

EBOLA VIRUS DISEASE:

Where are we now?



Emory Eye Center drew national attention in late 2014 and early 2015 when uveitis specialist Steven Yeh, MD, discovered live Ebola virus disease (EVD) in survivor Ian Crozier's ocular fluid. The discovery—and its possible implications for survivors, their families, and health care workers—sent shockwaves through the medical community worldwide.

It also sent Yeh and other physicians down a path of research and patient care they hadn't expected.

"Finding live Ebola virus in ocular fluid was certainly concerning, but there are other examples of viral persistence from what we know about Marburg, a virus related to Ebola," Yeh explains. "The real impact of this discovery was the growing concern that thousands of Ebola survivors in

West Africa could also be susceptible to sight-threatening uveitis from viral persistence.

"We now know that this concern was legitimate," Yeh adds. "This reality impacts their individual quality of life and has potentially significant public health and scientific implications."

Crozier, an infectious disease physician who contracted Ebola while caring for patients in Sierra Leone, underwent 40 days of aggressive treatments at Emory in the fall of 2014. He recovered, only to start having eye pain and other vision problems that December. His eye fluid tested positive for Ebola; Yeh and then-resident Jessica Shantha, MD, (who joined the Eye Center faculty in 2017) also diagnosed him with an aggressive case of uveitis, which can lead to blindness if left untreated.

Yeh, Shantha, and physicians from Emory's Serious Communicable Diseases Unit began treating Crozier's uveitis with corticosteroids. When his vision worsened to the point of legal blindness and his eye pressure dropped enough to affect the eye's firmness and shape, they added an experimental antiviral drug to the mix.

Crozier slowly regained his vision and, once again, won the battle against Ebola. But he, Yeh, Shantha, and others knew that the conflict was far from over for the thousands of Ebola survivors in West Africa.

In April 2015, a team that included Yeh, Crozier, ophthalmologist surgeon Brent Hayek, MD, and Shantha traveled to West Africa to offer vision screenings to Ebola survivors. They screened and treated nearly 100 survivors and trained

“We’ve learned that eye care issues are extremely important for Ebola survivors.”—STEVEN YEH, MD



physicians and other health care providers on how to screen for ophthalmic complications. They found a 20% to 25% prevalence of uveitis and severe vision impairment or blindness in affected individuals.

Several other trips to Sierra Leone have taken place since then, with providers learning more about Ebola and its aftereffects each time. Their work is done in conjunction with many organizations, including the World Health Organization, Partners in Health, Helen Keller International, and Medecins Sans Frontieres. Local connections in Liberia and Sierra Leone are also key to their efforts’ success.

“Eye care is only one issue among many in Ebola survivors,” Yeh says. “We’re finding that up to 35% of patients have a loss of vision or other eye complications.”

Uveitis is one of those complications, as are cataracts.

“There are two things to keep in mind with these patients,” Yeh says. “First, the cataract will get worse and the individual will not recover vision without surgery. Second, we have to remember that the Ebola virus might still be in the patient’s ocular fluid and know that we’re doing everything possible to protect the patient and anyone associated with him.”


One safety measure is to take a sample of ocular fluid and test it for Ebola virus before scheduling cataract surgery.

Specially-designed facilities are making that possible even in West African countries that were hardest hit by Ebola—Sierra Leone, Liberia, and Guinea.

“More than 28,000 cases of Ebola were reported in West Africa between 2013 and 2016,” Yeh says. “There are thousands of pediatric Ebola survivors or children who have been orphaned. The people are still trying to rebuild, and we’re fortunate to have the support to be part of that.”

To date, an estimated 4,000 Ebola survivors have been screened in Sierra Leone by the Ministry of Health and Sanitation and partnering organizations. The Emory Eye Center team has provided key protocols and management guidance for the process. Members of the Eye Center’s faculty will return to West Africa

later in 2017 to work with survivors in rural districts, teach local health care workers about examinations and treatments, and continue research that can help others.

“This is a prime opportunity for survivor-focused care,” Crozier said when he visited the Eye Center in December 2016. “Our job is to treat them, but also to help reduce the stigmatization of Ebola and of blindness. We’re writing the first pages of the textbook of how to treat this condition and move forward.” 



Former Emory Eye Center fellow Caroline Cromelin, MD, assesses a patient’s vision.



Ebola survivor Ian Crozier, MD, continues to work with Ebola patients.



Grants from the Emory Global Health Institute and others will allow teams to expand the cataract surgery program for survivors.