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XVII International AIDS Conference Mexico City Notebook: Jon Cohen August 6, 2008

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JACKIE JUDD: Jon Cohen, welcome back. There was some discussion today about something you really do not hear much about at these conferences and that is a cure, specifically what Tony Fauci, an American researcher of course, called a functional cure. What did you hear today?

JON COHEN: Well, today was kind of future day at the meeting. There were a lot of futuristic talks about possibilities and cure has become the C word in HIV because it is such a dream to many researchers certainly that that could ever happen. But what Fauci was talking about is the possibility of knocking HIV back far enough, not completely removing it, but far enough that you essentially might not need drugs. So you could live with it for a long time and be alright. The biology of HIV – can I give you a little bit of the biology, because it – [Interposing]

JACKIE JUDD: Give it a shot.

JON COHEN: – helps. When you take these drugs and they work, it knocks the virus down to the level of detection. In other words they have tests that can go in and say, "Well, you have got so little virus, we cannot see it." But it does not mean you do not have any virus, you do have the virus. Everyone who has ever been tested, who has had undetectable virus, if you look harder, if you test more of their blood or use a more sensitive test, you do find the virus. But the virus you find it turns out is inside of cells that are

essentially sleeping. They are sitting there, they are long-lived cells, they can live for years with the virus and never produce any. And then maybe you get infected with influenza and they suddenly spit out some virus, they get turned on. So the question is how do you get rid of those long-lived cells that are sleeping? And Fauci's lab has worked on this as have many others and there was a really intriguing talk this morning by Bob Silicano from Johns Hopkins University that introduced a new idea about how to get rid of these cells.

JACKIE JUDD: And that idea is?

JON COHEN: Well, a lot of people for a long time have believed that if you could wake up the cells and get them to spit out the virus and you get the drug in there and you will get rid of them, that will work. Because once the cells wake up and start producing virus, they die. So you just got to wake them up and get them to spit out the virus, drug comes in, mops up, you are okay. Today, everything people have tried to wake up the cells have been pretty crude tools like using chemicals, biochemicals like interleukin-2, that wake up a whole bunch of different cells whether they have HIV or not.

JACKIE JUDD: And what is Silicano doing?

JON COHEN: Well, what Silicano did was he made, in the test tube, one of these sleeping cells infected with HIV. So now his lab and I suspect others, will start testing different agents to see whether they can find one that specifically wakes up those kinds of cells and leaves the other ones alone.

JACKIE JUDD: And I have asked you this earlier in the week about other issues we have talked about, timetable, years.

JON COHEN: Well, no – [Interposing]

JACKIE JUDD: Decades?

JON COHEN: –No, the nice thing about this is if this test that his lab has developed is robust, which other labs can pretty quickly decide in months, they can have an agent identified, I would guess a year from now or even less than that. They could come up with an agent that they can start to test. Then getting to the answer, it takes longer. And what you really want to do is catch someone within the first few weeks of infection. Because what happens is when you are infected, you start making a reservoir of these latently long-lived cells and that reservoir gets bigger and bigger and bigger the longer you are infected. But if you have been infected for five weeks let us say, your pool, your reservoir is pretty small. And then if you give this agent, this theoretical agent that can wake up those cells, you do not have to wake up as many of them and then maybe you can get to that dream of eradication or at least shrink that reservoir, and that is what functional, that is what Fauci was getting at, shrink that reservoir to it is really not a big enough pool to make that much of a difference.

JACKIE JUDD: Moving on also under the topic though of this being future day, there was discussion about how leaders need to keep in mind that this is dynamic –

JON COHEN: Yes.

JACKIE JUDD: – that the epidemic changes and they need to stay ahead of it.

JON COHEN: Yes.

JACKIE JUDD: In what ways?

JON COHEN: Yes, well people tend to think about, oh, this place has this kind of epidemic. It is driven by –

JACKIE JUDD: Fueled by?

JON COHEN: Fueled by sex workers or –

JACKIE JUDD: Very specific sets –

JON COHEN: Fueled by injecting drug users. In many, many countries including the United States, in the early days of epidemics, you see injecting drug users are the first wave and you see men who have sex with men part of the first wave and Thailand is a good example of this. It is now the largest group of infected people getting infected are married women. And that is a big shift. And in Africa you are seeing countries that now have epidemics that are largely injecting drug users and people will say, "Oh, there is no injecting drug use in Africa," but it is not true. In some places it is being introduced and really driving things. In China, men who have sex with men are becoming a bigger and bigger part of an epidemic that many people think of as an injecting drug use epidemic.

JACKIE JUDD: And is there a concern here that government programs treat what was the picture yesterday and not with maybe the picture tomorrow?

JON COHEN: Absolutely. Yes, that is the real problem is that you have got to keep looking ahead and if you are not looking ahead anticipating that change, you are going to be behind the 8 ball.

JACKIE JUDD: Drug resistance is something also that was discussed today with an eye towards the future.

JON COHEN: Yes, everyone knows that people on treatment develop resistance to the drugs and the better drug combinations you have, the less likely you are to develop resistance. But what we do in wealthy countries is we routinely check people with a test called a viral load test. It checks how much virus you have in your body. If you are undetectable and you suddenly go up to a detectable level, maybe your drugs are not working anymore, maybe you have developed resistance. Well, in most of the world, they cannot afford this test. They do not do it. They do not monitor closely like that. So the concern is that in much of the world, these 3 million people in middle- and low-income countries who have started treatment, they are going to develop drug resistance, it is not going to be detected until they have clinical symptoms and then their next line of treatment, their second-line regimen of drugs will not be as effective as it

would have been had they detected that resistance earlier. So that is the big fear.

JACKIE JUDD: Winding up, I want to ask you a question that a viewer from Thailand sent to us. "Are you hearing any fallout from the AIDS health care foundations call for dropping HIV vaccine development funding which happened back in March or is it," he asks, "a dead issue?"

JON COHEN: I think in this community it is largely a dead issue, but it angers people here and it has been rumbling around here because people talk about funding issues and people talk about is it worth it, but everyone in this field, in the field of AIDS vaccine research, they know they are in for the long haul. They do not think that a failure is a failure. They say this again and again, it is their mantra, if you can learn from a failure, it is a success. And so to them, it is sort of a naïve view of what research is and I think sometimes that the way people outside of the scientific field look at things is like if a woman is trying to get pregnant and she is having trouble and saying to her, "When are you going to have a baby? When are you going to have a baby? When are you going to have a baby?" Well, the answer might be never, but it might be next year. You do not know. You keep trying and you try to learn from your failures.

JACKIE JUDD: I know I said that was the final question, but it was not. I do have one more and that is the impression that both you and I have this week more so than at

any other conference that this is becoming less and less a venue for the revelation of true scientific news, hot off the press. What is it morphing into?

JON COHEN: Well, it is morphing into, and it has been for years, more of a social, political community get together, networking, but cutting-edge research is pretty hard for me to find it here and it is becoming harder with each conference I attend. This is my 12th one. It used to be just filled with newsy cutting edge research everywhere I turn, but it is not what it is now.

JACKIE JUDD: And where is the US role in that?

JON COHEN: Well, the US government funds more AIDS research than any single -

JACKIE JUDD: Right, right.

JON COHEN: - entity and its own national institutes have helped, has a lot of AIDS researchers, but the department that it falls under has a strict limit on how many researchers they can send to the meeting. It used to be they sent hundreds and this year it is 50. So even like Dr. Fauci was saying to me that he sent zero people from his lab, so that is not the cause of this -

JACKIE JUDD: It is one piece of the story.

JON COHEN: It is one piece of it, yes.

JACKIE JUDD: Okay. Thanks so much, Jon Cohen from Science Magazine.

JON COHEN: Thank you, Jacki.

[END RECORDING]