

Transcript Details

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Taking Steps Toward TB Elimination: Overcoming Obstacles & a Look at the Road Ahead

Announcer:

You're listening to *Tackling TB*, sponsored by Qiagen. On this episode, you'll hear from Dr. Pranay Sinha, who specializes in infectious diseases. He's also an apostdoctoral researcher at Boston Medical Center. Dr. Sinha is here to share his insights on the challenges we encounter on the path toward tuberculosis elimination and how we can overcome those obstacles. Let's hear from him now.

Dr. Sinha:

So, a high-level overview of tuberculosis is that it's an airborne bacterium, which enters the lungs, spreads through the whole body by the blood. The predominant manifestation of TB is obviously pulmonary, but can really affect any organ in the body. About one in four human beings are actually infected latently with the bacterium and about 5, 10 percent of them will have a progression to active TB disease in the course of their lifetime.

And in fact, this is the second leading infectious killer globally, second only to COVID-19 right now. There were 10 million cases in 2020 by WHO estimates, and 1.5 million deaths. Of note, this is the first year since 2005 that the number of deaths from TB went up, even though the number of diagnoses actually went down by about 18 percent.

So, there are numerous barriers to preventing the toll and eliminating TB worldwide. I'll start with the downstream disease-related factors. So firstly, a lot of people when they get TB, it's very insidious disease. And they can take weeks to months to realize that they have TB. And so this is a period where they can give TB to other people and get pretty sick from it themselves.

Moreover, at that point, they've made the decision to come to get tested, because worldwide, the predominant model for testing is a passive case finding model. So, we wait for them to come. And unfortunately, we miss a lot of people that way. In India, the treatment coverage rate is only about 63 percent. And that's because we are waiting for them to come to us instead of going to them.

Moreover, our testing is perhaps not the best everywhere. People are still using smear microscopy instead of using molecular testing in many parts of the world in high-burden countries. And so we are probably missing cases. And also when we diagnose people, we're not uniformly doing drug susceptibility testing. So, when we start them on treatment, we don't necessarily know that these are the right antibiotics for them or they're MDR-TB.

And so these are some barriers and I think opportunities to really optimize our care for TB. But in addition to thinking of downstream, once somebody already has TB, you got to think upstream. What are the factors that are driving TB worldwide? And these are factors like HIV, undernutrition, smoking, diabetes, and alcohol use. And there's a lot of room on action on these. For example, in South Africa, where about 19% of people, live with HIV, only 71% of adults with HIV are on antiretroviral therapy. Similarly, only 47% of children with HIV are on antiretroviral therapies. This is a gap that must be fixed because otherwise HIV will continue driving TB in South Africa.

And I think, still the best distillation of TB is what William Osler said, he said, it's a social disease with a medical aspect. And that means that even as we optimize the medical aspect in terms of like improving, improving our diagnosis, treatment, and so on, we also need to be paying attention to the social factors that keep TB entrenched in our society, things like undernutrition, alcoholism, smoking. So, a lot needs to be done to control the global TB epidemic.

So, the COVID pandemic has really affected TB prevention and elimination efforts. In fact, a lot of people believe it has set us back by

many, many years. My friends in India who are staff in the national TB program, a lot of them were diverted to COVID duties during the surges. The health system was utterly overwhelmed.

Moreover, the budget actually globally shrank for TB elimination from \$5.8 billion early in 2019 to \$5.3 billion in 2020, when it should have actually been going up. There's actually an 18% reduction in the number of people diagnosed and treated for TB in 2020, compared to 2019.

And the concern here is that the people that we didn't diagnose and treat, they can now go and spread TB to other people. And in the next few years, you're going to see a snowballing of the number of cases that you're going to see.

We've also seen a reduction in preventive therapy for TB. There was a 21 percent reduction in TB prevention therapy in 2020, compared to 2019. And these trends have continued to 2021, of course, because high-burden countries are also generally the countries where the COVID vaccines have not really found their way yet. And so unfortunately, the situation has really continued, and is very, very detrimental to our goal of eliminating TB by 2035.

So strategies to improve access to screening and testing. So, I think a lot needs to be done to bring TB treatment elimination into the 21st century. First, we need to get really active with our screening. We cannot wait for people to get sick and come to us. We need to go to them first and find them when they're still in the early stages of disease or maybe even with subclinical TB disease, so that we can treat them and prevent them from having chronic lung complications from TB.

Additionally, I think addressing stigma is critical to really help increase engagement with TB care. And also think about where all TB occurs, and especially TB in the workplace, engaging the corporate sector, in doing that would be really, really helpful.

Shortening treatment results will help with that. And there has been some promising progress in terms of shortening regimen with the demonstration for non-inferior four months with rifapentine treatment. We could also come with biomarkers that tell us that somebody successfully completed that routine treatment instead of just using these pre-specified durations. And that we can give people tailored therapy, and I'm sure they'll appreciate that. I think integrating care for issues like undernutrition is going to be critical. Because that's under-addressed risk factor of TB.

And lastly, having our eyes on the upstream picture is going to be critical. And pushing for bold structural policy changes that address social determinants is going to really, really be critical if you want to eliminate TB from our society. So some thoughts and I'm hopeful for the future.

Announcer:

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