

**Aubrey Mullins**

**PA-S2**

**OHSU PA Program**

## **Adolescent Education for Prevention of Sexually Transmitted Diseases**

### **Introduction:**

STI rates in US adolescent populations are not improving or are rising.<sup>1-3</sup> Strategies used to address this problem include adolescent education, STI testing availability, and condom availability.<sup>12</sup> A focused education program taught in schools can help prevent the continued spread of STIs among adolescent populations. These education programs should include topics about STIs, general sexual health, STI prevention strategies, access to STI testing services, and practicing open communication regarding sexual health.<sup>12-13, 18</sup>

Healthy People 2030 identifies and measures public health concerns, identifying problems that are improving, getting worse, or staying near the baseline. Looking closely at public health and infectious disease, Healthy People 2030 cites that gonorrhea rates in young adult and adolescent males are getting worse.<sup>1</sup> Gonorrhea is a sexually transmitted infection (STI), spread through sexual intercourse from person to person. It is treatable with antibiotics and can be easily detected with tests in the clinical setting. In fact, other STI infection rates are not improving, or are getting worse. STI rates are a public health concern because while some STIs are curable, they can still cause serious illnesses, and still others are not curable and become chronic health conditions that may continue to spread. Healthy People 2030 identifies frequent STI testing as one of the best ways to help decrease these numbers.<sup>1</sup> Other strategies include

adolescent education regarding STI risk factors and access to STI testing. When looking at adolescent education specifically, focused education programs taught in schools can help prevent the continued spread of STIs among adolescent populations.<sup>11</sup> Adolescent education should include STI testing, STI prevention strategies, access to condoms, access to STI testing services, and practicing open communication regarding sexual health.<sup>11,14</sup> Using these educational topics, adolescents are given the information and the tools to make decisions regarding their health and their own risk of STI infections, which will aid in the decrease of STI infections like gonorrhea.<sup>11-13</sup>

### **How high are STI rates?**

US trends in STI rates are similar to the STI trends in Oregon. From the last 10 years most STI rates are higher, or are not improving. Most recent public health data from the CDC and Healthy People 2030 shows a concerning increase in gonorrhea infections with rates for men 15 to 24 years old at 523.5 cases per 100,00 males. Gonorrhea rates for all ages in men increased from 544 cases to 598 cases per 100,000 from 2019 to 2020.<sup>1</sup>

Looking at STI rates in Oregon specifically shows the need for continued STI prevention strategies in this specific region. The rate of gonorrhea in Oregon has been increasing over the last 10 years.<sup>2</sup> The average HIV incidence in Oregon is 5.4 cases per 100,000 people. Looking closely at adolescent ages, STI rates have been stable or getting worse.<sup>3</sup> Syphilis infection have been steadily increasing in the last five years, with a significant increase from 1,322 cases to 2,009 cases from 2020 to 2021.<sup>4</sup> Chlamydia has been mostly stable from 2020 to 2021 with 15601 cases in 2021.<sup>5</sup> Looking especially at STI rate trending over the last 10 years, STI rates

are trending upwards or are not improving in US populations, including adolescent populations in Oregon. <sup>1-5</sup>

### **Why are increasing STI rates a problem?**

Why do STI rates matter? With STI infections like gonorrhea, the risk of transmission of HIV is higher, and women face an increased risk of pelvic inflammatory disease.<sup>1</sup> Pelvic Inflammatory Disease in women can cause permanent sequelae including repeated infections, chronic pelvic pain, ectopic pregnancy risk, dyspareunia, and infertility.<sup>6</sup> Public health concerns also include the possibility that Gonorrhea may soon become resistant to the recommended antibiotic, which would increase disease rates and treatment failures<sup>1</sup>. Other STIs are also concerning because while some of them are curable, like gonorrhea, chlamydia, syphilis, and trichomonas, people can still get re-infection if exposed, even if they have been treated for that infection before.<sup>6</sup> Other STIs are also not curable, and instead are chronic diseases that must be managed for the rest of the person's life, and will continue to hold a risk of infection to other people. These include STIs like HIV and HSV 2. STIs are preventable diseases, and many of them are treatable, making them a public health concern that deserves attention at increasing prevention.<sup>6</sup> With adequate education on risks behaviors, prevention strategies associated with STI infections, and available STI testing access, the transmission and rates of these diseases may indeed start to go down, which also decreases the health costs and risks associated with STI infections. <sup>1, 12</sup>

### **Why are STI rates high or not improving among adolescent populations?**

Why are STI rates getting worse or not improving among adolescent populations? There are many contributing factors to the concerning STI rates in adolescent populations including participating in risk behaviors, condom usage, STI testing, and education.<sup>12</sup> The CDC's Youth Risk Behavior Survey shows 30% of high schoolers have ever had sexual intercourse, with 6% having had sexual intercourse with four or more people.<sup>7</sup> It also shows 48% did not use a condom during the last sexual intercourse.<sup>7</sup> Adolescents included in gender minority or LGBTQ+ are associated with higher rates of risk behaviors, and may be associated with higher rates of HIV.<sup>8</sup> 20% of new HIV infections happen in young adult and adolescent populations.<sup>9</sup> The Risk Behavior survey also indicated that 94% were not tested for sexually transmitted diseases.<sup>7</sup> Other confounding factors contribute to decreased STI testing in adolescent populations including fear of parents finding out through insurance documentation and not having time alone when visiting their healthcare provider.<sup>10</sup> While there are many confounding factors that affect STI rates in adolescents, it's clear that STI testing and addressing risky behaviors are two of the most obvious modifiable risk factors that can be addressed through education.<sup>12</sup>

### **Prevention and Education:**

How can STI rates be improved? Healthy People 2030 cites one of the solutions to improving STI rates includes screening people who may be at increased risk and starting treatment quickly.<sup>1</sup> Screening and rapid treatment will help to prevent transmission and adverse health outcomes associated with untreated STIs like gonorrhea.<sup>1</sup> To achieve this goal, adolescent education about STI infections should include education topics including STI testing, STI prevention strategies, access to condoms, access to STI testing services, and practicing open communication regarding sexual practices.<sup>12,15,18</sup>

When discussing what should be included in STI education, abstinence only models of education are correlated with higher rates of STIs and show less efficacy overall for STI prevention and pregnancy prevention.<sup>11</sup> However data shows that a focused approach to comprehensive sexual health education helps adolescents to understand risk factors associated with STI transmission and reflects lower STI rates.<sup>12,15</sup> Timing is also relevant to sexual health education for adolescent populations, as studies suggest sexual health education is more effective when delivered before initial exposure to intercourse in adolescent populations.<sup>18</sup>

What should be included in a sexual health education program? Education for adolescents can center around understanding risk factors that increase risk of transmission of STIs. This includes topics on abstinence, vaccinations, reducing number of sex partners, mutual monogamy, STI testing, and condom use.<sup>13</sup> Education on activities that increase the risk of STI infections include anal, vaginal or oral sex without a condom, having multiple partners, anonymous partners, and having sex under the influence of drugs and alcohol. Similarly, education should include ways to prevent STI infections including: choosing less risky sex activities, use new condoms correctly and consistently for oral, vaginal, and anal sex, reduce number of people you have sex with, limit drug and alcohol use before sex, and talking with healthcare providers about being tested for STIs.<sup>14</sup> Comprehensive education includes topics of consequences of higher risk sexual health behaviors, but also expands on communication skills and decision making<sup>13,15</sup>.

What methods are effective when teaching sexual health education to adolescent populations? Effective models of STI prevention include practicing open communication and engaging with adolescent populations using games. Data from multiple meta analysis shows strong statistically significant data that supports education curriculums for sexual health classes

to include communication and negotiation skills in combination with condom use as effective teaching points to adolescent populations.<sup>15</sup> According to adolescent surveys, other important factors for adolescent sexual health education includes being in a safe environment and integrating an educator who is nonjudgmental and well educated. Methods such as storytelling and role playing can also be effective and youth friendly.<sup>18</sup>

A major part of STI prevention includes STI testing, which should be included in sexual health education for youth. Data shows that low numbers of STI screenings in adolescents may be due to fear of testing associated with fear of lack of confidentiality.<sup>16</sup> Informing adolescent population of self testing resources may help increase adolescent access and use of STI testing.<sup>16</sup> In fact, the CDC has a national HIV/STI prevention strategy that has implemented home based STI self-collection and testing services, which includes many Oregon counties.<sup>17</sup> TakeMeHome is an online site that facilitates mailing home tests and providing easy instructions on how to collect specimens at home for STI testing.<sup>17</sup>

### **Conclusion:**

STI rates are a concern for adolescent populations and for the general public health.<sup>1-3</sup> Some of the most effective means of prevention of STI transmission is STI testing and comprehensive sexual health education. Education topics should include STI testing, prevention strategies, risk behaviors, peer communication, and navigating decision making in regards to adolescent sexual health. Increasing the information regarding sexual health and STI testing will help to combat the current concerning STI rates in adolescents.<sup>11, 12, 13, 15</sup>

## References:

1. Reduce gonorrhea rates in male adolescents and young men - STI-02. Healthy People 2030. 10/9/2023. <https://health.gov/healthypeople/objectives-and-data/browse-objectives/sexually-transmitted-infections/reduce-gonorrhea-rates-male-adolescents-and-young-men-sti-02>
2. Gonorrhea Disease in Oregon: Surveillance data summarized by year. Accessed 11/6/2023, [https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/Gonorrhea\\_16536733712190/Story2021](https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/Gonorrhea_16536733712190/Story2021)
3. HIV Incidence Dashboard - The Oregon HIV Epidemiologic Profile 2021. Oregon Health Authority. Accessed 10/29/23, [https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/Gonorrhea\\_16536733712190/Story2021](https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/Gonorrhea_16536733712190/Story2021)
4. Syphilis in Oregon: Surveillance Data Summarized By Year. Oregon health Authority [https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/Syphilis\\_16536742437740/Story2021](https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/Syphilis_16536742437740/Story2021)
5. Chlamydia in Oregon: Surveillance Data Summarized By Year. Oregon health Authority Accessed 10/29/23, [https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/Chlamydia\\_16536722856480/CT2021](https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/Chlamydia_16536722856480/CT2021)
6. Jill Brown KS. *Current Medical Diagnosis & Treatment 2023*. 2023.
7. High School Youth Risk Behavior Survey <https://nccd.cdc.gov/Youthonline/App/Results.aspx?TT=A&OUT=0&SID=HS&QID=QQ&LID=XX&YID=2021&LID2=&YID2=&COL=S&ROW1=N&ROW2=N&HT=QQ&LCT=LL&FS=S1&FR=R1&FG=G1&FA=A1&FI=I1&FP=P1&FSL=S1&FRL=R1&FGL=G1&FAL=A1&FIL=I1&FPL=P1&PV=&TST=False&C1=&C2=&QP=G&DP=1&VA=CI&CS=Y&SYID=&EYID=&SC=DEFAULT&SO=ASC>
8. Agwu A. Sexuality, Sexual Health, and Sexually Transmitted Infections in Adolescents and Young Adults. *Topics in Antiviral Medicine*. 2020;
9. Hasiya Yusuf EF, Renata Arrington-Sanders, David Griffith, Allison Agwu. HIV Preexposure Prophylaxis Among Adolescents in the US: A Review. *JAMA Pediatrics*. 2020;McGraw Hill. doi:10.1001/jamapediatrics.2020.0824
10. Jami Leichter P. Confidentiality Issues and Use of Sexually Transmitted Disease Services Among Sexually Experienced Persons Aged 15-25 Years. *Morbidity and Mortality Weekly Report - Center for Disease Control and Prevention* 2017;
11. Lauren Mazirz JD, Tavis Glassman Sex Education, Condom Access, and Contraceptive Referral in U.S. High Schools *The Journal of School Nursing*. 2019;doi:10.1177/1059840519872785

12. Cora Breuner GM. Sexuality Education for Children and Adolescents *Pediatrics*. 2016;doi:10.1542/peds.2016-1348
13. How you can prevent Sexually Transmitted Diseases. Centers for Disease Control and Prevention <https://www.cdc.gov/std/prevention/default.htm>
14. STDs and HIV - CDC Basic Fact Sheet Centers for Disease Control and Prevention. <https://www.cdc.gov/std/hiv/stdfact-std-hiv.htm>
15. Dafina Petrova RG-R. Effective Evidence-Based Programs For Preventing Sexually-Transmitted Infections: A Meta-Analysis *Current HIV Research* 2015;doi:10.2174/1570162x13666150511143943
16. Chelsea Shannon JK. The growing epidemic of sexually transmitted infections in adolescents: a neglected population *Current Opinion in Pediatrics* 2018;doi:10.1097/MOP.0000000000000578
17. HIV/STD Prevention Testing. Oregon Health Authority. Accessed 10/29/23, [https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/HIVTesting\\_PUBLIC/HomePage](https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/HIVTesting_PUBLIC/HomePage)
18. Corcoran JL, Davies SL, Knight CC, Lanzi RG, Li P, Ladores SL. Adolescents' perceptions of sexual health education programs: An integrative review. *J Adolesc.* 2020;84:96-112. doi:10.1016/j.adolescence.2020.07.014