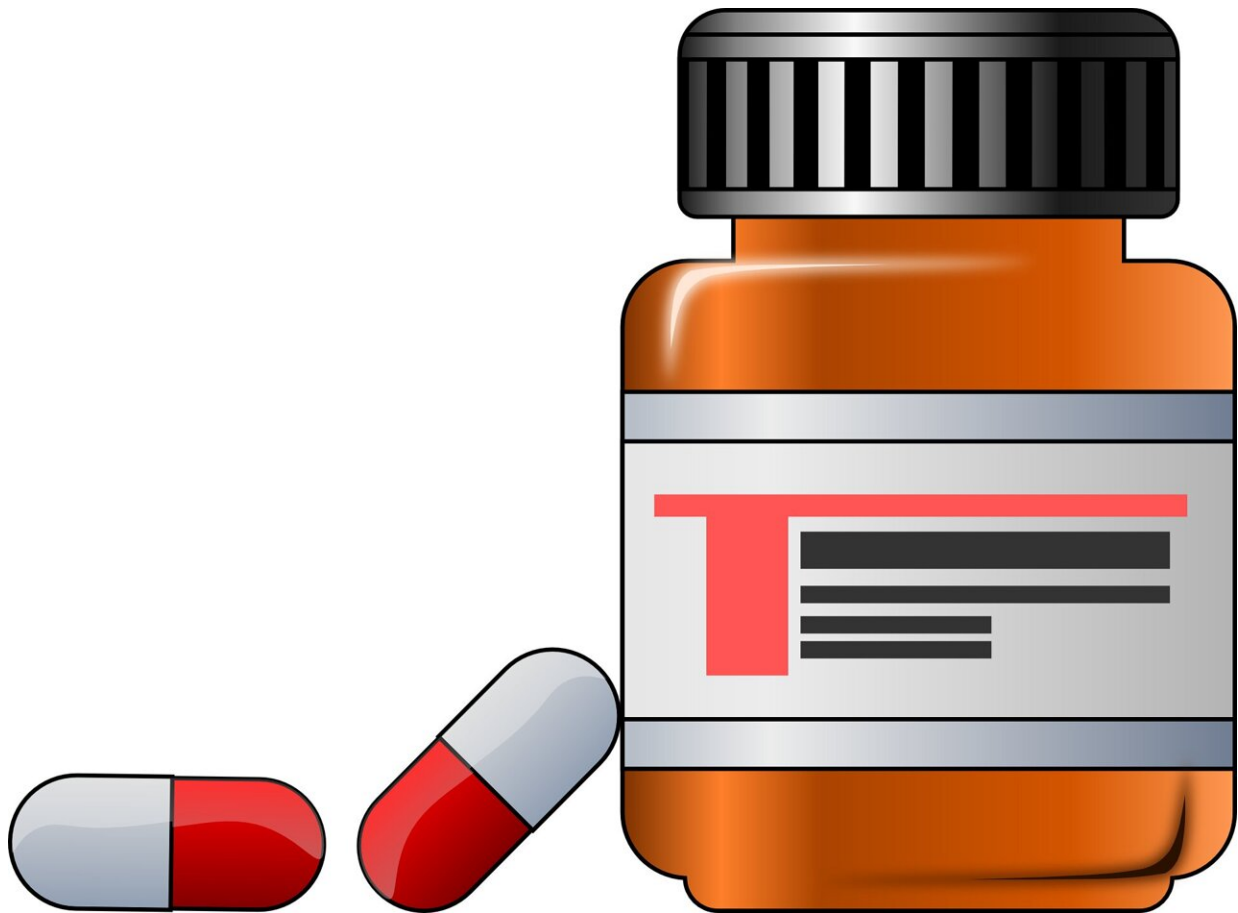


Q&A: DoxyPEP, a 'morning-after pill' for STIs

December 19 2023, by Stephanie Desmon



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There has been an alarming increase in sexually transmitted infections in the U.S. over the past decade: In 2021 alone, 2.53 million cases of

chlamydia, gonorrhea, and syphilis [were recorded](#), a 7% increase from 2017—and the numbers continue to climb.

There are no vaccines for bacterial STIs, and because they are often symptomless and progress unnoticed, they can be difficult to treat when finally reported. Research suggests a single dose of antibiotic may help turn the tide.

In this Q&A, Stephanie Desmon speaks with Matthew Hamill, MBCChB, Ph.D., MPH, MSc, an assistant professor of Medicine and Population, Family and Reproductive Health, about doxycycline, an antibiotic that's been widely used since the 1960s, and shows promise as a [preventive intervention](#) for chlamydia, gonorrhea, and syphilis. While this method doesn't work for everyone, it could be a game-changer for men who have sex with men and [transgender women](#) who want to decrease their [sexual risk](#).

What is Doxy-PEP?

Doxy stands for doxycycline, an antibiotic that we typically use to treat, but also to prevent, infections. PEP stands for post-exposure prophylaxis. The idea behind Doxy-PEP is that an individual will take 200 milligrams of doxycycline, ideally within 24 hours but up to 72 hours, after a sexual exposure to prevent them from acquiring a sexually transmitted infection (STI).

What kinds of infections are we talking about? Why is this intervention so important?

The three bacterial STIs that have been studied in the context of doxycycline are chlamydia, gonorrhea, and syphilis. In the U.S., the number of these infections has increased year on year, and we've seen

some really alarming increases in infections like syphilis in adults and congenital syphilis in the last decade. There are no vaccines for any of those infections. There is some work looking at an experimental vaccine against gonorrhea, but that's still in [clinical trials](#), and it's not available for use.

Why are these infections increasing so much?

I think it's a combination of things. We have seen a real decrease in spending on sexual health services within the U.S. Since the COVID-19 pandemic began, we've seen many services shrink because staff members were diverted to COVID activities. Providers were trying to decrease the amount of face-to-face time with patients to limit possible COVID exposure.

There's also some thought that the available HIV prevention medications may have an effect on sexual behaviors that increase the risk of other STIs.

The truth is probably somewhere in the middle. It's probably a bit of all of those things, such as decreased access to [health services](#), changes in sexual behavior, and then, the usual public health problems like stigma, structural racism, et cetera.

What are the latest CDC recommendations regarding doxycycline?

The CDC is currently seeking feedback on a consultation document on doxycycline. There are data from randomized controlled trials, the gold standard scientific test, to demonstrate that Doxy-PEP is effective. It does reduce the risk of chlamydia, gonorrhea, and syphilis by 65% to 70%.

Do you see an uptick in patients requesting this?

Patients are asking for it, even though it's not a CDC-endorsed intervention right now—they are really interested and motivated to take the medication. They want to avoid getting STIs, like syphilis, which can infect the brain and the nervous system and cause blindness. I think that the medical community is responding to that need. And as is so often the case, sometimes it takes guidelines a little bit of time to catch up with current practice.

Does this method work for everyone?

There is really good evidence of the efficacy of this intervention in men who have sex with men and transgender women. There is no current evidence to support its use in cisgender women and heterosexual men, but some of those studies are ongoing. One study in cisgender women in Africa showed that providing women with Doxy-PEP did not have an effect on STIs. It's a huge area where we need more research and data so that we can answer these questions. For that reason, I think that most providers will sensibly recognize the limits of where the evidence is and will offer this intervention to men who have sex with men and transgender women.

One really important part of communication with patients is to let them know that this intervention is not invincible. If you develop symptoms, then it's important to get tested. It's also important to get tested regularly because we know that the vast majority of STIs won't have any symptoms to alert someone that they're harboring an infection.

Is there a downside to this method?

There are definitely cons. Doxycycline is a drug that we've used for

decades for the treatment of acne and in other forms of prophylaxis—for example, as long-term prophylaxis against malaria. We know it's safe; however, there are side effects. Those side effects can be gastrointestinal, like heartburn or nausea.

The other issue with doxycycline is that it will cause a photosensitive rash in some people, meaning that taking doxycycline and then going out into the sun can cause skin reaction that looks like sunburn. It can be red and painful. Sometimes, those skin side effects can be quite severe.

There are other things that we worry about from a more biomedical point of view, like the effects that doxycycline might have on the microbiome. We know that antibiotics can upset the microbiome, and there are all kinds of potential health consequences associated with that. As a doctor working in infectious diseases, I also worry about [antibiotic resistance](#), both in STIs and in other organisms.

So if too many people are taking preventive doxycycline, it could cause an increase in antibiotic resistance?

It's certainly a theoretical concern that doxycycline resistance could be driven by the widespread use of Doxy-PEP. The really important counter to that is that using [doxycycline](#) in this way is not taking a pill every day, depending on how much sex a person has. It's intermittent, rather than continuous, medication. I don't suspect that use of these antibiotics is going to drive widespread antimicrobial resistance, but it's certainly possible, and we need to keep our eyes open for that.

Do you think this is a good idea for patients?

I do, but I don't think it's a panacea. I think that we have to be careful in

terms of the advice that we give to patients, so that we couch this as one intervention in the suite of interventions that can help people have maximum sexual health. It is important to be honest about the limitations of our knowledge, the limitations in terms of efficacy of the medication, and also to be upfront about some of the possible adverse effects. This is a relatively new endeavor in terms of prevention. There's a lot we still have to learn.

Provided by Johns Hopkins University Bloomberg School of Public Health

Citation: Q&A: DoxyPEP, a 'morning-after pill' for STIs (2023, December 19) retrieved 27 April 2024 from

<https://medicalxpress.com/news/2023-12-qa-doxy pep-morning-after-pill-stis.html>

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