BLOOD SERVICES IN RWANDA

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PPH Community of Practice Annual Meeting
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OUTLINE

- Background
- Mission & Vision
- Current Status
- Drones
- Challenge
- Future Projections
BACKGROUND

Only institution mandated by GoR to ensure Blood safety in Rwanda

MISSION

To provide safe, effective and adequate blood and blood products to all patients in need.

HEALTH FACILITIES

71 HF (Public + Private)

MOBILE SITES

568
- Universities
- High Schools
- Churches
- Villages
- Public & Private Instit
  Plus RDF & RNP

STAFF

146 Staff
- 114 GoR structure
- 32 GF

REGIONAL BB

5 Regional BB + 2 Drone PORTS
CURRENT STATUS

Donor Mobilization
Increased blood collection through collaboration with RDF, RNP,... (25,000 in 2014 to 47,000 in 2019)

Component Distribution
• Electronic cold chain monitoring System
• Online Hemovigilance System
• DRONES

Centralized IT Architecture
• 100% Donor/ Patient traceability.
• Nationwide supply chain visibility.

Component Separation & Testing
• Centralized Operations for Quality Management & Efficiency
• Automated Blood Components Production
• Automated BG (Qwalys 3) & TTI Testing (Architect i2000 SR).

Donor Selection
• One of the few African countries with 100% voluntary donors.

Meeting 96% National Demand

Donor Care
• All our donors receive follow up care

BLOOD BANKING

Red Cell Concentrate
Platelets
Plasma +
Cryo-AHF
HIV 1&2, HBV, HCV, Syphilis
### CURRENT STATUS

<table>
<thead>
<tr>
<th>YEAR</th>
<th>HOSPITAL SATISFACTION</th>
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<tbody>
<tr>
<td>2014</td>
<td>73.6% (49% in Feb 2014)</td>
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<tr>
<td>2015</td>
<td>79.6%</td>
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<tr>
<td>2016</td>
<td>71.8%</td>
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<tr>
<td>2017</td>
<td>90.6%</td>
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<tr>
<td>2018</td>
<td>87.96%</td>
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<tr>
<td>2019</td>
<td>90.03%</td>
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Revised and distributed National Guidelines on Rational Blood Utilization

Developed and distributed MBTP

Periodic Training followed by Supervision and Mentorship of Hospital Staff on best transfusion practices

Created HTC
MOH has been overwhelmed with ad-hoc knowledge sharing requests.

Ref 2: British Medical Journal. Lessons From Success 2013
DELIVERING BLOOD WITH DRONES

BEFORE DRONES

• HF were responsible for picking up blood products from NCBT using their own vehicles and staff.
  o Each HF: Minimum stocking level for Rh+ve pRBC had to periodically make routine trips to a nearby RCBT to replenish stock. ➢ This represents 77.3% of the total blood products.
  o Demand for Rh-ve pRBC, FFP, PLT, or CRYO required emergency trips to pick up the necessary blood products. ➢ This represents 22.7% of the total blood products.

• HF use their own resources (vehicles, staff, etc.) to pick up blood products from NCBT centers.

• Drone system was an alternative to deliver blood products to health facilities.
DELMIVING BLOOD WITH DRONES

• Issues:

  o **Wastage**: Due to the fixed cost of pick-up, facilities tended to order more blood units than needed and some became expired and need to be destroyed.

  o **Time**: Because of the winding roads in Rwanda’s hilly landscape, blood delivery could take time.

  o **Capacity**: Facilities only have a few vehicles, and routinely picking up blood tied up the capacity of both the vehicle and the staff member(s) assigned to the task.

• GoR always looks for efficiency, there was an alternative of using drone to deliver blood units to health facilities.
Routine Resupply Orders

- Eliminated stockouts
- Resupply on as-needed basis

- Reduced expiries and other waste
- Reduce buffer stocks needed on hand
Emergency Deliveries

Enabled universal access to high-quality medical products

Transformed access to products that...

- Are scarce
- Are expensive
- Have short shelf lives
- Require specialized storage
- Have low, intermittent, and/or unpredictable demand
Results from Drone deliveries

100% Stock-in

99.7% Waste reduction

40% Emergency deliveries

175% Increase in use of lifesaving emergency products (PLT, FFP, CRYO)

- Improved access to Blood products
- Improved standard of Health Care

25 Health Facilities served (17th – July - 2020)

> 31,832 deliveries (17th – July - 2020)

> 61,892 Total products

> 56,792 Blood units delivered (17th – July - 2020)

> 5,100 Medical products (since 2019)

- Reduction of Waste: from 6% to 0.3%
How three District Hospitals achieved zero maternal deaths

Kayitare added: “I can’t forget the use of drones (Zipline) for blood deliveries where it is required as an emergency.”

The drones, he acknowledged, are also positively impacting on how they care for pregnant mothers.

“A pregnant woman may need transfusion before or after caesarian section, or in other different conditions according to her low hemoglobin; even by spontaneous delivery it can happen.”
Drone coverage 2016-2018
Drone coverage Today
Drone coverage 2019+
Budget Limitations
FUTURE PROJECTIONS

- Income Generation e.g. *Plasma Fractionation*
- Leuco-reduction
- Antibody Identification
- NAT
- Pathogen Inactivation
- ISBT 128
THANK YOU