Vaccination in Africa and how it can be improved

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COVID-19 Deaths and testing rates in Africa (9 July 21)

<table>
<thead>
<tr>
<th>Population</th>
<th>COVID-19 reported cases</th>
<th>COVID-19 reported deaths</th>
<th>Testing rate/1000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>7.8 billion</td>
<td>185,51 million</td>
<td>4 million</td>
</tr>
<tr>
<td>Africa</td>
<td>1.3 billion (17%)</td>
<td>5.82 mil (3.2%)</td>
<td>148,701 (3.7%)</td>
</tr>
<tr>
<td>South Africa</td>
<td>59 million [4.5%]</td>
<td>2.135 [36.7%]</td>
<td>63,499 [42.8%]</td>
</tr>
</tbody>
</table>
Reported and modelled COVID-19 deaths in South Africa, 30 June 2021

Estimated number of excess natural deaths of persons 1+ years and death rates by province and metro, South Africa 2020/2021

<table>
<thead>
<tr>
<th>Region</th>
<th>Excess deaths 3 May 2020 - 3 July 2021</th>
<th>Excess deaths per 100,000 population</th>
<th>Age-standardised excess death rate per 100,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>182,369</td>
<td>306</td>
<td>306</td>
</tr>
<tr>
<td>Province</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Cape</td>
<td>34,400</td>
<td>523</td>
<td>421</td>
</tr>
<tr>
<td>Free State</td>
<td>10,644</td>
<td>366</td>
<td>366</td>
</tr>
<tr>
<td>Gauteng</td>
<td>36,520</td>
<td>234</td>
<td>257</td>
</tr>
<tr>
<td>KwaZulu-Natal</td>
<td>39,852</td>
<td>348</td>
<td>401</td>
</tr>
<tr>
<td>Limpopo</td>
<td>16,241</td>
<td>275</td>
<td>241</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>13,077</td>
<td>272</td>
<td>293</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>5,739</td>
<td>490</td>
<td>459</td>
</tr>
<tr>
<td>North West</td>
<td>8,578</td>
<td>213</td>
<td>219</td>
</tr>
<tr>
<td>Western Cape</td>
<td>17,318</td>
<td>245</td>
<td>216</td>
</tr>
</tbody>
</table>
Experience from 2009 H1N1 Pandemic

- Pandemic observed cases 491382 lab - confirmed cases; 18449 deaths.
- Estimated 284000 deaths.
- Africa and Southeast Asia (38% of the global population)
  - 5% reported cases during pandemic
  - 51% of deaths based on modelling post-pandemic.

Dawood F et al Lancet Infect Dis. 2019
Global status of COVID-19 vaccination, 9 July 2021

- **24.7%** of the world population has received at least one dose of a COVID-19 vaccine.
- **3.32 billion doses** have been administered globally, and **33.25 million** are now administered each day.
- Only **1%** of people in low-income countries have received at least one dose.
African manufacturers if human vaccines

- Senegal: producer of prequalified vaccine (yellow fever).
- Egypt: DTP and some fill-finish
- South Africa: Fill finish
- Tunisia: very limited BCG and rabies
- Ethiopia: starting....
Progression of vaccine development and introduction for LMICs

Conventional pathway to impact (circa 2019)???

Translation R&D gap
Discovery → Preclinical → Proof-of-Concept → Proof-of-Efficacy → Registration

Late Stage & Introduction gap
WHO policy & PreQual. → Proof-of-Effectiveness/Implementation

Coverage & Equity gap
Financing & Procurement → Uptake

A second valley of death???

Optimal formulation - dose - schedule identified

CROSSING THE VALLEY OF DEATH

Source David Kaslow; PATH. June 2019
H1N1 Vaccine distribution in Africa.

Vaccines - available Sept 2009

Feb - Nov 2010: With WHO support 32.2 million doses were delivered to 34 countries in Africa.

Of the 19.2 million doses delivered to 24 countries that reported their vaccination activities to WHO, only 12.2 million doses (64%) were administered.

Population coverage in these countries varied from 0.4% to 11%, with a median coverage of 4%.

*Mihigo et al. JID 2012:206 Suppl 1*
Key considerations:

- Under-ascertainment of burden of COVID19 cases and death in Africa.

- Limited access with dependency on COVAX for most countries.

- No manufacturing capacity, and access not necessarily immediately remediable through wavering of TRIPS.

- Ongoing evolution of variants of concerns with heightened transmissibility and immune evasion potential.

- Goal of vaccination to be focussed on high-risk groups in immediate future, not dissimilar to observations in HIC (age, diabetes, underlying cardiac and lung disease)

- Navigating of “Valleys of death” at multiple levels, including the final mile of implementation.
Daily COVID-19 vaccine doses administered per 100 people

Shown is the rolling 7-day average per 100 people in the total population. For vaccines that require multiple doses, each individual dose is counted.

Source: Official data collated by Our World in Data – Last updated 8 July 2021, 11:00 (London time)  OurWorldInData.org/coronavirus • CC BY