



Taking the long view to improve Africa's rural health landscape

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Professors Kathleen Kahn and Stephen Tollman at Wits Rural Agincourt received the National Science and Technology Forum (NSTF) -South32 Awards' Special Annual Theme Award: Healthy Ageing.

The award is a testament to their immense contribution in building evidence on health, ageing and development along the life course in South and sub-Saharan Africa – data that is used by researchers and policymakers globally.

While Kahn's and Tollman's work has homed in on older people in rural areas, their research was borne out of the fact that 30 years ago, virtually no information on any age group was available.

"In 1990, when we started, we knew nothing about the health of people in rural areas, particularly those far from roads, railways and other infrastructure," explains Tollman, director of the Agincourt unit.

Now, the research has gathered three decades' worth of data and has transformed into a sophisticated population surveillance and research platform, tracking the lives of 124 500 people across 31 villages in rural Mpumalanga, 500km from Johannesburg.

Discovering another South Africa

Kahn's interest in the area piqued when, as a medical student, she volunteered in what was then Gazankulu, one of apartheid South Africa's 'homelands.' At Elim hospital and surrounding villages, she encountered what she describes as a world she'd never known existed.

"I didn't know people lived like that," she says.

She encountered conditions such as trachoma, an infectious eye disease associated with poverty and inadequate water and sanitation and saw how profoundly living conditions shaped health. Sitting inside a clinic as a volunteer was not enough for Kahn. There was a community beyond its walls that she wanted to understand.



[Prof Kahn \(l\) and Prof Tollman \(r\) received the NSTF-South32 Special Annual Theme Award](#)



Both Kahn and Tollman later completed public health training at Harvard. At the time, South Africa did not offer a Master's in Public Health (MPH). Kahn would eventually become the first academic coordinator of this Wits programme.

By 1990, they were back in South Africa and working through the Wits Department of Community Health. Tollman was asked to direct the Health Systems Development Unit (HSDU); Kahn joined the unit, training primary health care nurses.

Political change was coming. The apartheid health system was still organised largely along fragmented provincial and 'homeland' lines, but a democratic South Africa would need a district-based health system.

There was one rather fundamental problem: nobody had much experience of how to make one work.

First, count the people

The HSDU set out to build a demonstration sub-district and district health system in a deliberately difficult setting, far from the infrastructure and resources of a major city.

The team pioneered clinic health committees, strengthened referral systems between clinics and the community health centre, and established a multipurpose laboratory service at primary care level. Leading provincial and national health officials came to see the district model taking shape.

"Yet rational health planning depended on something we simply did not have: good population information," says Tollman.

Who lived there? How many children were there? Who was being born? Who was dying? Who was moving away to work and returning home? What illnesses were changing the shape of the population?

Tollman had visited established health and demographic surveillance sites at Matlab in Bangladesh and Niakhar in Senegal. He left inspired and galvanised: "If we knew nothing, let's count them."

Professor Mark Collinson, who would become one of Agincourt's long-standing scientists, helped define the original study area, on a motorbike.

In 1992, the Agincourt health and demographic surveillance system began.

Fieldworkers went household to household, recording births, deaths and movement in and out of the area. Before sophisticated electronic data collection, there were pages and pages of raw information. A French demographer, Michel Garenne, helped the team turn this data into something they could analyse.

Burden-of-disease work helped pinpoint what health services were needed to respond to the realities on the ground.

What do you do with five years of people's lives?

By 1997, Agincourt faced another turning point. The team had spent five years building infrastructure, producing manuals and gathering information. Tollman and Kahn were on sabbatical in London, where they convened a workshop at the London School of Hygiene & Tropical Medicine.

The question was: what do we do with all of this now?

Two important ideas emerged.

The first was to turn the infrastructure into a long-term, community-based research platform. Instead of collecting information for one project and leaving, researchers could follow the same population over years and eventually decades, watching health and society change.

The second grew from discovering that other demographic surveillance sites around the world were wrestling with similar questions. With Rockefeller Foundation support, the group began mapping these sites globally.

Those conversations helped seed the INDEPTH Network, which would eventually connect health and demographic surveillance sites across low- and middle-income countries.

Agincourt's research arm took shape from 1997 to 2004.

In 2004 it became an official South African Medical Research Council unit.

Watching an epidemic rise and fall

Agincourt's mortality data captured the whole arc of South Africa's wicked HIV epidemic vividly: the period before deaths began rising, the devastating climb towards the epidemic's peak in the mid-2000s, and then the reversal as antiretroviral treatment became widely available.

"Few datasets can show a health transition unfolding across decades in the same population," says Kahn.

Other changes were occurring at the same time. Severe protein-energy malnutrition and conditions such as kwashiorkor, once seen in children in the area, became far less common. Meanwhile, hypertension, diabetes, obesity and other non-communicable diseases became increasingly important.

The population was also living longer but not necessarily healthier. Ageing studies were the natural progression of their work.

Ageing starts much earlier

Kahn and Tollman have always viewed health across the life course. What happens when people are young, the opportunities they have, what they eat, the infections and adversity they experience, and the environments in which they live, can influence health decades later.

In rural South Africa, Kahn and Tollman were also seeing multimorbidity appear at younger ages than is commonly observed in wealthier countries.

A person may be living successfully with HIV and then develop hypertension or diabetes. HIV and non-communicable diseases no longer sit neatly in separate categories. They accumulate in the same person, while poverty, work, migration, food environments and access to healthcare continue to shape how well that person can live.

This is why healthy ageing, for Kahn and Tollman, is central to their knowledge project.

Today, Agincourt research examines the intersecting challenges of ageing, HIV and cardiometabolic disease; cognition and dementia; mental health; sleep; physical function and the social circumstances in which people

grow older. Portable MRI is now allowing researchers to connect changes in the brain with long-term health trajectories in the same rural population.

The questions have become more sophisticated, but they are descendants of the original one.

What is happening to people here?

From a trailer home to a research platform

The science, emphasises Tollman, is a collaborative enterprise. The data exist because fieldworkers have returned to households year after year, because communities have continued to participate and because generations of local and international scientists, students, health workers and public-sector partners have contributed to the work.

For Kahn, one of the achievements she values most is particularly tangible: employment.

Over three decades, Agincourt has created sustained jobs, training and opportunities in the same rural area in which the original team arrived to find such profound disadvantage.

The research has grown too. The questions now stretch from HIV, multimorbidity and health systems to genetics and brain imaging. Agincourt contributes to international thinking about ageing and brain health precisely because researchers have spent decades building the kind of African longitudinal evidence that was once almost entirely absent.

“It is no longer simply: who lives here? But how do we make it possible for people to live longer and healthier,” says Tollman.

This story was first published by the University of Witwatersrand on 07 August and can be accessed here <https://www.wits.ac.za/news/latest-news/research-news/2026/--2026-08/taking-the-long-view-to-improve-africas-rural-health-landscape-.html>

