Global immunizations in the context of the COVID-19 pandemic

Dr. Robin Nandy
Principal Advisor & Chief of Immunization
UNICEF HQ

Vaccine Industry Consultation
21 October 2020

Photo: WHO DRC
Status of immunization programmes in the context of the Covid-19 pandemic

Opportunities to “reimagine” and build back better

Conclusions
Against a backdrop of disrupted services due to COVID-19 - WUENIC 2019 data shows continued stagnation

Release 15th July 2020

Almost 9 out of 10 children reached in 2019, but almost 20 million children un-or under vaccinated

Coverage of a third dose of vaccine protecting against diphtheria, tetanus, and pertussis (DTPc-3) remains at 85% in 2019, leaving 19.7 million children vulnerable to vaccine preventable diseases

The key goal of the Immunization Agenda 2030 is to make vaccination available to everyone, everywhere, by 2030.

While immunization is probably the most successful public health intervention, reaching 85% of infants is not enough. Coverage has plateaued over the last decade, leaving almost 20 million children unprotected. Almost half of these live in the African Region.
Never reached children mostly live in Africa

The African Region and countries affected by conflict are home to large numbers of “zero-dose children*”

The 14 million children who didn’t receive an initial dose of basic vaccines often lack access to immunization services and other health services.

Zero-dose children live disproportionately in the African continent and in countries affected by conflict. They are also likely to lack access to other health and welfare services and are subject to multiple deprivations.

Middle income countries such as the Philippines, Brazil, Mexico and Angola also have sizeable numbers of zero-dose kids.

If coverage is unchanged, by 2030, projected population increases in Africa will mean that 15 million children may be left out.

* Zero dose children defined as lacking DTP1
The Equity Reference Group identified four priority areas to address immunization inequities

https://sites.google.com/view/erg4immunisation/home
Comparison to before COVID
Reported change to the current level of vaccination services in May 2020 since January-February 2020

Source: Immunization Pulse Poll 2. Question 16, National respondents only. Analysis shows average response of all national level respondents within a particular country. The data collected are subject to limitations inherent to voluntary self-reporting, self-selection bias, not all countries responded, countries with only one response vis-à-vis countries with many, possibility of fraudulent responses and not having a sampling frame to make inferences. Furthermore, the information about each country does not represent official reporting from Member States to WHO or UNICEF. Thus, the results presented here need to be interpreted with caution and do not represent in any way a WHO or UNICEF position regarding any country or territory for which one or more replies were received.
Comparison of Administrative Dosing Data, 2019 versus 2020 (Jan – Jun)

Relative difference in administered doses by WHO region, DTP3

Total WHO Member States | Countries reported
-------------------------|----------------------
47 | Jan: 42, Feb: 41, Mar: 41, Apr: 34, May: 0, Jun: 0
21 | Jan: 5, Feb: 5, Mar: 5, Apr: 0, May: 0, Jun: 0
11 | Jan: 9, Feb: 9, Mar: 9, Apr: 5, May: 3, Jun: 0
27 | Jan: 5, Feb: 5, Mar: 5, Apr: 4, May: 0, Jun: 0

[Graph showing the relative difference in administered doses by WHO region, DTP3 for January to June 2020 and January to June 2021.]
Africa: impact on Immunization – Penta 3 Coverage (January-July 2019-2020)

- In AFR, ~1 million less children were vaccinated this year (first 6 months of 2020) compared to 2019.
- 20 countries have >10% reduction in number of vaccinated children either for DPT3 or MCV1 for the first half of 2020 compared to the same period in 2019.
Pulse survey provides insights into the demand and service disruptions

Many countries, especially in AFRO region report demand disruptions

Lack of PPE, lack of health workers and travel restrictions also affected service delivery
Immunization impact in the context of COVID-19 in Humanitarian Response countries

55 campaigns (at least one antigen) were postponed in 31 Global Humanitarian Response Plan (GHRP) countries
Immunization Campaigns were also disrupted (as of 15th October)

Map showing countries where 1 or more immunization campaigns has been postponed as a result of COVID-19

<table>
<thead>
<tr>
<th>Diseases/ Vaccines</th>
<th>No. of countries with postponed campaigns (fully or partially)</th>
<th>No. of campaigns postponed (fully or partially)</th>
<th>No. of campaigns postponed by regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measles/ Measles Rubella/ Measles Mumps Rubella (M/MR/MMR)</td>
<td>27</td>
<td>30</td>
<td>AFR 6 AMR 8 EUR 2 SEAR 5 WPR 3</td>
</tr>
<tr>
<td>Polio (IPV)</td>
<td>8</td>
<td>8</td>
<td>EUR 7</td>
</tr>
<tr>
<td>Bivalent Oral Poliovirus (bOPV)</td>
<td>11</td>
<td>12</td>
<td>AMR 3 EUR 3 SEAR 2</td>
</tr>
<tr>
<td>Monovalent Oral Poliovirus Type2 (mOPV2)</td>
<td>9</td>
<td>15</td>
<td>AMR 9 EUR 3 SEAR 3</td>
</tr>
<tr>
<td>Meningitis A (Men A)</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Yellow Fever (YF)</td>
<td>7</td>
<td>9</td>
<td>SEAR 2</td>
</tr>
<tr>
<td>Typhoid (TCV)</td>
<td>1</td>
<td>3</td>
<td>SEAR 1</td>
</tr>
<tr>
<td>Cholera (OCV)</td>
<td>4</td>
<td>5</td>
<td>SEAR 1</td>
</tr>
<tr>
<td>Tetanus (Td)</td>
<td>6</td>
<td>7</td>
<td>SEAR 2</td>
</tr>
<tr>
<td><strong>Total postponed</strong></td>
<td><strong>53</strong>*</td>
<td><strong>91</strong></td>
<td><strong>AFR 40 AMR 10 EUR 14 SEAR 5 WPR 8</strong></td>
</tr>
</tbody>
</table>

*Total no. of countries with at least one VPD immunization campaign postponed (fully or partially)

Reinstated campaigns in spite of COVID-19:

- CAR, Ethiopia, Somalia have reinstated Measles campaigns; Nepal with MR; Angola with bOPV, Mozambique with OCV and Mali with Td campaigns.
- Angola, Burkina Faso and Malaysia have reinstated outbreak response activities with mOPV2; the Philippines with bOPV; DRC and Nigeria with Measles and Uganda with YF.

Data source: WHO/IVB Repository, as of 15th September 2020
After a dramatic dip in March, weekly vaccine shipments are gradually recovering.
Risk-Benefit analysis for Routine Immunisation

<table>
<thead>
<tr>
<th>Vaccination schedule</th>
<th>Deaths averted by vaccination (95% UI)</th>
<th>Excess COVID-19 deaths (95% UI)</th>
<th>Benefit-risk ratio (95% UI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphtheria</td>
<td>12,944 (10,180–16,539)</td>
<td>5,674 (846–16,830)</td>
<td>2 (0–7)</td>
</tr>
<tr>
<td>Tetanus</td>
<td>69,254 (54,268–87,343)</td>
<td>5,674 (846–16,830)</td>
<td>12 (2–39)</td>
</tr>
<tr>
<td>Pertussis</td>
<td>271,422 (207,238–344,147)</td>
<td>5,674 (846–16,830)</td>
<td>48 (8–155)</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>3,827 (2,578–5,826)</td>
<td>5,677 (846–16,837)</td>
<td>1 (0–2)</td>
</tr>
<tr>
<td>Haemophilus influenza type b</td>
<td>54,840 (49,521–61,230)</td>
<td>5,696 (849–16,896)</td>
<td>10 (2–30)</td>
</tr>
<tr>
<td>Streptococcus pneumoniae</td>
<td>46,494 (40,002–55,014)</td>
<td>5,052 (725–14,579)</td>
<td>9 (2–29)</td>
</tr>
<tr>
<td>Rotavirus</td>
<td>10,666 (9,578–11,890)</td>
<td>2,391 (364–7,221)</td>
<td>4 (1–14)</td>
</tr>
<tr>
<td>Measles (MCV1)</td>
<td>194,388 (181,469–209,379)</td>
<td>1,896 (228–5,778)</td>
<td>103 (16–322)</td>
</tr>
<tr>
<td>Rubella (RCV1)</td>
<td>11,477 (7,38–16,79)</td>
<td>744 (85–2,264)</td>
<td>2 (0–5)</td>
</tr>
<tr>
<td>Neisseria meningitidis serogroup A</td>
<td>460 (235–665)</td>
<td>280 (34–856)</td>
<td>2 (0–6)</td>
</tr>
<tr>
<td>Yellow fever</td>
<td>23,345 (17,426–30,929)</td>
<td>875 (100–2,664)</td>
<td>27 (4–87)</td>
</tr>
<tr>
<td>Measles (MCV2; EPI-3)</td>
<td>10,282 (9,354–11,237)</td>
<td>751 (81–2,277)</td>
<td>14 (2–45)</td>
</tr>
<tr>
<td>EPI-1*</td>
<td>42,068 (40,068–54,290)</td>
<td>5,696 (849–16,896)</td>
<td>82 (14–263)</td>
</tr>
<tr>
<td>EPI-21</td>
<td>219,726 (204,572–235,744)</td>
<td>1,896 (228–5,778)</td>
<td>116 (18–374)</td>
</tr>
<tr>
<td>EPI+</td>
<td>701,828 (635,416–782,050)</td>
<td>8,341 (1,280–25,029)</td>
<td>84 (14–267)</td>
</tr>
</tbody>
</table>

Left: Risk-benefit modelling by LSHTM suggests that around 84 (14 – 267) lives are saved by continuing routine immunisation in Africa during a COVID-19 epidemic for every 1 life lost due to additional COVID-19 transmission.

Right: Even if the only benefit was averting measles outbreaks, the ratio is still highly favourable for continuing RI, with 3 (0-10) lives saved per additional COVID death.

Routine immunisation far outweighs the excess risk of COVID-19 deaths associated with vaccination clinic visits, especially for the vaccinated children.


Updated: 17 July 2020
Summary of modelling results

- The risk of not delivering critical services is greater than the risk of COVID-19 transmission

- Measles presents the greatest risk from COVID-19 related disruptions

- If routine coverage is not disrupted, then SIA postponement will have a smaller impact

- If routine coverage is disrupted, then SIA postponement will have a large impact across all models
Status of immunization programmes in the context of the Covid-19 pandemic

Opportunities to “reimagine” and build back better

Conclusions
WHO & UNICEF joint global guidance’s developed on continuation of immunization activities during COVID-19 pandemic.
### Changing context

COVID-19 impacts all aspects of immunization from supply to outreach services / demand from communities ... and the **economic impact** will affect health and immunization budgets.

Resumption of services will happen in an **uncertain environment**.

Existing inequalities will almost certainly be exacerbated.

Where COVID response mishandled public trust undermined.

### Approach

1. **Restore and revitalize** routine immunization services - Integrated within PHC

2. **Address immunity gaps** caused by COVID-19 response

3. **Expand immunization services** to missed (zero-dose) communities

4. **Plan for a COVID 19 vaccine** delivery
WHO & UNICEF joint position to re-imagine Immunization

Principles

**Build back better** - More efficient service delivery (e.g., smaller sessions, reduced waiting times, enhanced IPC practices, etc)

Adopt an **integrated** approach  →  immunization firmly integrated into PHC

Continued focus on **zero dose children**  →  to zero dose communities (address multiple deprivations)

Adopt a **systems approach**, e.g. cold chain/supply chain; stock tracking and management; social listening for vaccine misinformation and response; systematic application of behavioral insights

Emphasis on **service quality and experience**  →  Enhanced trust
Sudan: reimagining immunization

**Acceleration July 2020**
Routine acceleration campaign conducted in 7 states, 64 localities in last week of August; Second round of acceleration has started in the same states.

**23–28 Aug.**
Yellow fever mini catch up campaign has been conducted during 23-28 August in White Nile covered 442,936 (94%) children 9 month to 7 years in addition to 71,754 from SSR in the age 9 months to 60 yrs. (all about to expire YF vaccine has been utilized)

**12–18 Sep.**
IPV phase one has been conduct in 4 states (Northern 94%, River Nile 85%, Khartoum54% and white Nile 84% states)

**Since August 8, 2020**
Preparation for mOPV2 outbreak response campaign is ongoing, budget is real determent with the current economic situation. Campaign date will be decided based on OPRTT decision.
Afghanistan: reimagining immunization

- The National Immunization Strategy 2021-2025 is updated

- **PIRI** (four rounds with all routine antigens + four dose of bOPV for children 0-59M, one dose of IPV for children over 3.6M and a dose of MCV children 9-59M) has started in 4 provinces

- Preparation initiated in 6 additional provinces at risk of polio and other vaccine preventable disease.

- Training of 400 new vaccinators has been contracted out and the training courses are planned be to started in October 2020.
Ethiopia: Nationwide Measles Campaign

- Measles campaign vaccinated around 14,410,153 (96%) children.
- Community-based COVID-19 surveillance activities were used to track and vaccinate defaulter children in Amhara, SNNPR and Oromia regions
  - DPT1 (zero dose) – 2,873
  - DPT3 – 2,773
  - MCV2 – 13,439
Nepal: MR-SIA during COVID-19 Pandemic

**Phase I:** February 13 - March 13
- MR
- MR with OPV

**Phase II:** March 14 - April 12
- MR
- MR with OPV

### Particulars

<table>
<thead>
<tr>
<th></th>
<th>Pre lockdown (Mid-Feb to Mid-Mar 2020)</th>
<th>Post lockdown (15 May to 7 July 2020)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Districts</strong></td>
<td>35</td>
<td>42</td>
<td>77</td>
</tr>
<tr>
<td><strong>Target Population</strong></td>
<td>1,417,232</td>
<td>1,131,104</td>
<td>2,548,336</td>
</tr>
<tr>
<td><strong>Coverage</strong></td>
<td>1,637,666 (116%)</td>
<td>954,254 (84%)</td>
<td>2,591,920 (101.7%)</td>
</tr>
</tbody>
</table>
Overview

Status of immunization programmes in the context of the Covid-19 pandemic

Opportunities to “reimagine” and build back better

Conclusions
Conclusions

• COVID-19 provides the opportunity/necessity to push for “real” integration between the various immunization initiatives & into PHC for the most underserved – articulated in IA 2030

• The need to deliver services in a safe manner through a human centered design could enhance quality of services and enhance service experience and trust

• There will need to be a dual focus on the core immunization agenda and efforts to prepare for the delivery of a vaccine against the COVID-19 pandemic

• Substantial additional resources will be required for countries and partners like UNICEF & WHO to ensure necessary technical support

• Gavi 5.0 provides a mechanism to catch up and expand services to address equity gaps

• COVID-19 vaccine delivery should be used as an opportunity to strengthen systems as appropriate
Thank You