Emory: Experience with Ebola Patients

A special podcast from *Clinical Chemistry*.

Guests: Dr. James C. Ritchie is Professor of Pathology & Laboratory Medicine Director of the Core Laboratory at Emory Crawford Long Hospital and Crystal Evans is the Regulatory POCT Coordinator at Emory Medical Laboratory.

Bob Barrett: This is a podcast from *Clinical Chemistry* sponsored by the Department of Laboratory Medicine at Boston Children's Hospital. I'm Bob Barrett. In August 2014, the first patient with the Ebola virus disease arrived in the United States and was transported to Emory Hospital in Atlanta. While hospitals and laboratories knew that it was only a matter of time before this occurred, subsequent experience has shown that not all institutions in the U.S. were equally prepared for this eventuality.

In this special podcast from *Clinical Chemistry*, we're joined by two members of the laboratory team that treated the first healthcare workers arriving from West Africa. Dr. James C. Ritchie is Professor of Pathology & Laboratory Medicine Director of the Core Laboratory at Emory Crawford Long Hospital, and Crystal Evans is the Regulatory POCT Coordinator at Emory Medical Laboratory.

Dr. Ritchie, let's start with you. Did the proximity of Emory to the CDC help in the treatment of these patients?

Dr. James Ritchie: I would say yes and no. CDC, having them next door has been important to us because we had the contract with them for a long time. We had the unit that they backed for a long time to handle their employees. So we were prepared, but on a national front, even though we're next door, they see themselves as the national agency, which they are. And really, we don't get any special treatment compared to anybody else.

Bob Barrett: What sorts of laboratory tests are key in supporting a patient with Ebola virus disease or other hemorrhagic illnesses?

Crystal Evans: Initially, basic hematology and chemistry testing was all that was required. As the care of the patient continued, additional testing became clear would be needed including WBC and platelets, liver enzymes, magnesium, phosphorus, malaria testing, INR and PCR testing.

Bob Barrett: So how many lab tests were required in support of each patient over the course of their stay?

Dr. James Ritchie: Yeah, I don't think either one of us can give you that answer because there were a lot.

Crystal Evans: I mean, I guess we could say that routine daily testing was required.

Bob Barrett: Are all of those tests, were they available on Point-of-Care platforms?

Dr. James Ritchie: Yes, pretty much. The CBC Analyzer we use is technically not a Point-of-Care instrument but the rest all were.

Crystal Evans: They are all small analyzers. They're not all bedside testing analyzers but they are small analyzers that can be used near the patient.

Bob Barrett: Were all of the lab testing equipment available to the isolation facility already onsite, or did it have to be either newly purchased or recruited from other sites in the institution?

Dr. James Ritchie: I guess we'd have to say, because we had a long standing contract with CDC, technically, the instruments were onsite, but when we first really got going we noticed there was a problem with the CBC Analyzer we were using at that time. And so, we knew we couldn't go on that way. We very quickly brought in a new instrument, validated it as fast as we could and put it into play. We didn't really have backup.

Bob Barrett: What types of cooperation were there with your department and other departments within the institution in treating these patients?

Crystal Evans: We had daily briefings that the laboratory was one of the family team members of, along with environmental services, nursing, clinicians, everyone such as the patient, dietary, social, administration. So it was a great team effort and it made possible to make changes quickly for the care of the patient.

Bob Barrett: Just recently, we learned that a laboratory supervisor at Texas Health Presbyterian Hospital in Dallas went on a cruise after potential contact with the blood specimen from the Ebola patient there. What special precautions did you take at Emory to minimize or even eliminate such potential exposures?

Dr. James Ritchie: Well, first off, I should say that we have not restricted the travel of our healthcare workers in any way. What we have done is institute a program where they have to take their

own temperatures three times a day, they enter it on a computer program we have that tracks them. Any rise in temperature, someone gets in contact with them and then sees what's going on.

Bob Barrett: And did you need to perform any special decontamination procedures in the hospital laboratory?

Dr. James Ritchie: In the main hospital laboratory, we did not because we haven't taken any Ebola samples to the main hospital laboratory. In the Special Communicable Disease Unit laboratory, we do decontaminate the room after every patient leaves. We use a commercial mixture of hydrogen peroxide and bleach that's set off as a vapor and permeates everything. It's very, very effective. It's much like a bug bomb that's used to get rid of infestations in your house, and it does take about six hours though.

Bob Barrett: And as we are recording this, Emory has treated four Ebola patients and all four have survived and walked out of the hospital virus-free. Why so successful? And is Emory becoming the go-to place for Ebola patients in the U.S.?

Dr. James Ritchie: I think without getting into a medical decision about what's going on, I think from a general standpoint, we had our really tight-knit team that work together, that practice together. And I think daily conferences that the lab was actively involved in, things like that, really all contributed to keeping up our guard and to successfully treating the patients. I think there are a lot of places that are tooling up now to become just as good us as. We were fortunate in that we had this unit in place for many years before the current crisis.

I think we've learned a lot from each one of the patients. We've been able to do some things that people never thought would be worth doing on patients, like dialysis or something like that, that it was thought that once a person got to the point where their kidneys were in problem, there was no sense doing that because they were going to die anyway. We proved that wrong. We have recently just put on the web all our policies and procedures. They're available through the AACC website for any hospital that's setting up such unit or is wondering how to screen and categorize patients.

Bob Barrett: What did you learn? What did you get out of this that you will do differently next time?

Dr. James Ritchie: Well, for one thing, as Crystal said, we started out with a pretty limited menu and we have added onto that as the needs of the physicians and the patients sort of led us where to go. So, that's one of the things. The other thing

is that I think we've learned that these patients get really, really sick, and it really takes a whole team to get them back to near normal, if not completely normal.

Crystal Evans: And I would just add that the daily communication is really key.

Bob Barrett: Dr. James C. Ritchie is Professor of Pathology & Laboratory Medicine Director of the Core Laboratory at Emory Crawford Long Hospital and Crystal Evans is the Regulatory POCT Coordinator at Emory Medical Laboratory. They've been our guests in this special podcast from *Clinical Chemistry* on the laboratory's role in treating Ebola virus disease. I'm Bob Barrett. Thanks for listening.