for syphilis diagnosis - a statistically significant difference (t-test, p <0.01) **(Table 1)**. In addition, most diagnoses for both

FIGURE 2: DEMOGRAPHICS OF SYPHILIS CASES CO-INFECTED WITH CHRONIC HEPATITIS C COMPARED WITH THE OVERALL OREGON POPULATION*, 2019-2024



*Average population 2019-2024, American Community Survey.
† P-value < .05 a two-sample z-test for proportions.
£ Some cases are not investigated or refused to provide race and/or ethnicity information.

FIGURE 3: FEMALES OF CHILDBEARING AGE* AT TIME OF DIAGNOSIS BY CONDITION, OREGON 2019 - 2024



*Females of childbearing age defined as individuals assigned female at birth and aged 15-44 at time of diagnosis.

conditions among females occurred during reproductive age (15-44 years). Within this age range, 84 percent received a chronic HCV diagnosis, and 75 percent received a syphilis diagnosis (**Figure 3**). Among males, the mean age at chronic HCV diagnosis was 38 years compared with 42 years for syphilis diagnosis, reflecting a similar age pattern to that observed among females.

These findings suggest potential opportunities for integrated screening and prevention efforts in prenatal care, sexual health and primary care settings serving reproductive-aged populations.

Behavioral risk factors

Approximately 30 percent of the sample reported injection drug use, 40 percent reported non-injection drug use, and 18 percent reported both injection and non-injection drug use. Thirty percent reported having sex while intoxicated or high, and 9 percent reported using mobile applications to find sex partners during the 12 months prior to syphilis diagnosis. Syphilis cases among males who reported a male partner and among those who reported using mobile applications to find sex partners were higher in urban counties. Injection drug use and sex while intoxicated were higher in rural and urban counties, whereas a history of incarceration was more frequent in frontier counties. All behavioral factors showed statistically significant differences across county designations, except for non-injection drug use. Although non-injection drug use was most prevalent in rural counties, the percentages across county designations differed by less than 10 percent. The addition of non-injection drug use as a data field during syphilis case investigation enhanced identified behaviors that might otherwise go unnoticed and ensured consistency with statewide substance-use trends during 2022-2024.

Clinical and public health implications

Our findings highlight the ongoing intersection of syphilis and chronic HCV and suggest that healthcare encounters related to one infection may represent opportunities to screen for and diagnose co-infection in a timely manner. Most co-infected persons in this study received a chronic HCV diagnosis before syphilis diagnosis, underlining the importance of maintaining awareness of overlapping sexual and substance use risk factors across clinical settings that may traditionally focus on only one condition. Our findings provide additional insight into the populations affected by syphilis and chronic HCV co-infection, and may help inform ongoing screening, prevention, and outreach activities.

The high proportion of diagnoses occurring among reproductive-aged females

highlights the importance of screening in prenatal and reproductive healthcare settings. Because both syphilis and chronic HCV infection can remain asymptomatic, integrated screening approaches may support earlier diagnosis, timely linkage to care, and prevention of adverse maternal and infant outcomes, including congenital syphilis and perinatal HCV exposure. Although HCV treatment is not currently recommended during pregnancy, diagnosing during pregnancy can support timely treatment initiation after delivery and ensure that infants receive appropriate follow-up care.

Geographic differences in reported behavioral characteristics among individuals co-infected with syphilis and chronic HCV suggest distinct regional risk environments. Results showed that 69 percent of people with both conditions were diagnosed in the same county, suggesting that geographically targeted interventions may be particularly effective, as many individuals access care consistently within local healthcare environments. Although behavioral data were collected during syphilis investigations and may not reflect exposures at the time of hepatitis C diagnosis, they provide insight into the ongoing social and behavioral contexts of co-infected populations. These findings highlight opportunities for integrated screening, prevention and early intervention strategies across healthcare settings, including non-traditional settings, particularly among populations less likely to access routine preventive care.

CDC recommendations support universal HCV screening for all adults 18 years of age and older, all women during each pregnancy, periodic testing for people with ongoing risk factors, and testing for any person who requests it. Increased awareness of co-infection patterns may help support incorporation of HCV testing into sexually transmitted infections (STI) screening among people diagnosed with syphilis infection.

TABLE 1

Mean age at time of diagnosis among females by condition			
	Syphilis	Chronic HCV	P-value*
Mean (yrs)	37.6	33.6	<0.01
*T-test			

Limitations

Syphilis infection and screening outside of the study period were not included in the analysis. Because negative syphilis results are not reportable, it is unknown whether individuals received syphilis screening between their chronic HCV diagnoses and the syphilis report included in this analysis. In addition, reports of chronic HCV cases are not routinely interviewed due to limited public health resources; risk and exposure information was collected only during syphilis case interviews and may not accurately reflect the circumstances surrounding an individual's HCV diagnosis.

For more information

For more information contact the OHA Viral Hepatitis Program at oregon.viralhepatitis@odhsoha.oregon.gov or the OHA Viral Hepatitis Program website.

For more information about syphilis contact the OHA STD Prevention Program at prevention.info@odhsoha.oregon.gov or visit the STD Prevention Program Website.

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