

Interview with

## **Dr. Gail Bolan - Director, Division of STD Prevention - CDC**

### **2017 STD Surveillance Report**

This 27 minute interview focuses on important trends in chlamydia, gonorrhea, syphilis, and congenital syphilis. Dr. Bolan also discusses populations experiencing high rates of these infections, what the CDC is doing, and what clinicians can do to fight the rising tide of these STDs.

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Dr. Spach

Hello. This is Dr. David Spach, Professor of Medicine in the Division of Infectious Diseases at the University of Washington in Seattle.

The Centers for Disease Control and Prevention (CDC) recently released the 2017 Sexually Transmitted Disease Surveillance Report. This annual report provides valuable current information and trends for STDs in the United States. Today, we have the opportunity to discuss this report with Dr. Gail Bolan, the Director for the CDC Division of STD Prevention. Dr. Bolan joins us today from the CDC in Atlanta, Georgia.

Dr. Bolan, first of all, thank you for speaking with us today about the 2017 Sexually Transmitted Disease Surveillance Report.

**Let me begin by asking you to summarize the overall trends in recent years for reported cases of chlamydia, gonorrhea, and syphilis in the U.S.**

Dr. Bolan

Thank you for having me here today.

We are seeing an unprecedented rise in STDs in the United States. 2017 marks the fourth year in a row of increasing STDs in our nation, the most cases ever reported to CDC. We had 1.7 million cases of chlamydia, over a half a million cases of gonorrhea, and approximately a hundred thousand cases of syphilis, including roughly 30,000 cases of primary and secondary syphilis, which are the most infectious stages.

Additionally we had 918 cases of congenital syphilis, which is the highest number of cases since 1998, and a hundred and 75% increase since 2012.

While STDs are increasing in every corner and can impact anyone, the disparities do deepen for our hardest hit and most vulnerable groups: youth; gay, bisexual, and other men who have sex with men; and pregnant women.

Youth ages 15 to 24 have long accounted for the bulk of chlamydia and gonorrhea infections but we are now seeing more syphilis infections in youth. MSM have extremely high rates of STDs and make up the majority of syphilis cases. Furthermore, nearly half of MSM with syphilis are also infected with HIV.

In addition, pregnant women face some of the harshest outcomes of untreated STDs and this is underscored by the recent surge in congenital syphilis.

Clinicians are key to stemming the rising tide of STDs through timely diagnosis and treatment. The most effective STD prevention is intervention. As many STDs are asymptomatic, it's important to know screening recommendations, who to screen, where to screen and when to screen. Especially with syphilis. Syphilis is "the great imitator," and has fallen off the radar for many clinicians. While patients present with signs and symptoms of primary and secondary syphilis, clinicians are not thinking about syphilis and missing opportunities to treat the most infectious stages. Turning the rising tide of STDs is not going to be easy.

Dr. Spach

Now let's focus on chlamydia. You noted that in 2017 there were more than 1.7 million reported cases of chlamydia in the US, and this was the most common notifiable infectious disease in the US.

**Can you tell us a little bit more about some of the specific groups that have particularly high rates of chlamydia?**

Dr. Bolan

Although chlamydia has been a nationally notifiable condition since 1995, it wasn't until 2000 that all 50 states and the District of Columbia actually required reporting of chlamydia cases. Also, changes in test technology to more sensitive tests have allowed more and more cases to be detected. And as most people infected are asymptomatic, the majority of chlamydia cases are diagnosed through screening.

For years the highest number of cases has always been among adolescents and young adults, particularly women. In 2017, almost two-thirds of all reported chlamydia cases were among persons aged 15 to 24 years, with the highest rates specifically among women age 19 and 20.

Women are disproportionately affected from a biological standpoint, due to the columnar cells which are more susceptible to chlamydia infection and found within the cervical canal and on the outer surface of the cervix. While we have yet to achieve the screening rates that young women deserve, we've come a long way and more and more women are being screened. But women have the most to lose in terms of untreated chlamydia infections. Chlamydia can cause pelvic inflammatory disease, or PID, which can lead to ectopic pregnancy that can be fatal or result in chronic pelvic pain or infertility.

While women have historically had very high rates, we're seeing a rise in male cases in our data systems. However, our systems don't collect gender of partners, so we can't tease out increases among MSM and men who have sex with women only. We generally look at the concurrence or divergent of male/female trends to see if we think cases are going up more among men who have sex with men than heterosexual men. And because our increases, more recently, have been among males and not females, we think these increases are predominantly due to more three-sites screening among MSM.

We also don't recommend universal screening of heterosexual men, as no substantial secondary prevention in women has been documented and screening is costly. That's why for partners of chlamydia infected women, expedited partner therapy can be a powerful and important prevention tool

Dr. Spach

So if I understand this correctly, we're having a significant increase in chlamydia cases but some of this may be due to detection and more avid screening.

**With the effective treatment that we have for chlamydia now, are we seeing a significant increase in the number of cases, or is this mainly been due to better detection in recent years?**

Dr. Bolan

Chlamydia is common, especially among females, and that's due in part to how efficiently it's transmitted. But it also could be due to increased detection. Until someone receives treatment, transmission goes on uninterrupted, and as I mentioned earlier most cases are asymptomatic. So many times when we screen individuals, we don't know they're infected. And given the delays between screening, results, and receiving treatment, people are unaware they have infection and may be spreading it. We also monitor screening rates in both, our Title X clinics as well as in women eligible for Medicaid. And we have to say we've really seen a plateauing in our screening rates in the United States, so I must say that while part of it may be due to detection I think we're also seeing just a steady state of incident infection in the United States.

We have made some dramatic reductions in the burden of this infection in women though. When screening programs first started, the prevalence around the country was around 2%. Now it's dropped to a steady-state of 4% based on NHANES data. But we can't seem to get below the 4%, so we may need to look at additional prevention strategies like scaling up EPT.

Moreover, screening only reaches around 60% of women and we know that chlamydia screening is one of the most underutilized prevention services for adolescent girls. Screening doesn't have to be difficult or embarrassing. Self-collected swabs are a great, easy choice to increase screening among youth. This is a perfect example of the system level interventions that clinicians can explore, by having standing orders for females less than the age of 25 at the time of intake, to go to the bathroom, and collect a urine or self collected vaginal swab specimen, before the client receives any other service in the clinic.

But even with innovative approaches, we still need to remember that adolescents may have barriers to getting general health exams, and if they're not receiving exams, then there's not an opportunity for screening. Adolescents and young adults may not have money to pay, they may lack transportation, have conflict between clinic hours and work in school schedules, lack time for the long clinic waiting times or feel embarrassed about seeking STD services. They may also have concerns about confidentiality - particularly if they're on their parents' or guardians' insurance.

And while the number of chlamydia cases is increasing, we do feel like we're making some headway as the STD increases have not been as dramatic as the increases that we've seen among gonorrhea and syphilis.

Dr. Spach

In 2017, there were more than 500,000 reported cases of gonorrhea in the US, and there's been a 75% increase in the rates of reported gonorrhea since 2009.

**Can you give us an idea of what groups have the highest rates of**

## gonorrhea in the U.S.?

Dr. Bolan

Well gonorrhea has seen a 75% increase since 2009, the curve really began to pick up in 2011 with a rapid rise in the past three years.

Though our largest increases among men, our surveillance data does enable us to look at gender of sex partners in a sample of gonorrhea cases around the country using our STD Surveillance Network known as SSuN. Across all SSuN sites 42% of gonorrhea cases were estimated to be among gay bisexual or other men who have sex with men, 25% were among men who have sex with women only, and 33% were among women. From this data, we see that the majority of cases are still among heterosexuals, but the rates among gay bisexual and other men who have sex with men are the highest because of the smaller size of that population.

Screening picks up incident and prevalent cases, and if we can drive our prevalence down, we can get to a steady state of incidents. With chlamydia, we've likely reached the steady-state, but for gonorrhea we're still at the point of driving prevalence down in men. Our screening programs, particularly the rise in three-site testing, is leading to a general increase, but we're also seeing more symptomatic male cases and that's concerning. Symptomatic cases in men may more likely mean increasing incident infection and transmission because the symptomatic cases may be more infectious than asymptomatic cases.

In the past we saw emerging drug resistance with fluoroquinolones start in the West and among MSM so the increasing burden of infection in MSM will make the control of a cephalosporin-resistant strain in the U.S. more challenging and costly.

Dr. Spach

As part of the surveillance report updated information on Neisseria gonorrhea drug resistance is provided from the Gonococcal Isolate Surveillance Project.

### **What are we now seeing in terms of resistance trends with ceftriaxone, cefixime, and azithromycin in the u.s.?**

Dr. Bolan

We were very concerned when we saw increasing MICs to the cephalosporins. And the cephalosporins that we monitor are ceftriaxone and cefixime in 2010. At that point we felt the need to hypothetically try a strategy to mitigate emerging cephalosporin resistance because we know gonorrhea typically eventually mutates to the current recommended antibiotic therapy. This led to our recommended dual therapy.

The recommendation was not made as a standard of care for more efficacious treatment for gonorrhea. There was never a treatment trial for adding azithromycin to the ceftriaxone to see if it was a more efficacious regimen. Rather what we did was add another drug so that if there was decreased susceptibility to cephalosporin, we'd have another drug that gonorrhea was susceptible to to ensure the strain was killed.

Azithromycin should be viewed as a shield, an extra backup. So in 2016, when Hawaii reported strains that had decreased susceptibility to cephalosporins and a high resistance to azithromycin in the same strain, we were very worried. But the good news is, is that we successfully treated those cases with our recommended dual strategy and have not seen any cases since.

Sometimes when gonorrhea mutates two points of resistance, it loses what's called fitness and is no longer able to transmit. We've been very lucky in the United States with no strains that are resistant and transmitting, and we haven't had dual therapy treatment failures that we've heard from some countries around the world. More recently though we've been concerned by rising azithromycin MICs, not cephalosporin MICs. We clearly have had treatment failures in patients who are treated with 2 grams of azithromycin mono therapy because of a cephalosporin allergy and cephalosporins could not be used. So, we had to change our treatment guidelines in 2015 and remove azithromycin 2g as an alternative treatment. We're monitoring this azithromycin resistance because at some point if the strains start having decreased susceptibility to cephalosporins and azithromycin then this dual strategy will need to be revisited.

Fortunately, all of our 2017 isolates that had any kind of reduced susceptibility to ceftriaxone were susceptible to azithromycin. And all the isolates that had reduced susceptibility to azithromycin were susceptible to ceftriaxone. But, it may only be a matter of time before we see resistance, which is why the development of new biomedical strategies, including vaccine development for gonorrhea prevention, is critical.

Dr. Spach

Now let's turn our attention to syphilis.

### **Let me begin by asking you to summarize some recent trends in syphilis cases in the U.S..**

Dr. Bolan

Syphilis is of great concern for us. We're not headed in the right direction.

After the introduction of penicillin in 1940's, syphilis was declining. We had a short increase in the 1990s, which was attributed to the crack cocaine epidemic among heterosexuals, but by the late 90s we were on the path to elimination. Then the epidemiology changed, and the organism was found in the gay community around 2000. Since then, the number of cases has continued to increase with no signs of slowing down. This rise also parallels the increased options of life-saving antiretroviral therapy.

Since 2000, syphilis cases have increased 221%. We know the epidemic has been

reintroduced in heterosexuals given rising rates among females more recently. In fact, female syphilis cases have increased 160% since 2012, and unfortunately female syphilis is a bellwether to congenital syphilis.

In the past year we hit a high of 918 congenital syphilis cases. Congenital syphilis was declining in the early 2000s. But since 2013, the number of cases has increased each year. Some parts of the country, primarily Western and Southern states, remain disproportionately burdened. We are working in the highest morbidity states that account for 70% of all congenital syphilis cases in the U.S., but it's been difficult given that 37 states reported at least one case of congenital syphilis in 2017. And while the bulk of cases come from these five states, the epidemic is continuing to spread and enter communities where syphilis has long been forgotten.

Dr. Spach

So,

### **Is there a clear understanding of why syphilis has increased among MSM in recent years?**

Dr. Bolan

Well, first we're seeing a lot of young MSM with syphilis, which we haven't seen in the past. The increase we're seeing is occurring in tandem with several advancements. First, the way we interact and meet people has changed. Dating apps are the norm and geolocation has made it easy to make connections and increase the frequency of those connections. We also have life-saving medication for HIV, but it's important to remember that those medications do not protect against other STDs. Outside of these advancements, people still have trouble obtaining health care or may not have a medical home. They also may not be getting the screening they deserve. Then there's stigma, too, which plays a huge role in STDs.

The good news is that we have opportunity to improve screening for gay men. If they're living with HIV, then they should have a medical home. and if they're at risk for HIV, there's the opportunity for PrEP. And with these health care interactions, especially PrEP, there can be regular, recommended STD screenings which could reduce the STD burden in this population.

Dr. Spach

So along these same lines,

### **What explains the alarming increase in congenital syphilis in recent years in the U.S.?**



Dr. Bolan

We are learning from our high morbidity states that there does seem to be additional risk factors involved. Nationally, approximately 45% of mothers with babies with congenital syphilis had late undocumented or no prenatal care at all in 2017. And in some parts of the country, this lack of prenatal care is as high as 5%. In addition, one out of ten of these congenital syphilis cases died in utero or at birth.

Coupled with substance use disorders, poverty, unstable housing, or people experiencing homelessness, along with incarceration, more and more women are falling through the social fabric of our society. When we explored missed prevention opportunities for congenital syphilis, we found they fall into a few categories. First, and what we've already touched on, is that we know too many pregnant women are receiving late or no prenatal care and that is the best predictor of who will have a baby with congenital syphilis. Additionally, we're seeing missed opportunities related to screening, treatment, and rescreening.

Since long-acting benzathine penicillin G is not generally available in prenatal care settings, many women with positive screening tests are being referred to a health care setting where the drug is available but then lost in the health care systems and never treated. Furthermore, failure of health care providers to adhere to prenatal screening recommendations, as well as acquisition of the infection after the initial screening tests, are both contributing to the occurrence of congenital syphilis. This is why it's crucial that providers be aware of what's going on in their communities.

Dr. Spach

For the clinicians listening to this,

### **What recommendations do you have that can help prevent new cases of congenital syphilis?**

Dr. Bolan

There five specific actions clinician can take to protect their pregnant patients and their babies.

First, test pregnant women for syphilis per CDC guidelines, which have been reaffirmed by the US Preventive Services Task Force recently.

Test all pregnant women at their first prenatal visit. This, in fact, is required by law in 42 states and Washington D.C.. But clinicians need to remember that one test is not enough for every pregnancy. Pregnant patients living in high prevalence areas, at high risk for syphilis, or in one of the 17 states that require third trimester screening, need an additional syphilis test at the beginning of the third trimester.

Known risk factors for syphilis among women include multiple sexual partners; substance use disorders; poverty; unstable housing; exchanging sex for drug money or housing; and a history of incarceration. However, some women may present with no risk factors of their own, but are at risk because of partners with these risk factors.

Second, treat women with diagnosed or suspected syphilis immediately. Her sex partner also needs to be tested and treated to avoid reinfection. Use penicillin, the only CDC recommended course of treatment for pregnant women. For clinicians who have trouble obtaining penicillin, or if they refer a patient to another clinic for treatment and can't verify she was seen and treated, they should contact their state or local health department for assistance.

Third, confirm syphilis testing at delivery, before discharging the mother or infant from the hospital. Make sure the mother has been tested for syphilis at least once during pregnancy or at delivery of no prenatal care. If she tests positive, manage the infant per CDC guidelines. And all women who deliver a stillborn infant should be tested for syphilis.

Fourth, know if syphilis is prevalent in your community. Clinicians can learn more about their communities syphilis burden through the 2017 STD surveillance report or they can contact their local health department. If they have any doubts about their patient's risk or if their community prevalence is high, they should consider a third trimester screening test.

And finally, report all cases of syphilis by stage and congenital syphilis to your local or state health department right away. Congenital syphilis cases in most states should be reported within 24 hour.

Dr. Spach

The 2017 STD surveillance report highlights significant racial disparities in the rates of STDs in the US.

### **What are some of the reasons for these disparities, and what can be done to address them?**

Dr. Bolan

As we know, navigating the environmental, cultural, and social factors that put individuals in communities at an elevated risk for STDs are complex and complicated.

However, one starting point to reducing STDs disparities here is access to and routine use of quality health care, including STD screening and treatment. But even when healthcare is readily available, we must acknowledge additional barriers racial and ethnic minority populations face, such as fear and distrust of health care institutions; social and cultural discrimination; language barriers; and even provider bias. The mere perception that these barriers may exist can discourage patients from seeking care.

Moreover, the quality of care can differ substantially for minority patients. STDs are societal marker for the broader inequities in our social and economic condition. Which is why CDC is committed to working on health equity, but we can't solve this issue alone.

Dr. Spach

## **Can you briefly tell us about any additional CDC efforts to reduce STDs in the U.S.?**

Dr. Bolan

CDC is actively working to stem the rising tide of STDs in the United States. We are continuing to:

1. Monitor national STD trends and sound the alarm whenever necessary;
2. Provide the most up-to-date screening treatment partner services and prevention guidance;
3. Support regional STD Clinical Training Centers to ensure providers have the knowledge to provide evidence-based quality STD clinical care;
4. Support regional DIS rapid response teams to provide outbreak and disease investigations surge capacity for states; and
5. Fund health departments to conduct local surveillance, contact tracing, field testing, and other innovative STD rapid detection and treatment strategies.

We recognize it will take a village to turn the tide on STDs and we will need active engagement by local communities. While we're working on the activities I just mentioned, efforts are still needed to create new tools to increase STD screening using electronic health records and clinical decision support systems to detect and treat syphilis as we are still using a test and drug that was created many decades ago.

Biomedical advances in STDs are long overdue. And to see change, industry and researchers will need to come to the table to improve our diagnostic capacity, therapeutic options, and vaccine development.

CDC is also leveraging partnerships in working with federal partners health departments health care providers community-based organizations and decision-makers to intensify and strengthen STD prevention in the United States.

Dr. Spach

Last,

## **What suggestions do you have for clinicians to address the rising tide of STDs in the U.S.?**

Dr. Bolan

David I would like to reiterate, clinicians are key.

First it's important that providers understand their patients risks and lives to provide culturally competent care.

Providers need to know the current STD treatment guidelines for timely diagnosis and treatment and should download the STD Treatment Guidelines app.

One way to brush up on STD treatment and diagnosis is through your National STD Curriculum, which CDC is proud to support. The Self-Study Modules are a great way to stay up-to-date on your STD knowledge.

Additionally, if you have a question for a particular case please reach out to the STD experts at [STDCCN.org](http://STDCCN.org) for a clinical consult right at your fingertips.

Dr. Spach

Thank You Dr. Bolan for providing us with your insights on the CDC's 2017 STD Surveillance Report.

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