A race to eradicate polio: what does logistics have to do with it?

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Agenda

- Program Context
- Program Methodology
- Implementation Spotlight: DRC
- Initial Results
- Discussions

@ghcs_summit; #globalhealth; #globalhealthsupplychain; #GHSCS
VillageReach was brought on to conduct national assessments and create customized improvement implementation plans in **15 countries at high risk for polio outbreaks**, aiming to improve the **speed and quality** of polio sample transportation from communities/health facilities to national/international laboratories.

**Objectives**

**ACHIEVE COORDINATED & EFFECTIVE SAMPLE TRANSPORT SYSTEMS**
Through in-country partners, design/deploy/improve system(s) that lead to samples of good quality arriving in a timely manner at labs.

**IMPROVE SAMPLE TRACKING, DATA VISIBILITY & TURNAROUND OF TEST RESULTS**
Utilize digital data tools and dashboards for real-time sample tracking and notification of lab results
Specimen Referral System

1. Management
2. Financing
3. System Design
4. Transport & Logistics
5. Equipment & Supplies
6. Training
7. Data Systems

Program Management
Policies & Planning
Quality Management
HR/Training
Specimen Referral System
Biosafety
Equipment Management
Waste Management
Connectivity
Data Systems
Procurement & Supply Management
Testing Platforms
Collection to Arrival at Labs

Direct detection & sequencing at national/int’l labs

- Stool samples
- ES samples

3 Days

11a. Number of days from AFP sample collection to receipt by polio lab

11b. Average number of days from ES sample collection to receipt by polio lab
Learnings on Polio SRS vs. Other SRS – Important Differences

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>Polio Specimen Referral System (SRS)</th>
<th>HIV/TB Specimen Referral System (SRS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of specimen collection</td>
<td>Acute flaccid paralysis (AFP) specimens can be collected anywhere, at any health facility (HF) or at community level</td>
<td>Usually collected at HF level, sometimes only at designated HFs (esp. for HIV)</td>
</tr>
<tr>
<td>Timing of specimen collection</td>
<td>AFP specimen collection ad hoc/as necessary, not based on schedule</td>
<td>May be scheduled based on SRS pickups (i.e. clinic days only on days when transport is expected), esp. for HIV</td>
</tr>
<tr>
<td>Specimen volumes</td>
<td>Relatively low</td>
<td>High enough to justify dedicated SRS</td>
</tr>
<tr>
<td>Type of system responsiveness required</td>
<td>On-demand system</td>
<td>Scheduled system with frequencies of pickups anywhere from 1-5x per week</td>
</tr>
<tr>
<td>Testing laboratory locations</td>
<td>May not have one in-country</td>
<td>Anywhere from district to province/region to national levels</td>
</tr>
<tr>
<td>Laboratory involvement (MoH directorate and lower levels)</td>
<td>Very limited, sometimes not involved – program-driven</td>
<td>Lab and program drive SRS</td>
</tr>
<tr>
<td>Integration with other diseases</td>
<td>Limited, but does happen</td>
<td>Common to have SRS for HIV, add TB, and then other pathogens/sample types</td>
</tr>
</tbody>
</table>
### Summary of Cross-Country Recommendations

<table>
<thead>
<tr>
<th>Management, Policy &amp; Governance</th>
<th>Lab &amp; Referral Network Design</th>
<th>Equipment &amp; Supplies</th>
<th>Transport &amp; Logistics</th>
<th>Data &amp; Lab Results</th>
<th>HR/Training</th>
<th>Financing &amp; Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involve polio specimen referral system (SRS) in general SRS TWG discussions, to facilitate integration</td>
<td>Involve Lab in setting guidance, SOPs and training (specimen collection, packaging, storage, monitoring quality &amp; biosafety)</td>
<td>Provide packaging/supplies and equipment</td>
<td>Consider private sector couriers/transporters from HFIs/districts</td>
<td>Ensure low-cost interventions are widespread, i.e. WhatsApp groups for communication</td>
<td>More trainings + job aids for (C)HWs, district staff, and transporters on sample transport, quality, biosafety (due to high staff turnover, lack of experience/rare cases, and assumption that polio is no longer a problem)</td>
<td>Explore integration with other diseases’ SRS (needs careful planning for polio needs to be met)</td>
</tr>
<tr>
<td>In some countries: update policies and guidelines and recirculate at all levels</td>
<td></td>
<td>Ensure return of cooler boxes and ice packs to last-mile</td>
<td>On-demand (urgent) pick-up of samples is key for polio: ground &amp; air</td>
<td></td>
<td></td>
<td>ES specimens easier to integrate due to scheduled nature</td>
</tr>
<tr>
<td>In some cases, provide additional vehicles</td>
<td></td>
<td>In some countries: system/routes reconfiguration/optimization</td>
<td></td>
<td></td>
<td></td>
<td>More timely &amp; adequate (C)HW payment for transport &amp; surveillance in communities</td>
</tr>
<tr>
<td>Temperature monitoring devices during transport</td>
<td></td>
<td>For int’l routes: explore contract across countries</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
**Assumptions:**
- The health system will continue to detect cases of polio in a timely way through active surveillance and community-based detection.
- Ministries of Health will provide VillageReach and its partners reliable, timely data on polio sample transport to enable analysis of transport bottlenecks.
- World Health Organization will continue its ongoing, funded work complementary to transport improvements.
- Government officials will remain available to partner in polio lab sample transport improvements.

**Polio Lab Sample Transport: Theory of Change**

**Problem:** Polio lab sample transport is slow and unreliable, resulting in a delayed outbreak response.

**Root causes**
- Polio stool specimens must be transported immediately and cannot wait for scheduled pick-up times of other samples
- Health workers are required to transport samples but often lack the time and finances to do so, especially given geographic conditions
- Specimens require cold chain, which is limited
- It is hard to predict where suspected cases of polio will present across the health system

**Activities**
- Coordinating in-country partners to improve polio sample transport systems
- Build the knowledge and skills and provide the equipment needed to deliver quality samples
- Create or enhance digital data tools and dashboards for real-time sample tracking and notification of results

**Outputs**
- Partners operate improved polio sample transport systems
- Transporters adhere to polio sample quality protocols
- Transporters track samples and notify results electronically

**Outcomes**
- Polio samples are transported in a timely manner
- Polio samples arrive in good condition
- Transport bottlenecks are continuously identified and addressed

**Impact**
- Polio is detected and contained more quickly and more reliably in high-risk countries
- Polio is eradicated
**Contexte**

- Superficie: **plus de 2 345 410 Km²**

- Nbre de provinces: **26; ZS: 519; AS: 9 134**

- Nbre Site de Surveillance PFA: **25,276 (en 2021)**

- Nbre Site de Surveillance environnementale : **19 (en 2021)**

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### Indicateurs clés de la Surveillance

<table>
<thead>
<tr>
<th>Indicateurs collectés (surveillance polio)</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nombre d’échantillons (éch.) de PFA collectés</td>
<td>9413</td>
<td>7730</td>
<td>8303</td>
</tr>
<tr>
<td>Nombre d’éch. SE collectés</td>
<td>300</td>
<td>201</td>
<td>201</td>
</tr>
<tr>
<td>Nombre moyen de jours entre le prélèvement de l'éch. et la livraison au laboratoire polio</td>
<td>10</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Nombre d’éch. envoyés au laboratoire de séquençage</td>
<td>336</td>
<td>445</td>
<td>111</td>
</tr>
<tr>
<td>Nombre d'éch. de poliomyélite séquencés</td>
<td>336</td>
<td>445</td>
<td>111</td>
</tr>
<tr>
<td>Nombre moyen d’éch. ayant été transférés au labo de séquençage de 0 à 7 jours</td>
<td>27</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

Source : PEV DRC

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**N.B:** **1 province sur 26** assure le transport des échantillons polio dans le delai (Kinshasa – 2 jours)
Stratégies de course des échantillons polio vers le laboratoire en DRC

**GOULOTS D’ÉTRANLEMENT**

- Long délai de transport moyen des échantillons pour atteindre le Laboratoire National (La majorité de temps passe entre la FOSA – Point de transit (chef lieu de province) vers Kinshasa)

- Faible disponibilité des portes échantillons au niveau opérationnel

- Personnel non formé à la biosécurité/qualité des échantillons polio lors de transport

**SOLUTIONS PROPOSÉS**

- Reconfiguration et optimisation de circuit de transport principe d'utiliser les routes les plus courtes vers Kinshasa en tenant compte de la situation du terrain

- Signature des contrats avec des transporteurs privés et un renforcement de capacités des transporteurs et les infirmier(e)s Tutiliaire de CS sur la biosécurité de transport des échantillons polio

- Utilisation des appareils pour le suivi en temps réel et la qualité des échantillons vers le laboratoire national
Implémentation en RDC: Réalisations

Livrables réalisées

7 Circuits reconfigurés et optimisés de transport des échantillons polio avec cartographie des transporteurs des 116 ZS (Haut Lomami, Tanganyika, Haut Katanga, Lualaba, Sankuru, Equateur et Maiombé)

2784 Personnes (infirmier(e)s et transporteurs) formés en Biosécurités des transport des échantillons polio au niveau des FOSA,

10 Contrats signés avec les Transporteurs privés pour le transport des échantillons polio

7 conventions de collaboration signées avec les provinces et VillageReach pour paiement de transport des échantillons polio

1 document des procédures Opérationnel Standardisé sur le transport des échantillons polio (SOP)
Baseline and Initial Results: 7 provinces, DRC

Jan-Sep 2022 (n=1,142 AFP cases)

Quality
- 97% good condition

Data
- 79% complete

Timeliness
- 16.5 days

October 2022 (n=139 AFP cases)

Quality
- 96% good condition

Data
- 98% complete

Timeliness
- 10.8 days

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Thank you to our team

- Ministries of Health, EPI/Disease Control Programs, National and international laboratories
- Provincial, district/county/zone health departments + health facility and community health workers
- WHO AFRO + WHO country offices
- BMGF Polio team + BMGF consultants in countries

- VillageReach team members in Malawi, Mozambique, DR Congo, Tanzania, Kenya, Nigeria + Cote d’Ivoire, South Africa and USA
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