

MAKING IMPACT



**ONE
HEALTH
POULTRY
HUB**



2022

APP TO TRACK REAL-TIME GLOBAL HEALTH DATA

IN BRIEF

The One Health Poultry Hub TRACKING App is a free research tool that overcomes geographic and linguistic barriers to allow rapid data collection and analysis worldwide. Its use will help communities and decision makers reach good public health decisions.

Data collection is a primary task for researchers. However, it can be difficult, especially in areas of the world with limited resources and poor infrastructures, which slow the speed and efficiency of fieldwork. In these situations, it is challenging to transfer collected data rapidly and accurately. Yet precise and timely data is critical to finding out a true picture of what is happening at grassroots level – for better scientific understanding and, importantly, for information to be made available to decision makers who can use it to improve the health and wellbeing of communities.

In global health research, information is usually collected by researchers who use questionnaires or interview participants. Upon return to lab or office, the information is transferred to databases for sharing and analyses. Sorting the logistics of this for the One Health Poultry Hub, working in Bangladesh, India, Sri Lanka and Vietnam, was a big challenge, especially for mobility studies which map precisely the flows of



Helal Uddin, a researcher from Bangladesh, reviewing the path of a poultry trader. *Image: Mokter Hossain Razu*

chickens (and chicken products) from farm to plate and link these movements to disease transmission.

This work is important to reveal where exactly in chicken production and distribution networks pathogens – such as the virus that causes avian influenza ('bird flu') and bacteria that cause foodborne disease –

are most prevalent and likely to be transmitted. Understanding which parts of the network pose the greatest risks allows communities and decision makers to focus on these to develop better practices and policies.

For example, in Bangladesh we have shown that the incidence of avian influenza virus is low on

farms but much higher in the live bird markets where birds are sold. This provides important evidence to inform disease control policies.

The challenge of undertaking mobility studies increased when COVID-19 made it difficult to travel and monitor movements. An app that poultry traders taking part in the study could use was considered an ideal tool. However, a suitable, affordable commercial app could not be found.

Solution: to develop an app ourselves. Veterinary epidemiologist and Hub co-investigator Associate Professor Joerg Henning worked with a team of software specialists in Australia (Identic) to develop a bespoke app to collect the data the Hub required.

Result: the One Health Poultry Hub TRACKING App – a practical data collection tool that captures

movements as well as survey data in real time. The app was developed for Android devices and is based on the Open Data Kit (ODK), an open-source mobile data collection software for resource-limited settings. The underlying location technology combines data from multiple sensors, including the mobile phone's GPS, WiFi and Bluetooth, to compute geolocation readings quickly and accurately. No mobile phone reception is needed, provided GPS recording on the mobile phone is turned on.

Poultry traders taking part in Hub research or researchers tracking these traders download the TRACKING App from a customised website. The TRACKING App then visualises and records movement paths on the phone via a Google Maps interface, controlled with 'record' and 'pause' buttons, and saved after journeys are completed.

At each location where poultry are traded, a range of questions is asked to explore the trading details at that location, for example the types and numbers of poultry sold or purchased. All information is stored on the phone and can be

uploaded to an ODK database when internet access is available. Data can be downloaded by permitted users from anywhere in the world.

The TRACKING App, for Hub purposes, has been initially developed in five languages – English, Bangla, Vietnamese, Tamil and Gujarati. Further languages can be added.

It has made accurate capture of combined movement and survey data much faster and easier, and its impact in supporting data collection in challenging situations will continue to be felt. This impact goes beyond enabling Hub researchers to record real-time spatial and survey data that describe the impact of movements on animal and human health. The TRACKING App can readily be adapted and modified for other purposes, providing a sustainable research tool that can be rapidly scaled up in a variety of scenarios.

FURTHER INFORMATION



The One Health Poultry Hub Tracking App collects location, multiple-choice, free-text and numeric answers (and can be expanded to collect audio, images, video, barcodes and signatures).

Platform Android (5.0 minimum).

Source code Open-source ODK collect.

Visit <https://docs.getodk.org/collect-intro/>

The app was developed by Dr Joerg Henning of The University of Queensland, with Identic Pty Ltd. It was funded via the One Health Poultry Hub's Flexible Fund.

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ABOUT US

The GCRF One Health Poultry Hub is an impact-driven research and development programme working to help meet Asia's growing demand for chicken meat and eggs while minimising risk to local and global public health. Working in Bangladesh, India, Sri Lanka and Vietnam, it is taking an interdisciplinary and intersectoral 'One Health' approach, exploring how rapid expansion of poultry production increases risk of infectious disease and why certain processes and behaviours are risky. It is funded by UK Research and Innovation through the Global Challenges Research Fund, a key component in delivering the UK AID strategy.

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