Health workers treat a patient at the Ebola Treatment Center in the city of Butembo, in the Democratic Republic of Congo. It's one of three locations where researchers have been conducting a clinical trial of four experimental treatments for the disease.

John Wessels/AFP/Getty Images

When patients arrive at the Ebola Treatment Center in the city of Beni, in the Democratic Republic of Congo, Dr. Modet Camara oversees a strict protocol. First they're tested to confirm that they have the virus. Then a social worker asks if they're willing to participate in a study that would randomly assign them one of four experimental treatments intended to attack the virus, eliminating it from the body before it can kill the patient.

"For us caregivers this study is so important," says Camara. "It's the best chance we've had since Ebola virus was first discovered in 1976 to finally find a medication that can save people from this disease."

Camara has seen firsthand how much the science around Ebola disease has advanced in recent years.
During the world's worst recorded Ebola epidemic — the West Africa outbreak of 2014 to 2016 — Camara worked at several Ebola treatment centers in his native Guinea, where he was continually dismayed by how little he and the rest of the staff could do for patients.

Now he's on the front lines of the 10-month-long Ebola outbreak in the Democratic Republic of Congo, working for the nonprofit aid group ALIMA (The Alliance for International Medical Action), which runs the Beni treatment center, one of three where the clinical trial of the therapies is taking place.

The groundbreaking study is not the only new anti-Ebola effort in Congo. An experimental vaccine, which has already been given to more than 137,000 people, was recently found to be extremely effective.

Camara says when it comes to the experimental therapies, patients are eager to help test them. "Since we started this work in November, not a single patient has refused. Everyone wants to do it."

The study is likely to produce results soon, says Dr. Anthony Fauci, director of the U.S. National Institute of Allergy and Infectious Diseases — which is overseeing the study in conjunction with the World Health Organization and Congo's government.

Fauci notes that to have statistically significant results investigators need to administer the treatments to at least 500 people — evenly divided between the four options. So far about 340 people have been treated through the trial. (In addition, about 600 people have been given the treatments as part of a "compassionate use" provision but are not being studied through the trial.) "So I would imagine before this outbreak is under control it is likely we would have enough individuals in the clinical trial to be able to get an answer as to which [of the medications] actually work," says Fauci.

One of the four treatments has already been subjected to an earlier clinical trial: It's called ZMapp, and is a cocktail of antibodies — the proteins that the human immune system can produce to attack a given virus. Toward the end of the West Africa outbreak ZMapp was tested in 72 patients, a study that Dr. Camara helped implement on the ground. That epidemic was over before enough people could enroll in the trial to produce definitive results. But, says Fauci, there were signs ZMapp may indeed reduce the death rate from Ebola. So officials decided the most ethical option would be to use ZMapp as the benchmark against which the other three treatments are measured rather than testing them against what happens when no medications are offered.
(All patients in the trial are also being given basic supportive care to help their bodies fight the virus, including providing them with fluids, electrolytes and painkillers.)

Two of the other experimental medications — REGN-EB3 and MAb114 — also consist of various antibodies. The latter is an antibody that was extracted from a person who had contracted Ebola during a 1995 outbreak in Congo and survived.

"It was a patient who naturally recovered," says Fauci. "Now that person has in their body an immune response that's protecting them from ever getting infected with the same strain of Ebola. So what we did is we brought that individual to the United States — here to the National Institutes of Health — and drew their blood."

NIH scientists then cloned the antibodies from that survivor's blood to produce enormous quantities. The idea, says Fauci, "is you inject [the antibodies] into someone who is infected with Ebola and that antibody will knock out Ebola in exactly the same way as it did for the person from whom we got that antibody."

The fourth therapy being tested — called Remdesivr — is an antiviral, essentially, says Fauci, a chemical that researchers hope will interfere with the process the Ebola virus uses to replicate.

Yet for all the potential of the medications study, it has also been dogged by the larger challenge that has made this outbreak so difficult to end: violence.

The outbreak, which has already infected more than 2,000 people and shows little sign of abating, is taking place in a northeastern region of Congo that has been wracked by conflict between dozens of armed groups and the government. The clashes continually shut down health services in major population centers and have forced hundreds of thousands to flee their villages. Many people are also deeply distrustful of authorities - and by extension, health workers. And many attacks have directly targeted Ebola responders.
GOATS AND SODA

An Urgent Mystery: Who's Attacking Ebola Responders In Congo — And Why?

These include several instances in which gunmen stormed two of the Ebola treatment centers where the clinical trial is underway — setting fire to the centers as patients ran for their lives.

"Thankfully we did not lose any of the follow-up on the individuals," says Fauci, when it came to continuing their treatment. But he says the incidents have delayed progress of the study. The atmosphere of insecurity and distrust also means that many patients come forward for care only when they are in an advanced stage of Ebola disease. And at that point it's far less likely that any medication can save them.

This shouldn't prevent the study from producing useful findings, says Fauci, given that the four medications are being compared against one another. But it is devastating for patients.

"There's no end to the examples of this," laments Camara. "Just yesterday we lost a 4-year-old boy, a pregnant woman and a father who was the breadwinner for the whole family."

They had been living in an area near Beni where one of the local armed groups staged an attack earlier this month, he explains. "So they had to take shelter in
another location, where it happened that Ebola is spreading. There they all caught the virus."

But even as their symptoms progressed, the family did not come forward seeking treatment. "People have so much reluctance to believe that Ebola is real," says Camara. And because of the continued insecurity in the area, the local Ebola response team was unable to get to them until early this week.

Almost as soon as the three were brought to the center, they were enrolled in the trial and given the experimental therapies. "But their organs were already hemorrhaging," says Camara. Within 24 hours they were dead.

"To see our patients die like this, when we know that we have medications that could probably have saved them if they had arrived sooner — frankly, as a caregiver, it's extremely painful," says Camara.

And he adds that it underscores a larger lesson of the current outbreak: Scientific advancements will mean little unless officials can address the political power struggles, mismanagement and poverty driving the violence and mistrust of health workers.

"If the population won't come to us for care," says Camara, "frankly, we can't do anything for them."