Plan

1. Covid-19 cases and deaths in Africa
2. The scramble for Covid-19 vaccines worldwide
3. The goal of COVAX
4. Covid-19 supply agreements: COVAX, the African Union, etc
5. Lessons from access to non-Covid vaccines: the Gavi model
6. Covid-19 vaccine rollout worldwide
7. Covid-19 vaccine rollout through Covax
8. Covid-19 vaccine roll out in Africa
9. Conclusion: access to HIV drugs in Africa in the 1990s
## Covid-19 cases and deaths in Africa

<table>
<thead>
<tr>
<th>WHO region</th>
<th>Cumul cases</th>
<th>Cases (%)</th>
<th>Cumul deaths</th>
<th>Deaths (%)</th>
<th>CFR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFRO (47 countries)</td>
<td>2,915,874</td>
<td>72.4</td>
<td>74,486</td>
<td>69.3</td>
<td>2.6</td>
</tr>
<tr>
<td></td>
<td>South Africa (56.6%), Ethiopia (6.2%), Algeria (5%), Kenya (4.8%), Nigeria (4.6%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMRO (7 countries)</td>
<td>1,109,883</td>
<td>27.6</td>
<td>33,033</td>
<td>30.7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Morocco (44%), Tunisia (21.7%), Egypt (17.1%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4,025,757</td>
<td>100</td>
<td>107,519</td>
<td>100</td>
<td>2.7%</td>
</tr>
<tr>
<td></td>
<td>South Africa (38%), Morocco (12.1%), Tunisia (6%), Egypt (4.7%), Ethiopia (4.3%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>South Africa (47.7%), Egypt (10.5%), Morocco (8.1%), Tunisia (7.8%), Algeria (2.8%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* EMRO-African countries refers to Djibouti, Egypt, Morocco, Libya, Somalia, Sudan, and Tunisia
Chaotic global scramble for Covid-19 vaccines

Usdin S. Biocentury, June 2020
Access to Covid-19 vaccines: COVAX

Ensuring global equitable access to COVID-19 vaccines

- Doses for at least 20% of countries' populations
- Diverse and actively managed portfolio of vaccines
- Vaccines delivered as soon as they are available
- End the acute phase of the pandemic
- Rebuild economies

With a fast-moving pandemic, no one is safe, unless everyone is safe

Gavi, The Vaccine Alliance, 2020
COVID-19 vaccine supply agreements (doses) by recipient country/group

UNICEF, 18 March 2020
Supply agreements by the African Union
Supply agreements by Covax
Access to vaccines: Gavi, The Vaccine Alliance

Saving children’s lives

and protecting people’s health

by increasing equitable use of vaccines

in lower-income countries

Gavi, The Vaccine Alliance, 2019
Why Gavi was launched: creating equal access to vaccines

In 2014

- High-income countries: 100% with national Hib vaccine programmes
- Low-income countries: 3% with national Hib vaccine programmes

Gavi, The Vaccine Alliance, 2015
Accelerating access, building equality

Before

<table>
<thead>
<tr>
<th>High-income countries</th>
<th>Low-income countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2008</td>
</tr>
<tr>
<td>86%</td>
<td>72%</td>
</tr>
<tr>
<td>51%</td>
<td></td>
</tr>
</tbody>
</table>

% of countries introduced vaccines nationally

After

<table>
<thead>
<tr>
<th>High-income countries</th>
<th>Low-income countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>91%</td>
<td>100%</td>
</tr>
<tr>
<td>100%</td>
<td>88%</td>
</tr>
<tr>
<td>100%</td>
<td>77%</td>
</tr>
</tbody>
</table>

Gavi, The Vaccine Alliance, 2017

Note: Only countries with universal national introduction are included. World Bank 2016 country classification has been applied to the whole time series.

Source: The International Vaccine Access Center (IVAC) VIMS database. Data as of 31 December 2017.
The Gavi business model: reinventing aid

Pooling demand of poorest countries

Long-term funding

Market shaping
Donor base
Co-financing

Accelerating access to vaccines

Supply
Demand

Shaping markets

Shaping markets

Strengthening vaccine delivery platforms

Sustaining immunisation

Transition out of support

Continued support

Gavi, The Vaccine Alliance, 2017
Gavi’s resource mobilisation model: a 3-pronged approach

1. Growing donor contributions
2. Reducing vaccine prices
3. Increasing country co-financing

2000: US$ 330m
2010: US$ 696m
2016: US$ 1,676m

Gavi, The Vaccine Alliance, 2017
Accelerating access: our vaccine portfolio


PNEUMO-COCCAL MULTIVALENT MENINGITIS INACTIVATED POLIO ORAL CHOLERA

HEPATITIS B PENTAVALENT MEASLES 2ND DOSE

YELLOW FEVER ROTAVIRUS MENINGITIS A

HIB HPV (CERVICAL CANCER)

MEASLES-RUBELLA JAPANESE ENCEPHALITIS

EBOLA TYPHOID

Gavi 1.0 Gavi 2.0 Gavi 3.0 Gavi 4.0

Year of first introduction/use of stockpile

>380 introductions and campaigns since 2000

Gavi, The Vaccine Alliance, 2017
Affordable and sustainable vaccine prices

Cost to immunise a child with a full course of:

- HEPATITIS B
- PENTAVALENT
- DTP
- HIB
- ROTAVIRUS
- PNEUMOCOCCAL
- INACTIVATED POLIO
- MEASLES
- RUBELLA
- HPV (CERVICAL CANCER)

Approx. USA price: US$ 1110

US$ 35

Gavi, The Vaccine Alliance, 2020
Immunisation coverage: closing the gap

High-income countries

Global average

Lowest-income countries

Gavi-supported countries

Expanded Programme on Immunization takes off

Stagnating immunisation coverage

Gavi support to world’s poorest countries

Launch of Gavi

96%

86%

80%

Post-Gavi increase 2000-2016

21% points

Gavi, The Vaccine Alliance, 2017
How the Gavi model works: co-financing

Vaccine price:
- Low-income country threshold
- Eligibility threshold
- End of Gavi financing

Initial self-financing
- Preparatory transition
- Accelerated transition
- Fully self-financing

Gavi, The Vaccine Alliance, 2017
How the Gavi model works: innovative finance

International Finance Facility for Immunisation (IFFIm)

Advance Market Commitment (AMC) for pneumococcal vaccine

Advance Purchase Commitment (APC) for Ebola vaccine

The Gavi Matching Fund

Gavi, The Vaccine Alliance, 2017
Access to Covid-19 vaccines: COVAX

Ensuring global equitable access to COVID-19 vaccines

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With a fast-moving pandemic, no one is safe, unless everyone is safe

Gavi, The Vaccine Alliance, 2020
State of Vaccines: key numbers (data at 12 March 2021)

• **94 days** since first countries started vaccinating¹, **75 days** since all EU countries received vaccines, and **11 days** since first use of COVAX doses²

• **335 million vaccine doses** have been administered:
  - 76% of these doses have been administered in 10 countries (29% in one country)
  - At least 9 different vaccines (3 platforms) have been administered³

• Campaigns **have started in 144 economies**:
  - incl. 70 HICs, 40 UMICs, 28 LMICs and 6 LICs
  - 79% of HIC/UMIC economies have started vaccination campaigns, while only 43% of LMIC/LIC economies have done so

• **COVAX has shipped doses to 37 countries** including 31 LMIC/LICs⁴:
  - 5 LMICs & 4 LICs have started their first campaigns thanks to COVAX doses
  - In total, ~29 M COVAX doses shipped

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1. Dec. 8, 2020 in the UK (Pfizer)
2. March 1 in Ghana and Côte d’Ivoire
3. Pfizer, Moderna, Gamaleya, Sinovac, Sinopharm, SII, Bharat Biotech, AZ, Johnson & Johnson
4. World Bank classification (2021). Note: The term country, used interchangeably with economy, does not imply political independence but refers to any territory for which authorities report separate social or economic statistics.

Source: Our World in data; WHO COVID-19 dashboard; Bloomberg, Reuters

WHO, 12 March 2020
State of Vaccines: rollout has started in 144 economies
(data at 12 Mar 2021)

<table>
<thead>
<tr>
<th>Economies classified by income level¹</th>
<th># of economies per income group</th>
<th># economies where vaccination has started</th>
<th>% of income group where vaccination has started</th>
</tr>
</thead>
<tbody>
<tr>
<td>High income economies (HICs)</td>
<td>83</td>
<td>70</td>
<td>84%</td>
</tr>
<tr>
<td>Upper-middle income economies (UMICs)</td>
<td>56</td>
<td>40</td>
<td>71%</td>
</tr>
<tr>
<td>Lower-middle income economies (LMICs)</td>
<td>50</td>
<td>28</td>
<td>56%</td>
</tr>
<tr>
<td>Low income economies (LICs)</td>
<td>29</td>
<td>6</td>
<td>21%</td>
</tr>
<tr>
<td>Total</td>
<td>218</td>
<td>144</td>
<td>66%</td>
</tr>
</tbody>
</table>

Status of Vx roll out per income group
- > 50% of countries
- 25% < X ≤ 50%
- 10% < X ≤ 25%
- ≤ 10%

List of economies where vaccination has started

**Andorra, Antigua and Barbuda, Aruba, Austria, Australia, Bahrain, Barbados, Belgium, Bermuda, British Virgin Islands, Canada, Cayman Islands, Channel Islands, Chile, Croatia, Curacao, Cyprus, Czech Republic, Denmark, Estonia, Faroe Islands, Finland, France, Germany, Greece, Greenland, Gibraltar, Hungary, Hong Kong SAR, Iceland, Ireland, Isle of Man, Israel, Italy, Japan, Kuwait, Latvia, Liechtenstein, Lithuania, Luxembourg, Macao, Malta, Mauritius, Monaco, Netherlands, New Zealand, Norway, Oman, Panama, Poland, Portugal, Qatar, Romania, Saudi Arabia, San Marino, Seychelles, Singapore, Slovakia, Slovenia, South Korea, Spain, St. Kitts and Nevis, Sweden, Switzerland, Trinidad and Tobago, Turks and Caicos, UAE, UK, Uruguay, USA

Albania, Argentina, Azerbaijan, Belarus, Belize, Brazil, Bulgaria, China, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, Equatorial Guinea, Grenada, Guatemala, Guyana, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Lebanon, Malaysia, Maldives, Marshall Islands, Mexico, Montenegro, North Macedonia, Paraguay, Peru, Russia, Serbia, South Africa, St. Lucia, St. Vincent and the Grenadines, Suriname, Thailand, Turkey, Venezuela

Algeria, Angola, Bangladesh, Bolivia, Cambodia, Côte d’Ivoire, El Salvador, Egypt, Ghana, Honduras, India, Kenya, Laos, Micronesia, Moldova, Nigeria, Mongolia, Morocco, Myanmar, Nepal, Nicaragua, Pakistan, Philippines, Senegal, Sri Lanka, Ukraine, West Bank and Gaza, Zimbabwe

Afghanistan, the Gambia, Guinea, Rwanda, Togo, Uganda

4 LMICs and 4 LICs have started vaccinations using COVAX doses in the last 5 days: Angola, Kenya, Moldova, Nigeria, Rwanda, Togo, The Gambia, Uganda.

¹ World Bank classification (2021). Note: The term country, used interchangeably with economy, does not imply political independence but refers to any territory for which authorities report separate social or economic statistics.

Source: World Bank; WHO COVID-19 dashboard; Our World in data; Bloomberg; Reuters
Total doses administered per 100 population


Note: The designations employed and the presentation of these materials do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

WHO, 12 March 2020
Which economies are using which vaccine(s)?

- 93 countries using 1 vaccine vs. 62 using 2 vaccines (or more)
- 54% of countries are using the AstraZeneca / Covishield vaccine

Source: Our World in data, WHO, Press research

WHO, 12 March 2020
In total, COVAX expects to deliver at least 2bn doses in 2021 of which up to ~1.8bn could go to AMC92

COVAX Facility secured volumes, Mn doses, 2021 and 2022

COVAX Facility available supply by AMC and SFP, Cumulative, Mn doses, 2021

1 Supply refers to volumes of vaccine available from the manufacturer. Timing of forecasts is based on anticipated release of doses from manufacturers. Volumes for expected single-dose regimen vaccine candidates doubled to ensure comparability across vaccine candidates. Volumes have been rounded to the nearest 5M.

2 Non-binding agreements include memoranda of understanding and statements of intent. Following the recently announced MoU with Novavax, negotiations on final terms of the agreement and the distribution of volumes between Novavax and SII are ongoing; updates will be published in due course.

Caveats:

Contracts: Some of the supply included in the projections are linked to deals that are already concluded and some are currently being negotiated. Terms are subject to change.

Candidate attrition: Some candidates are still in clinical development. If they do not achieve positive clinical trial outcomes (safety and efficacy) and regulatory approval, these volumes will not be procured by COVAX.

Regulatory approval: Supply timing will depend on regulatory success and timelines, including reviews of individual batches (“batch release”).

Manufacturing: In many cases, manufacturing is yet to reach full scale. Manufacturing productivity will be influenced by multiple factors, which will in turn influence volume and timing of supply.

Delivery: Timing of delivery will depend on various factors, including local regulatory approval, country readiness, logistics, indemnification and liability in place, in-country distribution etc.

Funding availability: Total potential supply is shown; procurement of these doses will depend on COVAX AMC fundraising, AMC92 cost-sharing beyond donor-funded doses, and the final prices and volumes of doses allocated to AMC92.

Allocation: These supply forecasts reflect a preliminary distribution of doses based on each participant’s share of available supply pro rata by demand and are to be treated as indicative. Final timing and volumes will be determined by the WHO Allocation Mechanism.
The wave of COVAX deliveries kicked off on 24 February 2021

- **24 February**: The first batch of COVAX doses has arrived in Ghana (600,000 doses)
- **26 February**: South Korea receives 117,000 COVAX doses
- **26 February**: 504,000 doses have landed in Côte d’Ivoire
- **2 March**: 3.94 million doses of COVAX vaccines arrive in Nigeria
- **1 March**: Côte d’Ivoire and Ghana start their first COVID-19 COVAX vaccinations

**SOURCE**: GAVI, WHO, 12 March 2020
In total, > 18 million COVAX doses have been delivered in two weeks.

- More shipments to come in the coming days and weeks
- Planned shipments for the next 7 days are available on the UNICEF Vaccine market dashboard

WHO, 12 March 2020
Countries that have received doses through COVAX

Note: The designations employed and the presentation of these materials do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

SOURCE: COVAX, WHO COVID-19 dashboard, Our World in Data; Press research

WHO, 12 March 2020
Public COVAX roll-out dashboard resources

1. Gavi for deliveries
   https://www.gavi.org/live/covax-vaccine-roll-out

2. UNICEF for planned shipments and POs
   https://www.unicef.org/supply/covid-19-vaccine-market-dashboard

3. WHO for vaccinations worldwide
   https://covid19.who.int/

WHO, 12 March 2020
Summary of Covid-19 vaccine rollout in Africa

- Seychelles,
- Mauritius,
- Algeria,
- Egypt,
- Morocco,
- Rwanda,
- South Africa,
- Equatorial Guinea,
- Zimbabwe,
- Senegal.

10 countries introduced COVID-19 vaccines before the COVAX vaccines delivery started on 24 Feb 2021.

WHO, 12 March 2020
LEFT TO DIE
When HIV drugs were introduced in the mid-1990s, AIDS-related deaths kept rising in Africa but fell sharply in the United States. It took another decade for deaths to decline in Africa.
Thank you

Charles Shey Wiysonge
Twitter: @CharlesShey
Email: Charles.Wiysonge@mrc.ac.za