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Data science can play a key role in combating coronavirus

by Leiden University

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After China, Europe and America, chances of a major coronavirus outbreak in Africa are high. "Many victims will be in poor communities where health care and protection is scarce," says professor Mirjam van Reisen of Leiden University. According to her, data science can play a key role in regulating the virus, and Africa can benefit from available data.

Data alone is not enough

Africa can learn from the data of other countries to prevent a serious outbreak. "But data alone is not enough," Van Reisen explains. "The origin of data is just as important as data itself." Van Reisen is part of the Virus Outbreak Data Network (VODAN), a data network in which data can be found by computers and is available under national legislation. The network is global and covers all continents. VODAN follows the guidelines of the European Open Science Cloud, which requires all

scientific data to be findable, accessible, interoperable and reusable (FAIR). This is applied in VODAN to medical digital data. The network can be used to investigate how the virus spreads and how it can be regulated.

Origin is extra relevant

"It is important that we can reuse the data, that we understand their origin, that we know their reliability and that we can situate them where they were collected," says Van Reisen. "We don't yet know how the virus behaves in different parts of the world, which makes the information about the origin of the data even more relevant. Understanding how the virus is spreading is crucial to combating Covid-19."

Discovering patterns

Africa is not yet connected to such a network. This is apparent from the data from the Ebola epidemic, for example. The data is very difficult to find and inaccessible. If the data is accessible, it is often not interoperable or reusable. VODAN ensures that medical data from Covid-19 are and remain FAIR. This improves machine learning and other approaches that include artificial intelligence to detect patterns in epidemic outbreaks.

Implement in VODAN

In order to fully implement Africa in VODAN, ZonMw has made a subsidy available. The Philips Foundation also supports the approach. FAIR data points for interoperable data are now being set up in China and Uganda. Van Reisen also set up the Training of Trainers (ToT) in collaboration with Kampala International University in Uganda. The training is intended for data scientists, computer scientists, people working on digitization in the medical sector, the Ministry of Health and other relevant institutions and companies, to train them in FAIR data storage. The training will be rolled out with data stewards from Uganda, Kenya, Tanzania, Zimbabwe, Ethiopia and Nigeria.

Provided by Leiden University

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