There's an app for that: An easy, fast and reliable way to record causes of death

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A health worker collects information via a smartphone and tablet app to determine cause of death in a small village. Credit: University of Melbourne

Researchers have developed a revolutionary new app to capture accurate

global cause of death data on tablets and mobile phones.

Worldwide, two in three deaths - 35 million each year - are unregistered. Around 180 countries that are home to 80 per cent of the world's population do not collect reliable cause of death statistics.

The app is the result of a decade-long global collaboration, led by the University of Melbourne and researchers at the Institute for Health Metrics and Evaluation (IHME) at the University of Washington.

A new paper, published today in *BMC Medicine*, explains the process behind the app. The research team redesigned a short 'verbal autopsy' questionnaire and tested it in India, the Philippines, Mexico, and Tanzania. The app was then field-tested in China, Sri Lanka and Papua New Guinea.

Family members of the deceased were given surveys in hand-held devices. A computer then analysed the data to make a diagnosis, bypassing the need to rely on doctors to do this work.

University of Melbourne Laureate Professor Alan Lopez led the study.

Prof Lopez said in the age of big data, we still know next to nothing about what kills people in poor countries.

"Without accurate cause of death information, we can't monitor disease and injury trends, we can't keep track of emerging health problems and we don't have any markers to show us whether programs and policies are actually working.

"So if you live in a country where no-one is dying from malaria, then why are you pouring money into malaria-prevention programs? And conversely, if people are dying from lung cancer, why aren't you

investing in tobacco control?

"Up-to-date, reliable information on what people are dying from and at what age, is really important for policies to prevent premature death. Our app provides a way to do this, quickly, simply, cheaply and effectively, in real time, with the power of technology."

IHME Director Dr Christopher Murray added: "Verbal autopsy research has shown that computer models are just as accurate as physicians in making diagnoses based on verbal autopsy data, at a fraction of the cost.

"In countries with scarce data on causes of death, policymakers need this information to better understand local disease burden and effectively allocate resources."

The problem in many regions around the world is that only registered doctors are qualified to determine a cause of death, but the process is expensive, time-consuming and can be unreliable.

Computers can reliably provide a diagnosis by linking symptoms with a specific cause of death in real-time. The instant provision of information overcomes what can be a 10-year lag between the death and the doctor's report.

"Relying on doctors to collect information about causes of death in rural populations is not helpful," Prof Lopez said.

"Our method involves data collection by health workers, registrars and village officials, who use the app to administer the surveys.

"The data is fed into a computer, which makes a diagnosis. It requires very minimal training. This way doctors are free to do what they do best, which is providing essential medical care to their communities.

"Governments now have a way to gather data to inform their health policies, that costs nothing and can be provided in <u>real time</u>. Even if you're sitting out in the remote bush in Africa and you can do this. Anywhere you've got power, it's possible."

  More information: The SmartVA app is FREE and can be downloaded here: www.healthdata.org/verbal-autopsy/tools

Provided by University of Melbourne