

# New strains of hepatitis C found in Africa

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The largest population study of hepatitis C in Africa has found three new strains of the virus circulating in the general population in sub-Saharan Africa. The research from the Wellcome Sanger Institute, the MRC-University of Glasgow Centre for Virus Research and collaborators suggested that certain antiviral drugs currently used in the West may not be as effective against the new strains and that clinical trials of patients in sub-Saharan Africa are urgently needed to assess optimal treatment strategies in this region.

Published in the Journal *Hepatology*, the discovery of the new strains could inform hepatitis C treatment and vaccine development worldwide, and assist the World Health Organisation's aim of eliminating hepatitis C globally.

Hepatitis C is a liver disease caused by the hepatitis C virus (HCV), which is transmitted mainly by needles and exposure to blood products. Infection can cause cirrhosis and liver cancer, and nearly 400,000 people die from hepatitis C each year. Globally, an estimated 71 million people have chronic hepatitis C infection, 10 million of whom live in sub-Saharan Africa and there is no current vaccine.

In 2016, the World Health Organisation announced its aim to eliminate hepatitis C as a public health problem by 2030 globally. In the western world, direct-acting antiviral drugs are effective against multiple strains of the virus, and are currently tailored towards strains found in high income countries such as the US and the UK. However, research on HCV in sub Saharan Africa and other low income regions has been

extremely limited. Access to diagnosis and treatment is low, and it is not known if different places have the same strains of the virus. This will have a huge impact on eliminating hepatitis C worldwide.

To investigate HCV in sub-Saharan Africa, researchers carefully screened the blood of 7751 people from the general population in Uganda and, using molecular methods, found undiagnosed HCV in 20 of these patients. They sequenced the HCV genomes from these and two further blood samples from people born in the Democratic Republic of Congo (DRC) and discovered three completely new strains of the virus, in addition to some strains seen in the west.

Dr. George S. Mgomella, joint first author on the paper from the Wellcome Sanger Institute and University of Cambridge, said: "In the largest study of hepatitis C in the [general population](#) in sub-Saharan Africa to date, we found a diverse range of hepatitis C virus strains circulating, and also discovered new strains that had never been seen before. Further research is needed as some antiviral drugs are effective against specific strains of hepatitis C virus and may not work as well in these populations."

Dr. Emma Thomson, a senior author on the paper from Glasgow University, said: "It is important that there is a concerted effort to characterise hepatitis C strains in sub-Saharan Africa at a population level in order to assist countries to select optimal treatments for national procurement. It will also be important to inform vaccine design which would catalyse the elimination of hepatitis C by 2030."

The researchers discovered that current screening methods using antibody detection were inaccurate in Uganda and that detection of the [virus](#) itself would likely be a superior method for diagnosing the infection in high-risk populations. The researchers found that many of the [strains](#) present carry mutations in genes known to be associated with

resistance to some commonly used [antiviral drugs](#), proving that careful approaches are needed to diagnose and treat HCV effectively in Africa.

Dr. Manj Sandhu, a senior author on the paper from the Wellcome Sanger Institute and University of Cambridge, said: "Our study highlights the need for more investment on people in Africa and developing parts of the world. We show there are clear differences in HCV across the world, underlining the need for understanding HCV globally. Our work will help inform public health policy and reveals that further studies and clinical trials in sub-Saharan Africa are urgently needed if the WHO is to achieve its vision of eliminating [hepatitis C](#) by 2030".

**More information:** Chris Davis et al, New highly diverse hepatitis C strains detected in sub-Saharan Africa have unknown susceptibility to direct-acting antiviral treatments, *Hepatology* (2018). [DOI: 10.1002/hep.30342](#)

Provided by Wellcome Trust Sanger Institute

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