

Transcript Details

This is a transcript of an educational program. Details about the program and additional media formats for the program are accessible by visiting: <https://reachmd.com/programs/clinicians-roundtable/assessing-hiv-treatment-prep-adherence-hair-urine-samples/48929/>

ReachMD

www.reachmd.com
info@reachmd.com
(866) 423-7849

Assessing HIV Treatment and PrEP Adherence with Hair and Urine Samples

Announcer:

You're listening to *Clinician's Roundtable* on ReachMD. On this episode, Dr. Monica Gandhi joins us to share her research on using hair and urine samples to measure antiretroviral drug levels. Dr. Gandhi is a Professor of Medicine at the University of California, San Francisco and the Director of the UCSF Center for AIDS Research. Let's hear from her now.

Dr. Gandhi:

For a long time at this point, probably two decades, we have been measuring antiretroviral concentrations in hair samples in my laboratory. And we got the idea from the forensics literature reporting that drugs in hair are very stable, they last forever, and they can give you a long-term metric of adherence. So it's not just short-term, but instead, it's 'have you been taking the HIV drug over the last month or six weeks?'

And having a biomarker of adherence that isn't just asking someone but an objective metric of adherence has been really helpful in research studies, both in the context of HIV treatment and in PrEP—pre-exposure prophylaxis—because there you don't really have a biomarker like a viral load. Of course, people are not living with HIV, so you don't check viral load to see if they're taking their PrEP. But you have a good way to see if they're taking their PrEP by looking at these cumulative metrics of exposure in hair. So our laboratory has been doing that for a long time.

And now, we have a new metric, which I think is even more practical: a point-of-care metric to look at tenofovir in urine right then and there in the clinic setting. And by doing that, I think that we have a way to, in real time, figure out if someone's been taking their medication recently and help counsel them on adherence and see how we can help them if they're having a hard time taking the medicine. So all of this research is really around biomarkers of adherence.

I think the urine test, especially, is lower cost than the hair levels. The hair levels have been really useful for research in low- and middle-income settings only because you don't need refrigeration. You basically just cut the hair sample, put it in a drawer wrapped in tinfoil, and that's as high-tech as it gets. And then you ship it at room temperature to the laboratory that does the level. So that becomes a low-cost and low-resource approach. But then once it gets to the laboratory, we do need to use a machine to measure drug levels in hair.

But the urine test is even cheaper because it's a urine tenofovir assay. It works like a pregnancy test. It's an antibody-based test. Yes or no; it's essentially a line that shows up that says if you're taking the medications or not. And that's really low cost. It's still a research tool, but it's likely to be less than \$5 a test. And what we'll be able to tell right away in the clinic right then and there is, "Okay, you're struggling a little bit with taking your medications. How can we help you? What adherence intervention can I do? Pill boxes? What can I do to help?" or "Great job. You're taking your HIV medication. Keep up the good work." And that's the motivational interviewing that goes with that low-cost metric.

So if you look around the planet, 74 percent of people with HIV on antiretroviral therapy are suppressed. So we're not where we want to be. And in this country, in the US, it's only 69 percent, with 59 percent achieving sustained virologic suppression. So what that means is we have a ways to go to get everyone to the goal of therapy, which is viral load undetectability. And there are two ways to do that. One, I think, is long-acting when we can get it, and the second is using these low-cost measures to do adherence counseling.

Announcer:

That was Dr. Monica Gandhi talking about how hair and urine samples may be used to assess antiretroviral drug levels in resource-limited settings. To access this and other episodes in our series, visit *Clinician's Roundtable* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!

