

UPDWG

UAV for Payload Delivery Working Group



Integrating Drones into Immunization Supply Chains

November 7, 2019



Agenda

Overview of UPDWG and TechNet-21

Introduction to drones in Immunization Supply Chains (iSCs)

UNICEF case study - Vanuatu

VillageReach case study - DRC

Operationalization Considerations & Resources

Panel Discussion

Overview of UPDWG and TechNet-21

Olivier Defawe – Coordinator, UPDWG
Dan Brigden – Coordinator, TechNet-21



Unmanned Aerial Vehicles (UAV) for Payload Delivery Working Group (UPDWG)

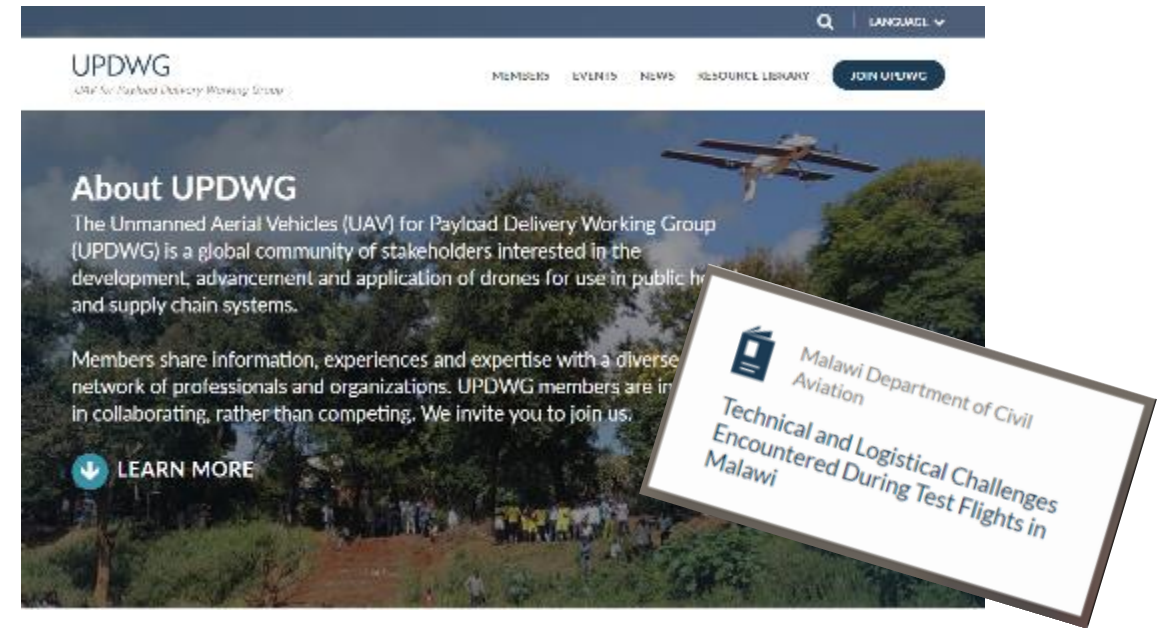
UPDWG is a global community of stakeholders interested in the development, advancement and application of UAVs (or drones) for use in health systems.

Development of a shared evidence base

Hosts quarterly webinars

Produces monthly newsletters

Promotes partner coordination



Find out more and join us at UPDWG.org!





TechNet-21

The Technical Network for
Strengthening Immunization Services

- A global network of immunization professionals committed to strengthening immunization services
- Established in 1989, managed by WHO & UNICEF
- Focus on cold chain equipment, immunization supply chain and logistics, and immunization service delivery and programme management
- TechNet Conference (2020)

Join us: www.technet-21.org

The screenshot shows a web browser window displaying the TechNet-21 Forum. The browser's address bar shows the URL technet-21.org/en/forums/discussions. The forum page has a navigation breadcrumb: Home > Forum > Discussions. The main heading is "TechNet-21 - Forum" with links for "Subscribe via RSS" and "Unsubscribe". A description states: "This forum provides a place for members to ask questions, share experiences, coordinate activities, and discuss recent developments in immunization." Below this is a search bar and navigation tabs for "Forums", "Recent", "Categories", "Tags", and "Users". The "Featured Posts" section highlights a post by Gabriella (Gabo) Ailstock titled "Webinar Invitation: Integrating Drones into Immunization Supply Chains". The post includes a profile picture of Gabriella, a star icon, and a category of "Supply chain and logistics". It notes the post was last updated 3 weeks ago and that Gabriella replied 5 days ago. The text of the post begins with "Hello TechNet-21 members," and continues with an invitation to a webinar on November 7, 2019, at 10-11:30 AM EST. The description of the webinar discusses the importance of resilient immunization supply chains (ISCs) and the challenges of transporting immunization products in low and middle-income countries, highlighting the potential of drone technology.

Introduction to drones in immunization supply chains

Olivier Defawe – Coordinator, UPDWG



Immunization delivery remains a challenge in many countries

Supply chain challenges are even more pronounced at the last mile – or the most geographically inaccessible areas



Photo credit: UNICEF Pacific/2018/Chute



Photo credit: VillageReach



Photo credit: VillageReach

Drones may help reach these populations

Drones are where trucks were 70+ years ago



Transport
Logistics

Regulatory

Others

| | Sub-System Elements | 1940s | Now | Now |
|------------------------|------------------------------|-------------------------------|-----|-----|
| | | Ground & Manned Air Transport | | UAS |
| Transport Logistics | Technology Reliability | ✗ | ✓ | ✗ |
| | Operation & infrastructure | 🔄 | ✓ | 🔄 |
| | Logistics cost | ✗ | ✓ | ✗ |
| | Human resource for operation | 🔄 | ✓ | 🔄 |
| | Solution integration | ✗ | ✓ | ✗ |
| | Business model | ✗ | ✓ | ✗ |
| Regulatory | Safety regulation | ✗ | ✓ | 🔄 |
| | Cargo safety regulation | ✗ | ✓ | 🔄 |
| | Public acceptance | ✗ | ✓ | 🔄 |
| Others | Impact research | ✗ | ✓ | ✗ |



Go



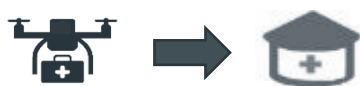
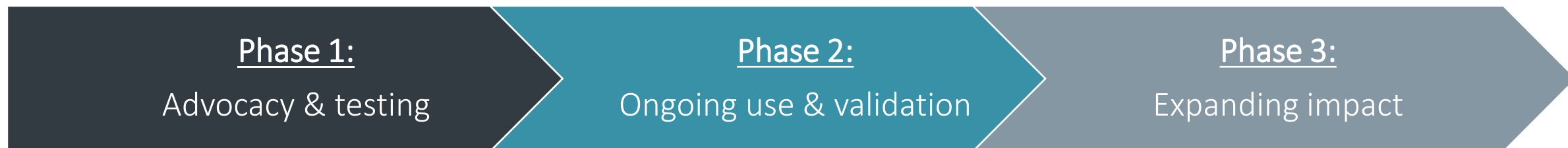
No Go



In progress

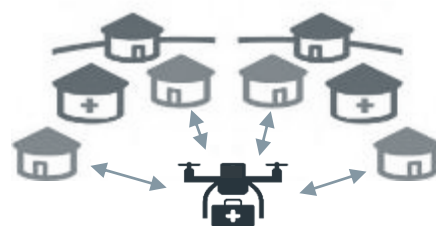
Drones have had a slow uptake in the health delivery market

Global Drone Use in Immunization Supply Chains



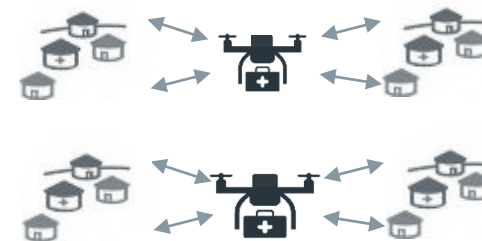
2

DRC 2019 (DRC MoH, VillageReach, Swoop Aero)
Vanuatu 2017 (Vanuatu MoH, UNICEF, Swoop Aero, Wingcopter)



1

Vanuatu 2019 (Vanuatu MoH, Swoop Aero)



2

Ghana 2019 (Ghana MoH, Zipline)
Rwanda 2016 (Rwanda MoH, Zipline)

Value add of drones in immunization supply chains

Drones can have a high impact on particular supply chain challenges, when used as a supplemental transportation method in existing immunization supply chains



Supply Chain Design

- Optimize last mile deliveries
- Reduce transport time
- Integration with other commodities
- Reverse logistics from remote facilities



Utilization

- Increased demand for communities with infrequent supplies
- Reduce distance to access services



Health Worker Efficiency

- Decrease health worker time spent on logistics and away from health post
- Optimizing stock kept at the last mile



Distribution & Replenishments

- Quickly replenishing hard to reach areas, missed populations or campaigns
- Ad-hoc deliveries during emergencies

UNICEF Vanuatu Case Study

Jaime Archundia - UAS Global Lead, UNICEF



Case Study outline

Please use the following template as a rough outline for your presentation. You will have 20 minutes to present. The focus of the webinar is the **health supply chain aspects** of integrating drones into immunization supply chains and not on aviation aspects. The audience is interested in knowing when it is appropriate to use drones and how you can integrate drones. We expect the audience to comprise technical immunization professionals (govt/NGO/UN), UAV companies, private sector logistics companies, etc.

Presentation outline

Quick project background - 10% of time

Health supply chain considerations/ decisions to integrate drones into the iSC - 35% of time

Rationale of this particular use case for drones in Vanuatu/DRC

Drone network design vs. previous iSC design

Human resource considerations and adaptations at all SC levels

Cold chain considerations and adaptations

Operationalizing Drone into the iSC - 35% of time

Preparation for flight operations (authorization to import, infrastructure, advocacy/stakeholder engagement, community sensitization, UAV provider selection, training, etc.)

Flight operations (roles of the UAV operator vs. EPI, delivery model (informed push vs. pull), etc.)

Results 15%

Supply chain performance data pre and post drone integration

Lessons learned and challenges

Next steps and future drone integration efforts 5%



VillageReach Democratic Republic of Congo (DRC) Case Study

Luciana Maxim - Sr. Manager, Research Evidence and Learning, VillageReach



Case Study outline

Please use the following template as a rough outline for your presentation. You will have 20 minutes to present. The focus of the webinar is the **health supply chain aspects** of integrating drones into immunization supply chains and not on aviation aspects. The audience is interested in knowing when it is appropriate to use drones and how you can integrate drones. We expect the audience to comprise technical immunization professionals (govt/NGO/UN), UAV companies, private sector logistics companies, etc.

Presentation outline

Quick project background - 10% of time

Health supply chain considerations/ decisions to integrate drones into the iSC - 35% of time

Rationale of this particular use case for drones in Vanuatu/DRC

Drone network design vs. previous iSC design

Human resource considerations and adaptations at all SC levels

Cold chain considerations and adaptations

Operationalizing Drone into the iSC - 35% of time

Preparation for flight operations (authorization to import, infrastructure, advocacy/stakeholder engagement, community sensitization, UAV provider selection, training, etc.)

Flight operations (roles of the UAV operator vs. EPI, delivery model (informed push vs. pull), etc.)

Results 15%

Supply chain performance data pre and post drone integration

Lessons learned and challenges

Next steps and future drone integration efforts 5%

Operational Considerations & Resources

Olivier Defawe – Coordinator, UPDWG



Operationalizing Considerations

Lessons learned across countries



Multi-disciplinary stakeholders need customized messages and approaches.

The more stakeholders, the more time and funds needed to coordinate and implement.



In new settings, understanding awareness gaps and perceptions

This helps shape effective sensitization strategies for new technologies, like drones that are highly visible to the public.



Gov't leadership and ownership is critical

But so is having a solid drone partner and technology; both the demand- and supply-side of these projects must succeed.



Be prepared to respond fast if things don't go as planned during flights

Be equally prepared to scale-up fast if you succeed; reaction time is minimal in both cases

Resources

Visit the UPDWG resource library for all of these resources and more! <https://www.updwg.org/resource-library/>

UAS considerations for Immunization Supply Chains – A System Design Approach – Gavi and the Interagency Supply Group (*soon to be released*)

[UAS: Product Profiles and guidance](#) - UNICEF

[UAV Delivery Decision Tool](#) – FHI360

[What Should You Deliver by Autonomous Aerial Systems? Tool for Determining Cost Effective Use Cases for AAVs](#) – InSupply & JSI

Interagency Supply Group UAS Coordinating Body [website](#)

Contact the UPDWG coordinators if you have additional questions or would like to be connected with UAV providers, donors, implementing partners, etc.

info@UPDWG.org

Panel Discussion



Jaime Archundia - UAS Global Lead

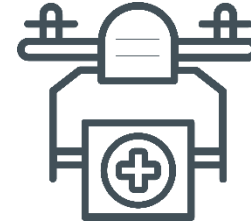
Ridwan Gustiana - Health Specialist, Immunization



Archimede Makaya - Equateur Provincial Coordinator

Luciana Maxim - Sr. Manager, Research Evidence and Learning

Dieudonne Nsekela - Program Officer, New Technologies



Christian Vazquez - Civil Engineer, Transportation Engineering (formerly UNICEF Vanuatu)



Thank you!