

Traces of Ebola virus linger longer than expected in semen

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The Ebola virus, isolated in November 2014 from patient blood samples obtained in Mali. The virus was isolated on Vero cells in a BSL-4 suite at Rocky Mountain Laboratories. Credit: NIAID

Initial data from a Liberian public health program show about 9 percent (38) of 429 male Ebola survivors had fragments of Ebola virus in their

semen. Of those, 63 percent had semen samples that tested positive for Ebola fragments a year after recovering from disease and, in one man's case, at least 565 days after he recovered from illness. Men older than 40 were more likely than younger men to have a semen sample test positive.

Published in the August 30 issue of *Lancet Global Health*, the report provides preliminary results from Liberia's Men's Health Screening Program (MHSP), the first national semen testing program for Ebola virus. It is the largest analysis to date to look at Ebola virus persistence in male survivors. The tests detect Ebola virus genetic material but cannot tell if live virus is present and capable of spreading disease.

In addition to semen testing, the MHSP provides counseling and education about safe sex practices. The report shows that this program led to a marked increase in men reporting condom use or abstinence. Nearly 75 percent of study participants who reported having sex without condoms during enrollment later reported using condoms during sexual activity.

"This program provides important insights into how long Ebola remains in semen, a key component to preventing flare-ups of the disease and protecting survivors and their loved ones," said CDC Director Tom Frieden, M.D., M.P.H. "It also shows how investments in public health capacity can save lives."

As part of the Liberia MHSP, male Ebola survivors ages 15 and older can enroll and have their semen tested monthly. Men receive counseling on safe sex practices and receive condoms at each visit. Men who have two consecutive negative semen tests "graduate" from the program.

The reported data were collected between July 2015 and May 2016. The MHSP is operated by the Liberian Ministry of Health in collaboration with the Centers for Disease Control and Prevention (CDC), the World

Health Organization, and the Academic Consortium Combating Ebola in Liberia.

Sexual transmission of Ebola

The potential role that sexual contact could play in sparking new outbreaks of Ebola in West Africa came to light in March 2015 when a woman from Monrovia, Liberia, became ill with Ebola and died. Liberia had been declared free of Ebola at the time, and the woman's only known exposure to Ebola was through unprotected sexual intercourse with an Ebola survivor. The man's semen was tested and found to be positive 199 days after he first became ill with Ebola. Genetic analysis showed that the infections of the man and woman closely matched each other.

Scientists have long known that Ebola virus can survive in certain sites within the body that the immune system may have trouble reaching, including the testes and eyes. This report provides new understanding of how long virus fragments can persist in the body. It also is shedding light on the individual differences in the length of time that traces of Ebola can remain in survivors' semen.

"Before this outbreak, scientists believed that Ebola virus could be found in [semen](#) for three months after recovery. With this study, we now know that [virus](#) may persist for a year or longer," said Moses J. Soka, M.D., Coordinator, Ebola Virus Disease Survivor Clinical Care at the Liberian Ministry of Health and first director of the MSPH program. "We now have many more Ebola survivors than ever before. This work demonstrates the importance of providing laboratory testing and behavioral counseling to empower survivors to make informed decisions to protect their intimate partners."

Provided by Centers for Disease Control and Prevention

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