Drones for Health: Speeding up Laboratory Sample Transport from Hard-to-Reach Communities in Malawi, Mozambique and DR Congo


BACKGROUND

When patient samples cannot be rapidly transported to a laboratory for testing, the health of entire communities is at stake. To speed up treatment initiation and outbreak control, VillageReach has partnered with governments and the private sector to evaluate and scale up integrated bi-directional drone transport systems.

METHODOLOGY

Long-term evaluations of the effectiveness of lab sample transport by drone are scarce. Ministries of Health in Malawi, Mozambique and DRC have been using Swoop Aero’s drones for routine, on-demand and emergency deliveries of lab samples, rapid diagnostic tests, lab supplies & test results for 3-3 years. Drones fly for 50-100 km at speeds of 100+ km per hour, land at remote facilities where health workers receive them, and return at the push of a button. Carrying capacity is 3 kg. They complement other means of transport for routine disease surveillance and during epidemics and natural disasters.

VillageReach has completed process & outcome evaluations in all 3 countries between 2020-2023. A Randomized Control Trial is ongoing in Malawi, with baseline data collected in early 2023.

RESULTS

Summary

Drones have transported more than 10,000 lab samples from 115+ rural health facilities across all 3 countries.

- In Malawi, reductions in turnaround time (TAT) were reported by the 39 health facilities that utilized drones the longest (for 2+ years) with high satisfaction rates among health workers and community members (VillageReach & INSEAD, 2023).
- In Mozambique, TAT for HIV viral load, pCBA and TB GeneXpert decreased by 42%, 14% and 43% respectively, and sample quality was not compromised (VillageReach & INS, 2022).
- In DRC, acute flaccid paralysis (AFP) samples received within 2 days at the provincial level increased from 35% to 69% once drones were introduced in combination with ground and boat transport (VillageReach & KSPH, 2022).

For more info, visit: https://www.villagereach.org/project/drones-for-health-in-malawi/

Drones have transported more than 6,541 product deliveries across all 3 countries.

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Mozambique

Phase 2 (2 years)
Inhambane province
6 health facilities
1 district lab
Daily sample pick-ups

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DR Congo

Phase 2 (2.5 years)
Equateur province
40 health facilities
1 provincial lab

For more info, visit: https://www.villagereach.org/project/drones-for-health-in-the-drc/

CONCLUSIONS

- Strengthening laboratory systems is a priority that can be met by using drone transport for faster disease diagnosis, and consequently faster initiation of treatment and containment of infectious diseases.
- Drones can address transportation infrastructure gaps in hard-to-reach areas globally.

OUTPUTS

- 5,673 flight hours
- 6,541 product deliveries
- 586,265 km flown
- 4,413 kg medical products
- 10,849 lab samples
- 448,225 vaccine doses
- 320,172 people directly benefited from products delivered by drones

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