

Drone delivery networks operated by Zipline in Africa are linked to lower child mortality, higher farmer incomes and stronger local economic activity, according to three new studies examining operations in Rwanda and Ghana between 2019 and 2024.

The studies assess the impact of autonomous aerial logistics on healthcare delivery, livestock production and community-level economic development using clinical outcome data, field implementation records, and satellite-based economic analysis.

In Rwanda, a longitudinal study found a 22% reduction in deaths among children treated for severe acute malnutrition at facilities served by Zipline compared with non-served facilities.

Researchers said the study evaluated whether Zipline's drone delivery of ready-to-use therapeutic food (RUTF) improved outcomes for children with severe acute malnutrition. RUTF is the standard treatment for the condition, but when clinics run out of supplies, treatment typically stops.

Zipline's system delivers RUTF on demand from central stock, allowing health facilities to replenish supplies without needing to predict demand or maintain large buffer inventories. Researchers said this reduces treatment interruptions caused by stockouts, a persistent challenge in malnutrition care systems.

The Rwanda study covered 299 health facilities over a five-year period and found additional differences across age groups, including a 22% reduction in severe acute malnutrition cases among children under 2 years, a 42% reduction among children aged 2 to 5, and an 84% reduction among children older than 5.

Severe anemia cases among children aged 2 to 59 months fell by 46% at Zipline-served facilities compared with non-served facilities.

Researchers also reported a 21% increase in malnutrition-related hospitalizations at Zipline-served facilities. They said this likely reflected improved case detection, earlier referral, and more complete treatment coverage rather than worsening health outcomes.

A separate peer-reviewed study published in [Frontiers in Veterinary Science](#) evaluated the impact of Zipline's aerial logistics model on pig farming in Rwanda. The study examined a program in which drone-delivered pig semen was

paired with localized training for community animal health workers across eight rural districts.



The program was implemented in partnership with the Rwanda Agriculture and Animal Resources Development Board and Feed the Future Rwanda. It was designed to test whether reliable, temperature-controlled delivery could turn artificial insemination into a viable income source for smallholder pig farmers.

Researchers found artificial insemination success rates increased from 48.8% to 74.8% after the introduction of drone-supported delivery. The study estimated that 17% of the resulting increase in farmer income was directly attributable to Zipline's logistics network.

Overall, the program generated approximately \$129,000 in additional farmer income compared with implementation costs, representing a 68% return on investment for participating smallholder pig farmers.

A third study assessed the [economic impact of Zipline's GH3 distribution hub in northern Ghana](#) using household surveys and satellite analysis of nighttime light intensity as a proxy for local economic activity.

Researchers compared communities near the hub with 82 similar control locations across Ghana.

The study found households within 2 kilometers of the GH3 hub earned between \$850 and \$1,200 more per year than households farther away.

It also identified a strong distance-decay relationship in economic outcomes, with household liquid asset ownership falling by about 27% for every additional 1.5 kilometers from the hub. The gap in asset ownership between the closest and farthest communities exceeded 30 percentage points.

Access to drinking water also followed a similar pattern, with 6% of households near the hub reporting improved access compared with 2% in more distant communities.

Satellite imagery showed significantly higher nighttime light intensity around the GH3 hub compared with 82 benchmark locations, suggesting higher levels of local economic activity in surrounding communities.

“This research shows what communities and governments across Africa have seen firsthand: when essential supplies reliably reach the people who need them, outcomes change,” said Caitlin Burton, CEO for Africa and Emerging Markets at Zipline.

Pedro Kremer, Zipline’s head of impact and research, said the findings suggest that supply availability — rather than changes in treatment protocols — was the key driver of improved outcomes in malnutrition care.

“The protocol for treating malnutrition has not changed. What changed was whether supplies were there when clinicians needed them,” he said.

The studies were conducted in collaboration with public health and agricultural partners, including the Rwanda Agriculture and Animal Resources Development Board and Feed the Future Rwanda, alongside academic researchers and implementation partners.



Zipline operates autonomous drone delivery networks across Africa and other regions, primarily supporting health systems but increasingly expanding into agricultural and commercial logistics applications.

The company said its system has logged more than 130 million autonomous miles and serves thousands of health facilities globally.