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Increasing STI among adolescents in the United States

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From 2014–2019, reported cases of three nationally notifiable sexually transmitted infections (STI) − chlamydia, gonorrhea, and primary and secondary (P&S) syphilis − have been rising in the United States (US).(https://www.cdc.gov/std/statistics/2019/default.htmhttps://www.cdc.gov/std/statistics/2019/default.htm) During this time, health inequities persisted by age with a higher burden among adolescents and young adults, and by race-ethnicity with a higher burden among subgroups other than non-Hispanic whites and non-Hispanic Asians. Racial-ethnic inequities in STI are also prevalent among adolescents aged 15–19 years. Factors commonly associated with STI that may have contributed to the recent STI increases include sexual behavior and networks, STI testing, and contextual factors (e.g., social determinants).

Individual behaviors and sexual networks can impact the risk for STI. However, from 2013–2019, the proportion of high school students who ever had sexual intercourse, had sex before age 13 years, had four or more lifetime sex partners, or were currently sexually active decreased.[1] Among students who were currently sexually active, condom use at last sexual intercourse increased from 1991–2019 (46·2% to 54·3%) but decreased from 2005–2019 (62·8% to 54·3%). While most adolescents use contraception at first sex, condom use declined among sexually active young men aged 15–19 years with STI risk factors from 2002 to 2011–2017.[2] However, reported STI risk factors among adolescent men declined from 2006–2010 to 2011–2015.[3] Beyond individual behaviors, adolescents diagnosed with STI may be part of sexual networks that are more connected.[4] Additionally, having concurrent sex partners has been associated with STI; yet, we do not have adequate trends data to determine if this has changed among adolescents.

In the US, annual chlamydia and gonorrhea screening is recommended for sexually active women aged 15–24 and syphilis screening is recommended for pregnant women and persons at increased risk. From 2015–2019, chlamydia screening rates slightly increased for 15–24 year old women on commercial insurance plans while rates were increasing

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but were unchanged for their counterparts on public insurance.[5] Using national survey data, a preliminary analysis of broader STI testing trends [chlamydia, gonorrhea, herpes, or syphilis] among sexually active adolescents from 2011–2019 showed no changes in STI screening rates. Similarly, chlamydia testing among persons 15–19 presenting to Title X-funded clinics did not change from 2015–2019.[6]

The context surrounding sexual behaviors and access to STI testing, including social determinants of health, are also factors in STI acquisition, transmission, and inequities. One social determinant, racism, may be an important factor underlying STI inequities. Many public health and medical organizations have recently declared racism as a serious public health issue in the US, and racism in health care has a detrimental impact on health.[7] Additionally, income inequality is a significant predictor of STI, even more so than income.[8] Black Americans are significantly impacted by both income inequality and STI inequity. Although income inequality has increased over a longer period of time, it did not appear to differ during the recent STI increases. Another contextual factor that could have impacted sexual behaviors and STI testing is drug use which has previously been associated with sexual behavior that may increase STI risk. However, recent national data suggests that illicit drug use remained stable or declined among students in 12th grade (final year of high school) while STI were increasing.[9] Similarly, incarceration and violent crime rates have been associated with STI; yet, juvenile arrests, including for violent crime, are declining in the US.[10] Finally, although education is associated with STI, high school dropout rates have not increased.[11]

In summary, numerous factors play a role in STI transmission; however, evidence suggests that some of these factors likely have not meaningfully changed during recent STI increases among adolescents in the US. Perhaps more importantly, research has not yet identified the major causes of the increases. To better understand STI increases, future research could examine the decline in condom use among adolescent men, and adolescents' concurrency and sexual networks. However, even with a better understanding of the causes, current resources may not be enough to curb the increases. Currently, STI prevention programs lack resources to widely implement effective interventions and access to quality sexual health education in schools is low. Additionally, new approaches that include addressing the context surrounding individual behavior may be needed. Inequities in STI will likely remain if there are inequities in the broader societal context. In the US, all adolescents do not have the same access to sexual health education and healthcare services. Although this is a recognized issue, it is difficult for STI prevention programs to address larger societal issues. Collaborations with public health programs with similar health inequities may be useful. Cross cutting collaborations with community-based organizations or other public entities working on larger societal inequities may be worthwhile considerations as well.

Recently, the US government published a STI National Strategic Plan, and the National Academies of Sciences, Engineering, and Medicine released, "Sexually Transmitted Infections: Adopting a Sexual Health Paradigm" in response to the STI increases. Both reports identify adolescents as priority populations and include multifaceted objectives or recommendations to address STI increases and reduce disparities. Clinicians and public

health entities seeking to address these issues may consider strategies that align with both the US government and NASEM recommendations.

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