



# Monitoring Viral Persistence in Ebola Survivors in Guinea

According to research conducted by the United States National Institutes of Health (NIH), survivors of Ebola virus disease (EVD) can retain the virus in certain bodily fluids (i.e., sperm, breast milk, spinal fluid) for up to 32 months after testing negative for Ebola.<sup>1</sup> Researchers in Liberia presented these findings during a regional meeting organized by the USAID-funded Advancing Partners & Communities (APC) project in December 2016, thereby demonstrating the value of continuing surveillance of Ebola survivors and the need for regular testing for viral persistence in the semen of male survivors.

In Guinea, a new outbreak of EVD cases that started through sexual transmission was detected in late February and March 2016, 2–3 months after Guinea had been declared Ebola-free on December 29, 2015, and 470 days after the transmitting survivor’s original onset of symptoms. This limited resurgence also spread across the border into Liberia before being contained.<sup>2</sup> As a result, in Guinea, Liberia, and Sierra Leone, national semen testing programs that are studying viral persistence in seminal fluid encourage EVD survivors to participate in testing that can also identify individuals who are at risk for transmitting the disease.

## SEMEN COLLECTION AND TESTING CAMPAIGN

APC’s Ebola Transmission Prevention & Survivor Services (ETP&SS) program in Guinea supported the Guinea Ministry of Health (MOH) and its National Agency for Health Security’s—*Agence Nationale de Sécurité Sanitaire* (ANSS)—semen testing surveillance program. The semen testing program is part of ANSS’s overall active ring surveillance program and includes community-based sentinel site surveillance to monitor the health status of survivors. With the supervision of biologists from the National Laboratory of Hemorrhagic Fevers, APC supported the collection of samples of semen from male Ebola survivors age 15 and older and immediately transferred them to one of three reference laboratories where testing is conducted, recorded, and reported to ANSS leadership. APC provided laboratory reagents and commodities for the Laboratory of Hemorrhagic Fevers and supported transportation and field work during the semen collection campaigns, as well as refresher training on sample collection for laboratory agents. This training taught staff how to collect samples in a sensitive and appropriate way.



*In Coyah prefecture, a laboratory technician uses the tools and skills obtained with support from APC’s ETP&SS program to collect the semen from Ebola survivors. Photo: Alpha Balde, APC.*

Before each semen testing campaign, APC coordinated with International Medical Corps and RENASEG—the Guinean national network of Ebola survivors—to educate eligible participants on the importance of testing for the health of the survivor and their families, and to destigmatize semen collection. Working closely with local survivor associations and the community-based sentinel surveillance sites—comprising fellow survivors, health staff, community and religious leaders, and family members—was key to gaining participants’ consent. Another facilitator of participation was that survivors could produce their samples at the time and place of their choosing.

## PROGRAM COVERAGE

The semen testing program supported by APC in Guinea reached 83.6 percent of eligible male survivors (age 15+) in October–November 2017; 88.4 percent in January 2018; and 89.5 percent in April 2018. For the January testing round, the NIH conducted parallel testing using a more sensitive laboratory reagent that is not currently used in Guinea. The results of the testing campaigns are being used to strengthen prevention efforts and will contribute to the body of research on the largest Ebola outbreak ever recorded.

Reach of semen testing for eligible male survivors (age 15+) October–November 2017  
**83.6%**  
January 2018  
**88.4%**  
April 2018  
**89.5%**

## CHALLENGES

*Survivor privacy:* Getting eligible survivors to provide a semen sample for testing is difficult because survivors may fear being stigmatized for participating. Therefore, the project made great efforts to keep participation private. According to individual preference, instead of the collection team visiting the survivor’s home or village, the survivor traveled to the nearest health facility where a private room was assigned to them. Survivors could also choose to produce a sample at home and bring it to the health facility. When the collection team did visit a survivor in his village, the team was small and did not advertise the nature of the visit. However, a small number of survivors still declined to participate in the campaign at all.

*Remote locations of survivors:* Many survivors live in villages that are not accessible by car or were reachable only via poor-quality roads. For both the sensitization and collection campaigns, teams had to travel hundreds of kilometers, sometimes just to reach one survivor. For example, to reach six survivors in the Macenta Region the collection team traveled 150 kilometers, which took a full day of travel. Another team traveled 180 kilometers to reach just one survivor in the remote Siguiri Region. Survivors also traveled similar distances to reach the health team, a barrier that was partially overcome by a transportation stipend from APC.

*Religious considerations:* Some survivors said their religious beliefs prevented them from providing semen. Although the team explained that the semen collection was for medical purposes, they were not always able to convince such survivors to participate.

*Provision of false samples:* Some survivors attempted to provide false samples of other fluids (e.g., saliva or mucus), in lieu of semen so they could receive the transportation allowance. The laboratory was able to detect these cases quickly and the team followed up with these survivors to obtain a legitimate sample.

*Migration:* Some survivors have moved to other regions and it was difficult or impossible for APC to track them down. Local survivors associations helped the program locate some survivors who moved.

*Survivor age:* Some older survivors were not able to provide semen, but this group was very small. Additionally, one 15-year-old survivor was unable to provide a sample.

## LESSONS LEARNED

- **RENASEG’s** participation in the sensitization campaign helped survivors to overcome their reluctance to provide semen. It also helped to decrease the stigma of survivors in some communities and health facilities.
- **Training** laboratory personnel to explain semen collection in a sensitive and private manner helped obtain survivors’ consent. Laboratory personnel were instructed to let survivors provide a sample at the location of their choosing and to always ensure their privacy.
- **Providing a transportation allowance** helped motivate people to participate. Survivors were paid a transport stipend as an incentive to leave their village for the collection site.

## CONCLUSIONS

- The biological monitoring of Ebola survivors through quarterly semen collection and testing is a key part of the ANSS's active ring surveillance program of EVD. Together with the community-based sentinel site committees, the semen testing campaign gave the ANSS much-needed information on a regular basis. The last semen testing campaign to be supported by APC was conducted in April 2018. The ANSS needs support from other partners to continue these campaigns. Until scientific evidence demonstrates a definitive end-date to viral persistence, this program should remain a priority for preventing a potential resurgence of Ebola.

## REFERENCES

1. World Health Organization. International meeting on persistence of Ebola virus RNA in semen and implications for public health. Switzerland: World Health Organization. Forthcoming.
2. US National Library of Medicine, National Institutes of Health:  
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