



WHO evaluation strategy for COVID-19 Vaccines

21 October 2021

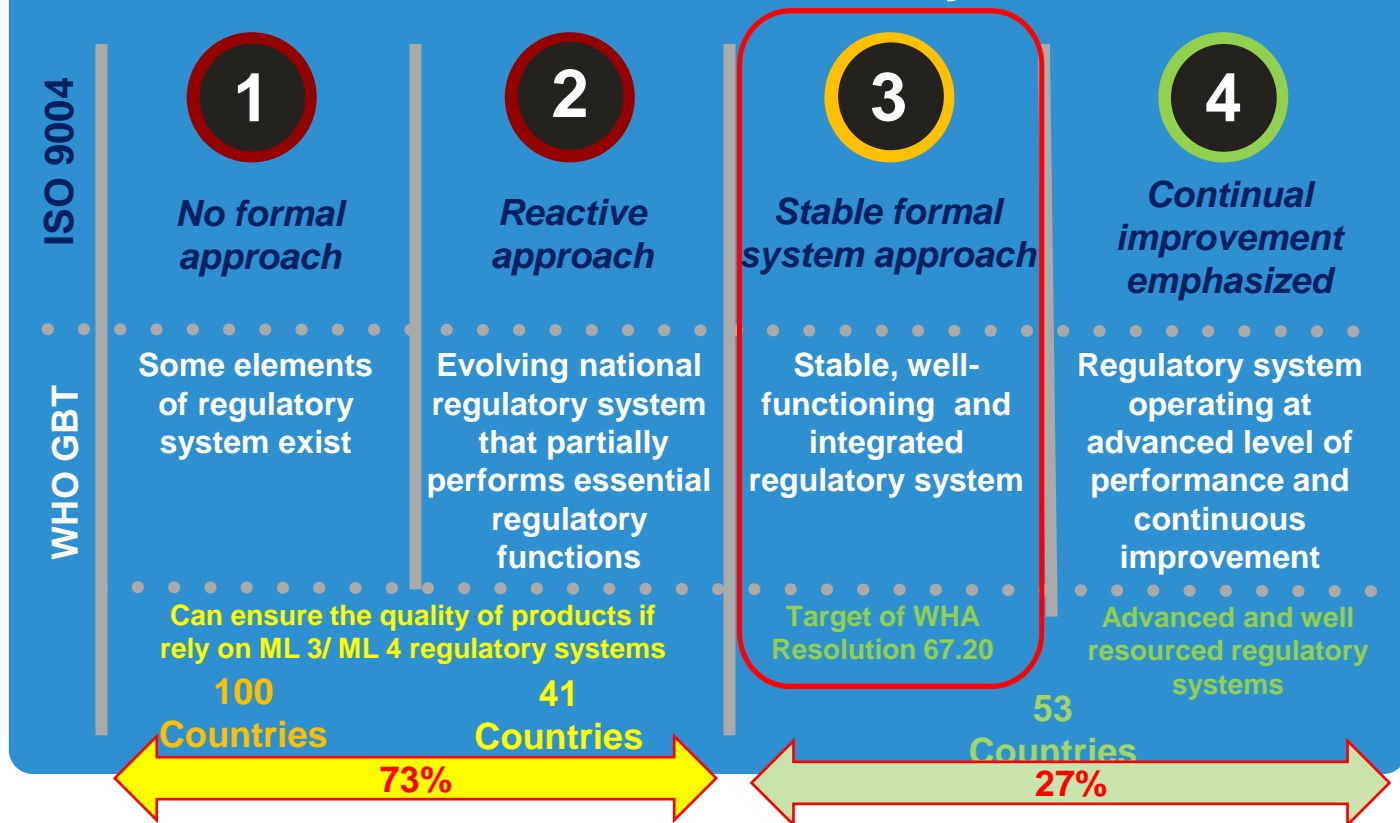
IPA, 6th Advanced GMP Workshop

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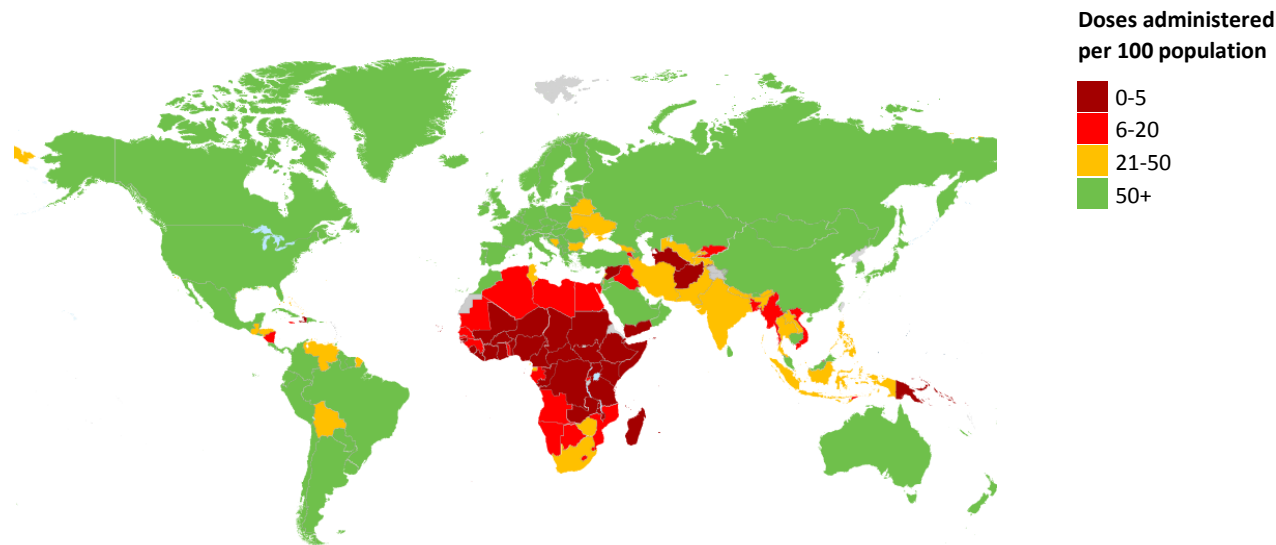


Current status of NRAs based on WHO GBT Performance Maturity Levels



5,484 M doses of COVID-19 vaccine have been administered¹ in 217 countries, areas, territories & economies²

Total doses administered per 100 population³



5,484M vaccine doses¹ have been administered

COVAX has shipped 236.6M doses to 139 participants⁴

Immunization programmes have not yet started in 3 countries, economies & territories

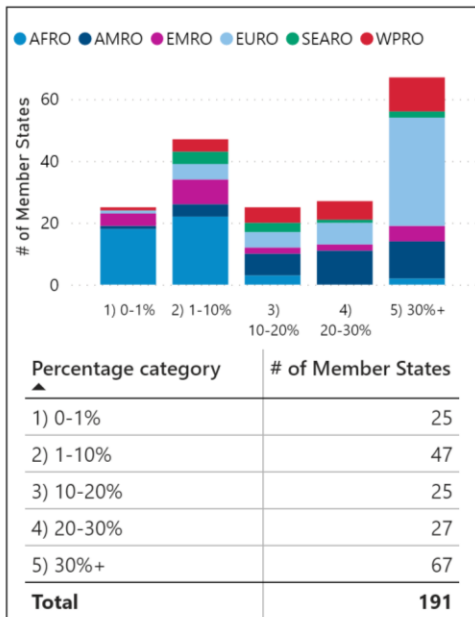
1. Source of data: WHO dashboard, Bloomberg; 2. Total of 220 countries, areas, territories & economies: 218 economies listed by World Bank + WHO Member states Cook Islands + Niue

3. WHO COVID-19 Dashboard at <https://covid19.who.int/>; 4. Including donations of 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.

Overview of % of total population fully vaccinated across WHO Member States

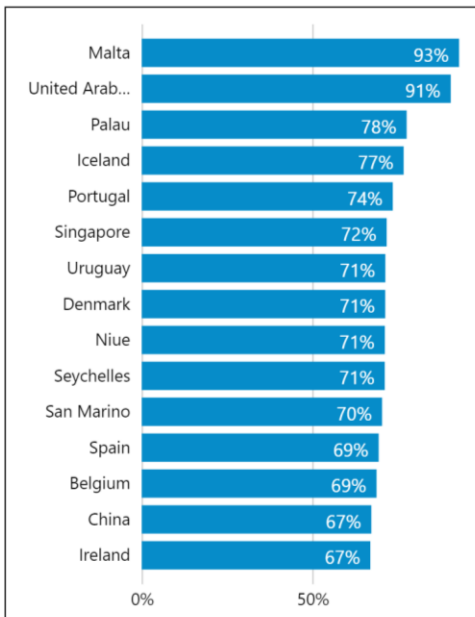
Breakdown of WHO MS by percentage of total population fully vaccinated



WHO MS with percentages of total population fully vaccinated of less than 0.35%

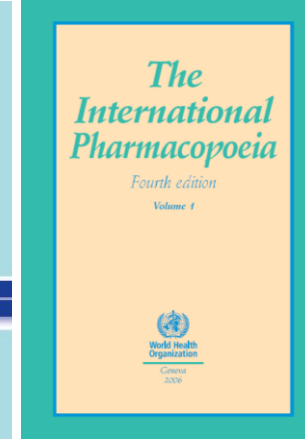
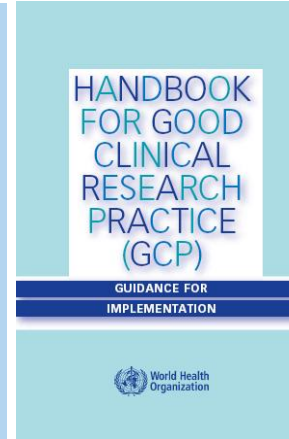
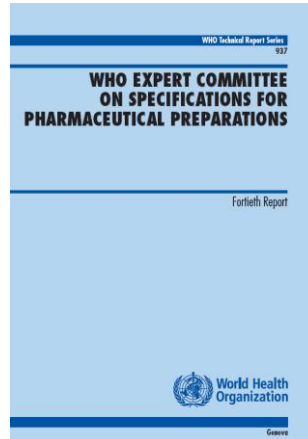
Member State name	% pop. fully vaccinated
Niger	0.35%
Madagascar	0.35%
Ethiopia	0.34%
Papua New Guinea	0.32%
Cameroon	0.29%
United Republic of Tanzania	0.18%
Turkmenistan	0.16%
Guinea-Bissau	0.15%
Chad	0.09%
Burkina Faso	0.06%
Yemen	0.04%
South Sudan	0.04%
Haiti	0.04%
Democratic Republic of the Congo	0.01%

DATA AS OF 31 AUGUST 05:37:54 UTC
Top 15 percentages of total population fully vaccinated



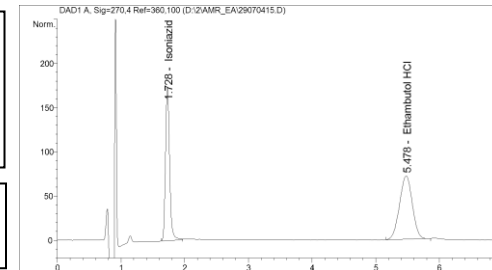
Source: WHO weekly COVID-19 vaccine administration data | **Notes:** Three MS have not introduced a COVID-19 vaccine: 1) Burundi, 2) Eritrea, and 3) DPR Korea. Six MS report only total COVID-19 vaccine doses administered: 1) Bulgaria, 2) China, 3) Kuwait, 4) Moldova, 5) Tanzania, and 6) UAE. For these, a theoretical population coverage was calculated assuming all administered doses were part of a two-dose series.

Prequalification Programme: International norms, standards and guidelines used to ensure wide applicability



USP
BP
Ph. Eur.
Ph. Int.

Other guidelines
e.g. ICH, ISO



Role of regulation: Promoting and protecting public health

Access



**Market
Control**

WHO EUAL/EUL background

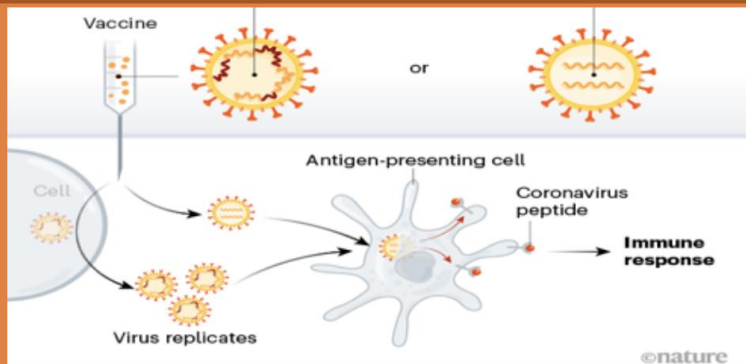
- WHO Emergency Use Assessment and Listing (EUAL) mechanism developed in response to the 2014 - 2016 Ebola outbreak
- Risk-based approach to expedite the availability of health products needed in public health emergency situations
- It is intended to assist interested procurement agencies and Member States on the suitability for use of a specific health products, based on a minimum set of available **quality, safety, and performance** data
- EUL status is time-limited

Types of COVID-19 candidate vaccines being developed

VIRUS VACCINES

Weakened virus

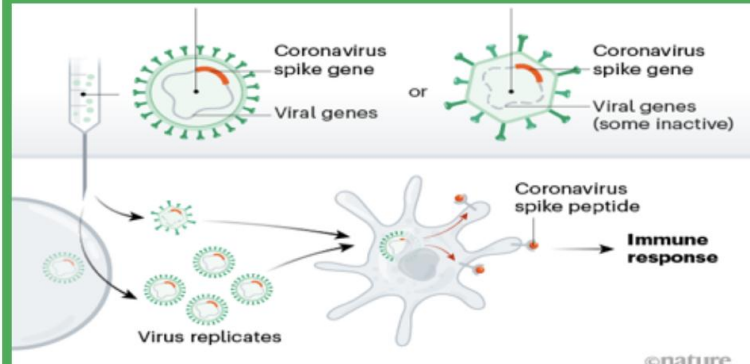
Inactivated virus



VIRAL VECTOR VACCINES

Replicating viral vector

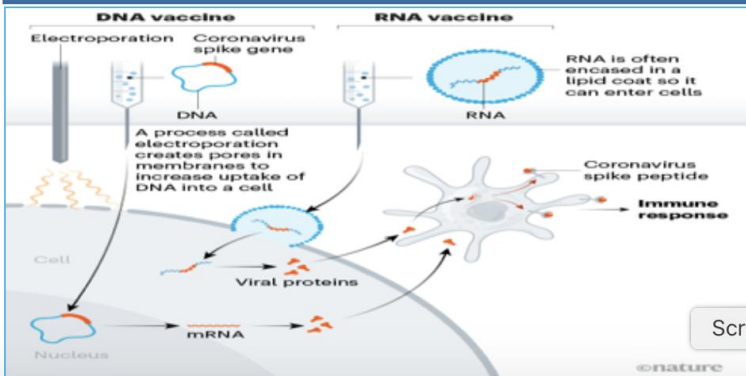
Non-replicating viral vector



NUCLEIC ACID VACCINES

DNA vaccine

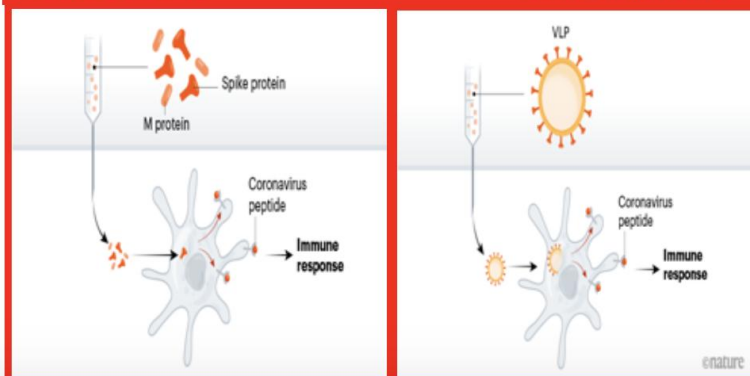
RNA vaccine



PROTEIN-BASED VACCINES

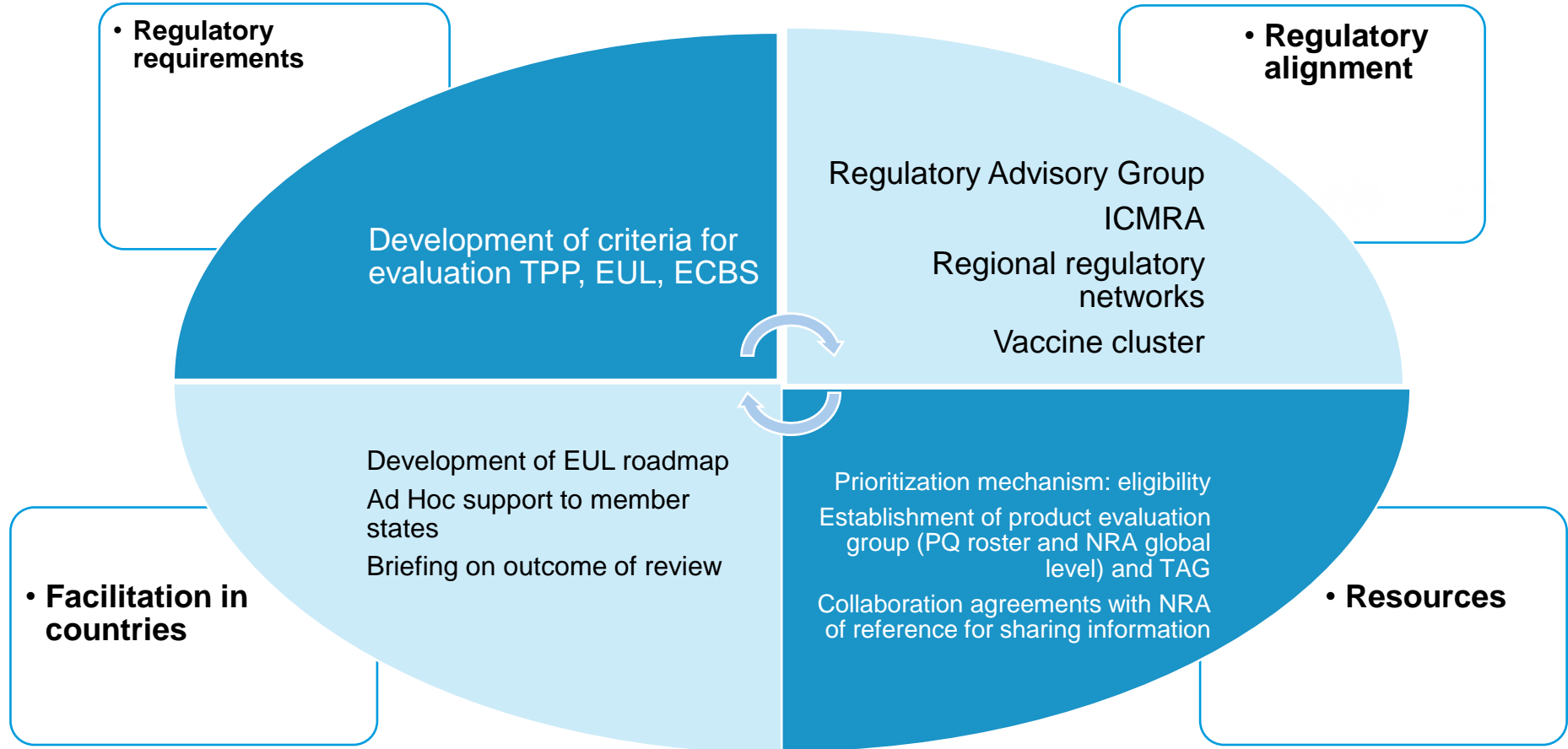
Protein subunits

Virus-like particles



Screenshot

Challenges and solutions



WHO alignment activities for COVID-19 vaccines ongoing since Feb 2020

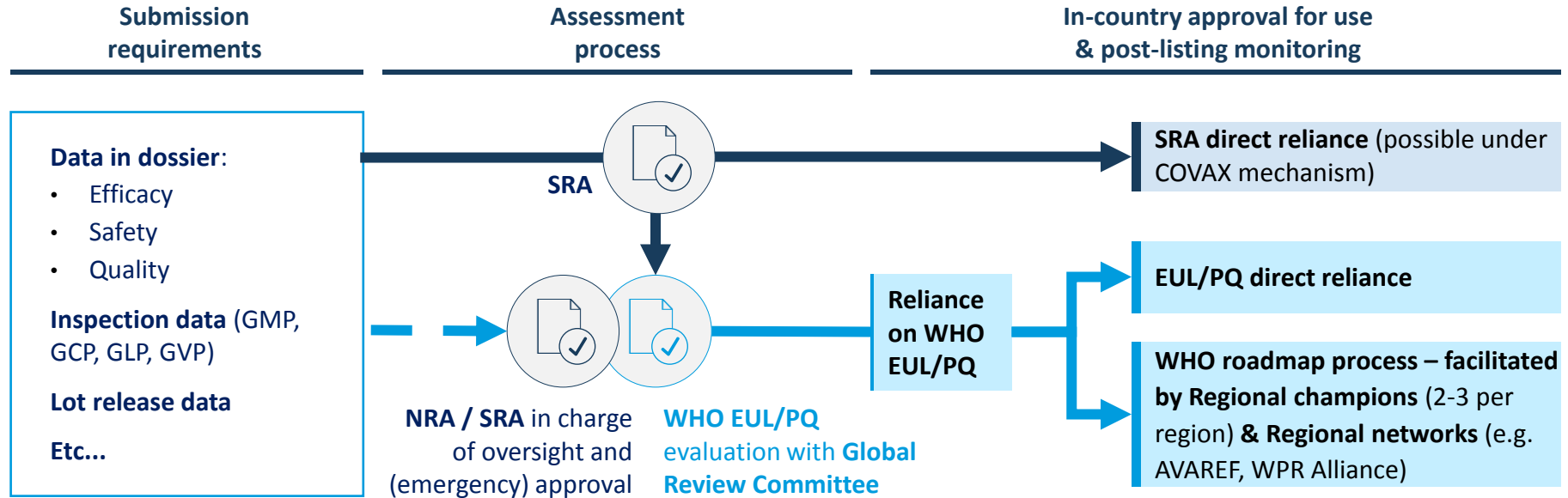


✓ Completed • Ongoing □ Details on following slides

Development criteria	Submission requirements	Assessment process	In-country approval for use & post approval monitoring
<ul style="list-style-type: none"> ✓ Target Product Profiles ✓ Expert Committee on Biological Standards guidance ✓ Regulatory guidelines 	<ul style="list-style-type: none"> ✓ EUL and PQ guidance and Questions & Answers ✓ EUL/PQ Expressions of Interest (conditions & evaluation criteria) • Labelling & packaging requirements 	<ul style="list-style-type: none"> • Evaluation of candidates for EUL/PQ (incl. inspection, lot release process & post-listing commitment) • Interactions & agreements with NRAs/SRAs* • Global assessment process* with region-designated national authority reps 	<ul style="list-style-type: none"> • Country regulatory reliance on EUL/PQ* • Support for safety monitoring (based on safety preparedness manual) • Tools for risk communication and strengthening response capabilities
<ul style="list-style-type: none"> • Roadmap* to enable product specific regulatory alignment (assessment process, in-country approval & post-listing monitoring) • Alignment ongoing (Regulatory Advisory Group, ICMRA, regional regulatory networks, Vaccine cluster etc.) • Regulatory updates and webinars • Best practice principles for regulatory “agility” 			

* Elements of the *Roadmap for WHO Assessment of vaccine x during the COVID-19 Public Health Emergency* ([model roadmap](#) published on 30 Oct 2020)

WHO regulatory alignment roadmap for COVID-19 vaccines: overview of recognized pathways, and summary of related alignment activities



- **Aligned requirements** with NRA / SRA in charge of oversight
- **Participant NRA requirements** captured
- **Single format for application** submitted by manufacturers

- **Interactions & agreements with NRAs/ SRAs in charge of oversight** early in process (incl. report sharing, aligned requirements)
- **Global assessment** with region-designated national authority representatives

- **Transparent sharing of reports** with all regulatory authorities for decision making process
- **Promotion of reliance principles** in countries based on facilitated pathways (direct, through regional networks, via regional champions/NRAs of reference)

Eligibility of candidate products

- The disease for which the product is intended is serious or immediately life threatening, has the potential of causing an **outbreak, epidemic or pandemic** and it is reasonable to consider the product for an EUL assessment, e.g., there are **no licensed products** for the indication or for a critical subpopulation (e.g., children);
- Existing products have not been successful in eradicating the disease or preventing outbreaks (in the case of vaccines and medicines);
- The product is manufactured in **compliance with current Good Manufacturing Practices (GMP)** in the case of medicines and vaccines and under **a functional Quality Management System (QMS)** in the case of IVDs; and
- The applicant **undertakes to complete the development of the product** (validation and verification of the product in the case of IVDs) and **apply for WHO prequalification** once the product is licensed







At least 17 vaccines deployed to date, of which 7 with WHO EUL and SAGE recommendations

At least 17 vaccines deployed to date...

- Adbala
- Anhui ZL - Recombinant
- AstraZeneca - Vaxzevria
- Beijing CNBG - BBIBP-CorV
- Bharat - Covaxin
- CanSino - Convidecia
- Chumakov - Covi-Vac
- Gamaleya - Gam-Covid-Vac
- Janssen - Ad26.COV 2-S
- Moderna - mRNA-1273
- Pfizer BioNTech - Comirnaty
- RIBSP - QazVac
- SII - Covishield
- Sinovac - CoronaVac
- Soberana02
- SRCVB - EpiVacCorona
- Wuhan CNBG - Inactivated



... of which 7 with WHO EULs and SAGE recommendations

	WHO EUL	SAGE	
		Interim recs	Update
	Dec 31 (2020)	Jan 5	June 14
	Feb 15 ¹	Feb 8	April 21 July 30
	Mar 12	Mar 17	June 14
	Apr 30	Jan 25	June 14
	May 7	May 7	
	June 1	May 24	

Further vaccines under evaluation

1. MFDS Korea EUL finalized Feb 15. EMA SK-Catalent followed Apr 16 and Wuxi (DS) Apr 30

Covid 19 vaccines

25 Covid 19 vaccines in the pipeline

12 vaccines listed

07 vaccines ongoing, (data expected)

06 vaccines planned

EUL listed vaccines

Different platforms
Different NRA oversight

Post EUL changes
Expansion capacity: New sites
New storage conditions
New indications, new presentations
Shelf life updates

Facilitation in countries:
Sharing dossier/reports > 400
> 90 countries
Briefing workshops
Ad Hoc consultation

SAGE product specific policy recommendations

Indicates recent updates to recommendation

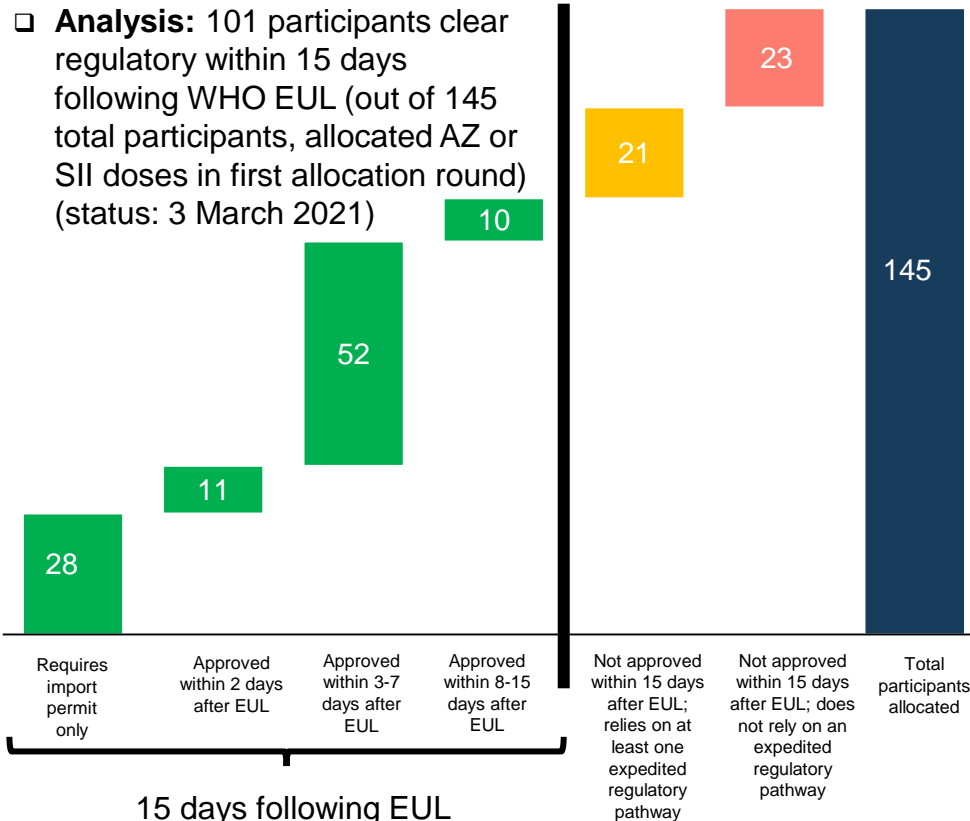
<div>Indicates recent updates to recommendation</div>						
WHO SAGE Interim Recommendations	Pfizer-BioNTech BNT162b2	Moderna mRNA-1273	Oxford University – AstraZeneca AZD1222 / ChAdOx1-S [recombinant]	Janssen-Ad26.COV2.S	Sinopharm COVID-19 vaccine BIBP	Sinovac-CoronaVac (COVID-19) vaccine
Vaccine Platform	← Messenger RNA →		← Viral Vector (Adenovirus) →		← Alum-adsjuvanted inactivated whole virus vaccine →	
Efficacy against symptomatic illness of any severity ¹	95%	94%	61-79%	72%	56-79%	56-89%
Post-introduction vaccine effectiveness (w/out VOC)	>90% (Israel, UK, US)	>90% (US)	>90% (UK)	NA	NA	>80% (Chile)
Storage requirements	Ultra cold chain -70°C ; -20°C (2 wks) 2 to 8°C (1 month)	Freezer -20°C ; 2 to 8° (1 month)	Standard cold chain 2 to 8°C	Freezer & Standard cold chain -20°C (24mos) ; 2 to 8° (3mos)	Liquid formulation in single-dose vial or prefilled syringe, requires Standard cold chain (+2-8°C), supplied with VVM	Liquid formulation in multi-dose vial (40 doses), requires Standard cold chain (+2-8°C)
Dosage	2 doses (3-6 wk intrv.)	2 doses (4-6 wk intrv.)	2 doses (8-12 wk intrv.)	1 dose	2 doses (3-4 wk intrv.)	2 doses (2-4 wk intrv.)
Minimum age	12 years (once other priority groups cov'd)	18 years	← 18 years →		← 18 years →	
Maximum age	← None →				← None, though limited data for 60+ is acknowledged. →	
Additional updates	Mix and match – mRNA vax (i.e. Pfizer or Moderna ²) 2 nd dose after 1 st dose of AZ					

1. Vaccine efficacy results are not comparable across vaccine products due to different case definitions of endpoints used in respective studies. For most recent official WHO recommendations, please refer to the SAGE Interim Recommendations, available online: <https://www.who.int/groups/strategic-advisory-group-of-experts-on-immunization/covid-19-materials>

2. Pfizer policy updated on 14 June 2021; AZ policy update issued 30 July 2021; Moderna policy update in process

Regulatory approaches adopted by countries under COVAX

- ❑ **Country granting Emergency-use authorization (EUA) using reliance**
 - Regulatory approach based on reliance to WHO PQ EUL (or Stringent Regulatory Authority EUA)
 - Some countries requested access by NRAs to documentation submitted by manufacturers to WHO PQ when applying for EUL, as well as respective assessment reports (issued by PQ).
 - Few countries insisted on the submission of an application by a manufacturer.
- ❑ **“Import authorization” or other authorization for use under exceptional circumstances**
 - Requirement for regulatory authorization is "waived", relying on referring to the WHO EUL.
 - Supply is based on an import authorization, without issuance of a national EUA.



Flexibilities to allow for continuation of mandate of PQT by performing:

- Remote real time inspections of BE sites, Vx sites, QCL, NCL, FPP
- Desk Reviews and reliance on work done by Mature NRA
- Joint inspections conducted with EMA Inspectors
- Extension of the WHOPIR validity from 3 years to 4 years
- EUL applications - Evaluation of QMS of manufacturing sites



WHO/Otto 8...



WORKING
TOGETHER

