Expert Interviews

National STD Curriculum Podcast

Trichomonas Vaginalis: Screening and Testing

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Trichomonas vaginalis is increasingly recognized as an important pathogen with potentially great morbidity. Dr. Patricia Kissinger, a Tulane School of Public Health and Tropical Medicine Professor and national expert, discusses screening and testing for *T. vaginalis* with National STD Curriculum Podcast Editor Dr. Meena Ramchandani.

Topics:

- T. vaginalis
- Trichomonas
- STI
- NAAT

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Disclosures

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Transcript

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In this episode:

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introduction**[00:00] Introduction**

Hello everyone. My name is Meena Ramchandani. I’m an infectious disease physician at the University of Washington in Seattle. This podcast is dedicated to an STD [sexually transmitted disease] review for health care professionals who are interested in remaining up-to-date on the diagnosis, management, and prevention of STDs.

For this episode, we welcome and are very lucky to have Dr. Patricia Kissinger join us. Dr. Kissinger is an infectious disease epidemiologist and a professor and associate dean of faculty affairs and development at Tulane School of Public Health and Tropical Medicine. She has worked both nationally and internationally in the field of HIV, STIs, and women's reproductive health. She's a national authority on *Trichomonas vaginalis* and other sexually transmitted infections.

Welcome, Patty. I hope it's okay that I call you Patty.

Dr. Kissinger

Of course, Meena. Thank you. Thank you so much for inviting me.

Dr. Ramchandani

Let's jump in and talk about a particular aspect of *Trichomonas* management that's important for health care providers. And just to take a step back, just want to define some terms that we're going to be using. So, trichomoniasis is caused by the organism, *Trichomonas vaginalis*. And sometimes we'll say *T. vaginalis* for short or *Trichomonas* for an abbreviated version.

Dr. Kissinger

Yes.

trichomonas**[01:20] *Trichomonas* Screening**

Dr. Ramchandani

So Patty, let's start off talking about *Trichomonas* screening. And the first question I have for you is, who should be screened for *Trichomonas* according to the 2021 CDC STI Treatment Guidelines?

Dr. Kissinger

That is an interesting question because *Trichomonas vaginalis* is not a reportable disease, and so there are not really clear recommendations on who should be screened. We do know that the lion's share of the

morbidity happens in pregnant people. There are other groups that have high prevalence rates like incarcerated individuals, unhoused people, people who have multiple sex partners, and sex workers. These are all people that one could consider screening, and certainly anyone who has vaginal symptoms, *Trichomonas* is an important cause of urethritis and cervicitis.

Dr. Ramchandani

Thank you. So, people who have symptoms and people who might have increased risk factors according to some epidemiology.

Dr. Kissinger

Correct.

Dr. Ramchandani

And why do we screen for *Trichomonas*? What's the benefit of screening?

Dr. Kissinger

Our understanding of the importance of *Trichomonas* has been evolving over the years. It used to be considered just a nuisance infection. People didn't really even consider it, and some people didn't even really treat it. In about the 1950s is when metronidazole came onto the scene, and people started treating *Trichomonas* with metronidazole. Since that medicine was used, there have been other medicines that have come out. We just did a meta-analysis, and there have been other meta-analyses that have been done, that demonstrate that it causes preterm birth, premature rupture of membranes, and low for gestational age, low birth weight. So, I think it's really important point of view, perinatal issues.

There was an additional meta-analysis that just came out that demonstrated it can cause a 1.5-fold increase in HIV acquisition. And so, transmission is a little bit different, but acquisition. So if you have *Trichomonas* and you encounter somebody who has HIV, you're 1.5 times more likely to get HIV. So, that is another problem. It does cause, in men, it causes urethritis. It can cause a lower sperm count, lower motility of the sperm. In women, besides the cervicitis, it's usually a vaginal infection, but sometimes it can get into the cervix. In HIV-infected women, it causes excess risk for pelvic inflammatory disease. And so, we're understanding now more and more that there are poor outcomes that happen as a result of *Trichomonas vaginalis*. So yeah, I think it's really important to screen for.

Dr. Ramchandani

That's really helpful. So increasingly recognized as an important pathogen with potentially great morbidity.

Dr. Kissinger

Right. And I did forget to mention there's also been a couple of meta-analyses that examined the association of *Trichomonas vaginalis* and cervical cancer. So, now understanding more and more how important it is.

Dr. Ramchandani

That's great. And I'm going to ask you some more questions about that in this episode because I really want to learn more. Now, taking back to screening. If you are doing screening, how often should screening be done?

Dr. Kissinger

Again, there's really no recommendations for how often it should be done. Definitely in a pregnant person, it should be probably done in the first and third trimester. Usually, you know, once it's caught, it can be treated, but you can get it again. Just like you do with the syphilis and all the others, you would probably want it screened in both trimesters. And, for other people, anytime there's symptoms you probably would want to screen. And you would want to screen people in high prevalence groups at least once a year, so that you can pick it up, and make sure that it's not causing these deleterious effects.

screening-pregnant-persons**[05:02] Screening in Pregnant Persons**

Dr. Ramchandani

And tell me a little bit more about screening in pregnant persons. What if they're asymptomatic, would you recommend screening?

Dr. Kissinger

Since we don't have good epidemiology in *Trichomonas* because it's not a reportable disease, and it's not generally done in a population-based. There have been population-based studies, but it's not done often. You can see that we detect a lot of it. So, just in a population-based study, for example, in the United States, about 2.1% of women might have it at any given time, less than 1% in men. So it's much less likely in men, but there could be reservoirs of infection for women. And then if you look at African Americans, there's a very large health disparity here, you can see that for African American women, it might be as high as 9.6%. And for African American men, it might be as high as 3.6%. So that's really, really high.

If you go to a clinic, and there was a great study done by Christina Muzny et al., and they screened their clinic-based, folks at a STI clinic, and they found prevalence rates of 27% in the women and nine, almost 10% in the men. So we are seeing it. It's a highly prevalent infection, and 50% of people don't have any symptoms at all. Men even less likely to have symptoms, but yet it still can be causing that inflammatory reaction, which can cause all of the morbidity issues.

prevalence-disparities**[06:28] Prevalence Disparities**

Dr. Ramchandani

Wow, that's a really high prevalence rate, especially for some populations. Why do you think those disparities exist? And are those disparities seen also potentially internationally? It probably depends on the country of course.

Dr. Kissinger

If you look at sub-Saharan Africa, you see much higher rates than a lot of other areas, and it's really unknown. We do see in African Americans higher rates of bacterial vaginosis (BV), which is a very common co-infection with *Trichomonas vaginalis*. And if you have BV, you're much more likely to get *Trichomonas*. So, it could be just because they have a predilection because of diet, hereditary, or environmental causes, they're more likely to get these infections. They have seen some transmission. There's one study that was done in an African population of virgins, and they were getting it from the latrine. So, it’s uncommon because usually *Trichomonas* doesn't last very long outside of the body, or a warm, nice nurturing environment, but it can be transmitted by fomites. So, it is important that we look at that as well.

Dr. Ramchandani

Oh, that's really important, especially when thinking about sex toys and other ways of transmission.

screening-men**[07:40] Screening in Men**

Dr. Ramchandani

Why don't we routinely screen in men? And what about MSM or men who have sex with men?

Dr. Kissinger

Excellent question. This is the topic of paper that several of us wrote, Dr. Muzny, Dr. Van Gerwen, and myself, and some others, is diagnostics in men is hard. It's more difficult because sometimes you have to take multiple samples. The *Trichomonas* tends to hang out in the prostate, which isn't always easily discoverable by our highly sensitive nucleic acid testing (NAT). Some people have said you really have to get a sperm specimen, which is really not practical. But sometimes it's underdetected because of low sensitivity. We do not find much in MSMs.

There was one study in San Francisco where they did find it in men who have sex with men. They really don't see it much in the oral cavity or in the anal cavity. So, those men who have sex with men are possibly also having sex with women. But I would say, in general, there's a much lower prevalence in men, but it's not ignorable because of the fact that they could be serving as a reservoir of infection. And it does cause those issues that I just talked about such as infertility. There was one small study that prostate cancer, the jury's still out on that, but it does cause problems in men as well.

Dr. Ramchandani

And it's interesting about that potential correlation with prostate cancer. That seems like it's controversial. It's not necessarily a correlation.

Dr. Kissinger

It's not been well established. The association between *Trichomonas vaginalis* and cervical infection, cervical cancer is a little bit better established. There have been multiple meta-analyses and many studies that have looked at it, so that's a little bit more established. We still don't know as much. The whole study of *Trichomonas vaginalis* in men has been very scant. We don't have much information on it. We don't even know the natural history in men.

Dr. Muzny, and others, and myself looked at men who had been tested and found positive for *Trichomonas*, and then we brought them back in for treatment, and we re-screened them, we found that about 30% of them had cleared infection. So, we don't know if they truly had the infection, they cleared it, or really we were picking up remnant DNA, or we just really don't know the natural history. We have a little bit better understanding of the natural history in women, but not as much in men.

metronidazole-vs-secnidazole**[10:00] Metronidazole vs Secnidazole**

Dr. Kissinger

And so, we are embarking upon a randomized trial where we're looking at two different doses of medicine, notably the multi-dose metronidazole, 500 milligrams BID (2x/day) for seven days versus secnidazole, which is a two grams single-dose, and everybody loves single-dose. It's so much easier. You don't have to deal with adherence. It's much more expensive. So, the tinidazole and secnidazole are more expensive products, but they tend to have better bioavailability. But also, the issue is you can give metronidazole in pregnancy and arguably in lactation as well. But you can't give secnidazole or tinidazole in pregnancy or lactation because there's just not enough data to say that it's safe. We now have 65 years of data on metronidazole. We have 20 years of data on tinidazole, and about two years of data on secnidazole. So, the jury's still out on that as well.

Dr. Ramchandani

I look forward to seeing those results of that trial.

Dr. Kissinger

Five years, and we hope to have it for you.

extragenital-screening**[11:05] Extragenital Screening**

Dr. Ramchandani

A question I wanted to ask about extragenital screening. So you say that it's not necessarily been detected too much in the oral cavity. What about the rectal area?

Dr. Kissinger

They're really not seeing it there much either. Theoretically, it could happen. There are certainly other *Trichomonas* strains that cause gingivitis and all sorts of other things. But every time they test in the oral cavity, they'd see very low prevalence and not much correlation between genital tract infections. In the rectal, again, it can definitely exist in the rectal area, but we just don't see high prevalence of it. So, that needs to be studied more as to why. And I think we do need better studies on is it being transmitted that way? There just isn't much data on it.

why-dont-we-screen-more**[11:48] Why Don’t We Screen More?**

Dr. Ramchandani

One of our clinicians in our sexual health clinic was talking about the importance of *Trichomonas*, and recently asked me, "Why don't we screen more people for *Trichomonas*?" And would this help alleviate some of those disparities, do you think?

Dr. Kissinger

Probably. So, *Trichomonas* is funny because it's the only STI where you actually have higher prevalences as persons get older, and that kind of indicates that you harbor it. I used to do studies on *Trichomonas*, and I would get these 60-year-old ladies that said they hadn't had sex in 20 years, and I'm telling them they have *Trichomonas*. It's probably because they were harboring it, and they never got screened for it. So, why don't we screen? There are criteria for when you decide if a STI is screen-worthy. And it's frequency, severity, disparities, cost, and some other things, communicability, and preventability. And then, the final one is public interest.

And, I think it's mostly because we don't have public interest. It's also too because CDC is kind of like they're hesitant to start screening another infection when they can hardly fund the stuff that they know we need to screen for. So, I want to redo that or want somebody to redo that because I think that things have changed. They declared that, yes, there's disparities. And yes, there's a high frequency, but they didn't think it was severe. And I think that there's enough data now to indicate that it is severe. There's certainly been cost studies that demonstrate, particularly if you include HIV infections, the cost goes way up. And I think communicability, we know that 70% of men who are consorts of infected women have it in themselves. There hasn't been many, much data the other way, but we know that it's communicable, and it's definitely preventable.

Trichomonas vaginalis can be prevented with the use of a condom. Nonoxynol-9 is trichomonacidal. And so, we know it can be prevented. It's just also we don't have the public interest. People, if you ask the general population if they've heard of *Trichomonas vaginalis*, most people will say “no.” If you ask some providers, some of them will say “well, they probably learned it in medical school.” But they probably haven't touched it

since then, unless they're an STD researcher or OB/GYN person. I think that we do need to revisit that question because I think it is something that we should be screening for.

Dr. Ramchandani

Especially given the high prevalence and the morbidity.

Dr. Kissinger

And high prevalence of asymptomatic carriage, which we think is just as important. Most of the data, admittedly, has been done in symptomatic because a lot of the studies have been done at clinic-based individuals where they tend to have symptoms. But general population studies have also found high prevalence rates.

t-vaginalis**[14:29] *T. vaginalis* Surveillance**

Dr. Ramchandani

Are there established *T. vaginalis* surveillance or control programs in the U.S.? And why not? And it probably relates to some of the things you were just speaking about.

Dr. Kissinger

There have been in the last decade and a half, a proliferation of *Trichomonas* tests with the introduction of nucleic acid amplification tests (NAATs) and the understanding that it's a very prevalent infection. So many diagnostic companies have developed new tests. There's a point-of-care tests. There are NAAT tests. There are all sorts of other tests that are available. So it's kind of getting ready for if we ever decide that we are going to screen for it. And some places are screening for it. And I really think that prenatal clinics should definitely screen for it, but it's a matter of funding. Who's going to pay for it? If there's no funding stream for it, providers may not, even though they want to, may not be able to.

Dr. Ramchandani

Up until now, is there any evidence that a national control program might reduce the prevalence of *T. vaginalis* infection?

Dr. Kissinger

Those data do not exist that I know of. We really don't even know, to tell you the truth, with chlamydia. We think it does, but we don't know. We haven't seen that with the case reports rates. So, I think that's a really tough study to do. It would require a really large population-based study where you follow a cohort. That study has not been done yet.

diagnostic-testing-methods**[15:47] Diagnostic Testing Methods**

Dr. Ramchandani

You mentioned diagnostic testing. What's the best diagnostic method to use for screening? And then, is there a difference between those who are asymptomatic and those who have symptoms?

Dr. Kissinger

So, the best test to use right now are the nucleic acid amplification tests. The one that's used the most is the wet prep. So the wet prep, which is microscopy, they take a sample of the posterior fornix of the cervix, and

they put it on a slide, and they look at it with saline, and they can see the trichomonads. They're very characteristic looking. They have four flagella on the top, and it acts as a little whipping tail on the bottom. They're nice and plump.

But, sometimes if people aren't very expert, the sensitivity can be very low, as low as 60%. Sometimes if a person's really expert, it can get up to 80%. Nucleic acid tests are in the high 90s. And so, that's really good. There are some point-of-care tests that are nucleic acid-based or otherwise, and those can have very high prevalence. The point-of-care test, some of them have not been tested in men yet, so they're mostly used in women with a vaginal self-collected or clinician-collected swab.

Dr. Ramchandani

What's nice about the test, when I have tested patients for *Trichomonas,* is that you can use it on the same swab that you're using for chlamydia and gonorrhea. So, it makes it a little easy. All you're doing is adding another test to that swab sample.

Dr. Kissinger

And there's been a proliferation of these home tests. The home tests are great because, as we know, with all home testing with any STI or anything, and that has come to the fore since COVID, people are very willing to do home tests and really like home tests. And so we have many, many companies do home testing. And when I say home testing, I mean self-collection at home. And then, they usually have to send it in to get it actually processed and the test run.

There are a couple that are truly point-of-care. There's the OSOM, which doesn't have the best sensitivities, in the 80s, 60% for men, 80s for women. It's empowering for people to be able to test themselves. And then if they need to, they can go in. You can get all these on any of those, Everlywell, Health Check, all sorts of proprietary groups, and I'm not promoting any of them. They're all good as long as they are using nucleic acid testing. So, you can do that at home as well.

Again, because the population doesn't know about it, they're not really thinking about it. They're thinking about getting tested for chlamydia, definitely syphilis, and HIV. They're not really thinking about *Trichomonas* that much. So, podcasts like this will raise awareness, and so I appreciate you doing that to get people to be more aware of it.

rapid-testing-options**[18:21] Rapid Testing Options**

Dr. Ramchandani

Tell us a little bit more, if you can, about the rapid testing. Are there any FDA-approved ones? And is there any evidence that they've been used in clinical settings? How long would they take?

Dr. Kissinger

So, they run the gamut. One of the first ones that came out was OSOM, and you can actually get the result right there. Then, it's like an early pregnancy test. You just get a dipstick. Then, there's Solana, which takes about 40 minutes. So the OSOM takes about 15 minutes. Solana takes about 40 minutes. And then, there's things like GeneXpert. That requires equipment, but there’s these little cartridges, and that's very rapid. Within 30 minutes, you can get a result.

As anybody who works with STD clients knows, if you can do a point-of-care test and you can give a single-dose medication, you're going to have much better outcomes. So there are definitely several point-of-care tests that can be done at the clinic, so that you can actually, instead of presumptively treat them, you can actually know what the diagnosis is and treat them.

pap-smear-to-diagnose**[19:22] Pap Smear to Diagnose?**

Dr. Ramchandani

What are your thoughts on using a Pap smear for the diagnosis of trichomoniasis?

Dr. Kissinger

Yeah, it's definitely done. It's really only about 30% sensitive. If you find it, it's probably pretty true that they have it. But the recommendations are, if you find it on Pap smear, you should confirm it with one of the approved tests, like one of the NATs (nucleic acid tests). And, if you find *Trichomonas* on a Pap smear, they probably have it.

Dr. Ramchandani

But it is low sensitivity.

Dr. Kissinger

Low sensitivity.

Dr. Ramchandani

Even less than a saline slide.

Dr. Kissinger

Oh, yeah. So saline runs about 60 to 80% sensitivity, and Pap smear is about 30% sensitivity. So, *Trichomonas* is a live, living organism. It likes to move around. And on the Pap test, it dies a little bit faster and all that.

why-havent-screening-recs-changed**[20:08] Why Haven’t Screening Recommendations Changed?**

Dr. Ramchandani

Now, this is an opinion question. But we now have more sensitive screening tests including the NAAT. And so, why do you think that the screening recommendations haven't significantly changed despite those better modalities of diagnostics?

Dr. Kissinger

If you build it, will they come? That's a good question. Not necessarily. So the diagnostic companies are building it all over the place. They've got all sorts of tests. In fact, Barbara Van Der Pol [PhD, MPH] did a great review on all of the tests several years ago. She probably needs to update that. But, I think that it is a matter of who's going to pay for it. Clinicians are struggling to get the big four, gonorrhea, chlamydia, syphilis, and HIV. And then, *Mycoplasm genitalium* people are squeaking. They want that on there too. And the *Trichomonas* people are squeaking. We want it.

And so, you know, everybody's got a pet project, but it's a yin and yang thing. What are you going to take away? It's not like we have more money for public health. So, what are you going to take away? Expanding would be great. We're always looking for more and more money. And so, that's the reality of public health existence or clinical care existence.

in-closing**[21:18] In Closing**

Kissinger PJ, Gaydos CA, Seña AC, et al. Diagnosis and management of *Trichomonas vaginalis*: Summary of evidence reviewed for the 2021 Centers for Disease Control and Prevention Sexually Transmitted Infections Treatment Guidelines. *Clin Infect Dis*. 2022 Apr 13;74(Suppl_2): S152-S161. **[PubMed Abstract]**

Dr. Ramchandani

That's really helpful. And I want to point out to the audience that if they'd like to learn more, there was an article published in *Clinical Infectious Diseases* in April of 2022 that's titled, “The Diagnosis and Management *Trichomonas vaginalis”* published by Dr. Kissinger and colleagues. It’s a wonderful read. That was really helpful for me.

Dr. Kissinger

Thanks. That was a really fun paper to do because I got to do it with all the experts in *Trichomonas*. My main co-author was Christina Muzny, who's a very close colleague of mine, and it was so fun to hear their input. And that was the basis for the treatment guidelines. So we published that paper to provide the evidence for the treatment guidelines. I've been invited back, so I'm hoping that we can update the inclusion of point-of-care tests, upping the ante on the severity of the disease, and maybe people to understand that better. And just more and more on the prevalence, and *Trichomonas* in men, which we didn't really have that much data at that point on that.

Dr. Ramchandani

Patty, thanks so much for joining us today. It’s been an absolute pleasure to speak with you on these important topics, and I know our audience will really benefit from this interview. So, thank you very much for your time.

Dr. Kissinger

Thank you so much for inviting me.

credits**[22:24] Credits**

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