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AI helps answer thousands of health queries in Zambia via SMS



SMS has proven an exceptionally useful technology in parts of Africa

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By Anna Nowogrodzki

For many people in Zambia with health queries, sending a text message is the best way to get it answered. U-report, a free SMS-based service set up by UNICEF and run by volunteers, receives many thousands of questions a month, many specifically about HIV and AIDS.

Also popular in Uganda, U-report has seen usage triple in the last three years, and about a thousand new users register every day. The volume of messages is growing so fast that the volunteers can't keep up, so UNICEF is testing software that reads and responds to many of the messages automatically.

In Zambia, there are roughly 27,000 new HIV infections a year, according to UNICEF, and 40 per cent of these are in those aged 15 to 24. With people constantly texting U-report for all kinds of HIV information and advice, the automated version uses machine learning algorithms to sort messages into eight categories: symptoms, HIV testing, treatment, pregnancy, transmission, prevention, definition, and male circumcision.

To train the system, Patrick Meier, then at the Qatar Computing Research Institute in Doha, and colleagues fed in at least 50 messages for each category that had been selected by hand, and asked it to identify patterns that it could then use to do the sorting itself. As well as how to handle typos, the system learned to cope with textspeak such as “HOW 2 AVOID SPREADING HIV/AIDS 2 OTHERS?” and “I feelin bad becoz im th only one wh hs hiv wht shld i do?”

Updating FAQs

UNICEF recently tested the system on 60,000 messages, finding it accurate and fast. The rapid classification lets staff see what topics people are concerned about, information that will be used to update the Frequently Asked Questions section of its website, further reducing volunteers' workload.

The team is now working on automating the sending of standard answers to the most common questions, replies that will include related health information that the user may not have been aware of. This can be followed up by a specific response from a human where appropriate.

It looks very useful, says Farshad Kooti at the University of Southern California. Systems like this could also help sort through texts or tweets after a natural disaster, he says.

In February, UNICEF announced that it is investing \$9 million in open-source technology, funding 60 start-up companies hoping to improve basic infrastructure in countries like Uganda and Zambia.

In Malawi, Unicef is testing drones to deliver up to 250 blood samples for HIV testing. In parts of the country where roads are bad, this could cut waiting times drastically. Timely testing could also improve the quality of care given to the 17,000 children in Malawi with HIV.

Reference: arxiv.org/abs/1602.08423

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