

SPECIFICITÉS DE LA FABRICATION ET DU CONTRÔLE DES VACCINS

PRODUCTION VACCINS : HAUTEMENT COMPLEXE

Complexité croissante, contrôles et coûts de production



MOLECULE



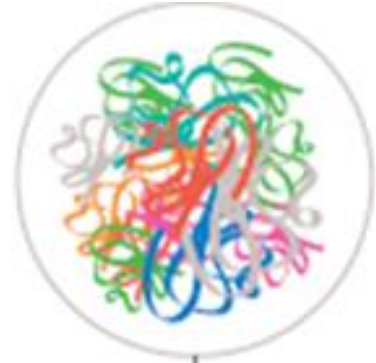
Médicaments
PETITES
MOLECULES

- Molécules petites, bien caractérisées
- Procédés et expérience solides
- Poids limité du contrôle qualité
- Coûts de production plus faibles



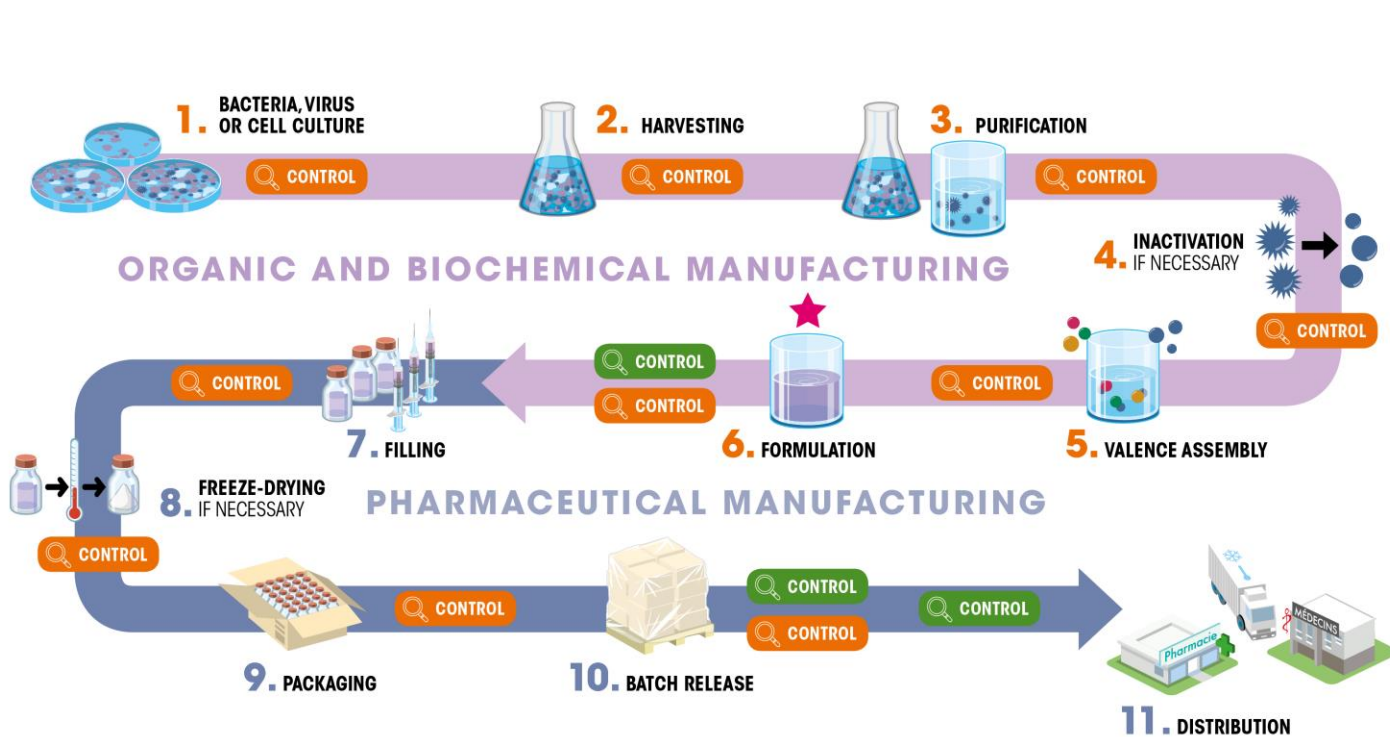
VACCINS
Virus
Bactéries
Protéines
recombinantes

- Grosses molécules, difficiles à caractériser
- Importance du contrôle qualité
- Formulation complexe
- Lots plus petits, nombreuses opérations complexes
- Contrainte de la sécurité virale (confinement biosécurité)
- Productions coûteuses



ANTIGEN

FABRICATION VACCINS: UN LONG CHEMIN!



INTERNAL CONTROL
70% of manufacturing time is dedicated to quality control
from **100** to **>1000** quality control for each batch

HEALTH AUTHORITIES CONTROL

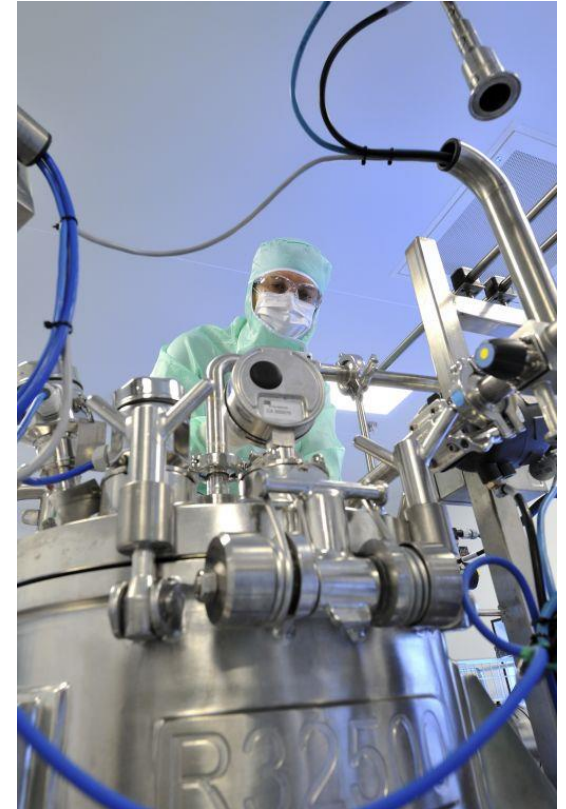
BEGINNING OF THE SHELF-LIFE

Each vaccine contains from **1** up to **9 ANTIGENS**

Production takes between **6** and **36 MONTHS**

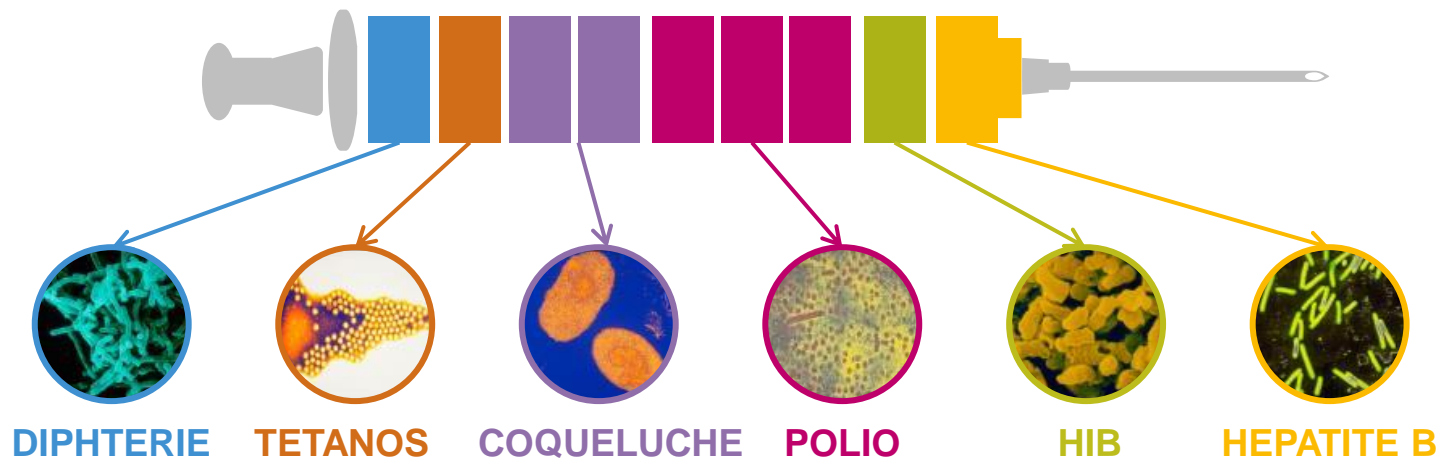
VACCINS, UNE FABRICATION COMPLEXE

- Industrie High tech / Biotech :
Savoir faire spécifique pour maîtriser les micro-organismes vivants
- **Supervision qualité tout au long de la fabrication**
 - Plus de 1000 personnes en France totalement dédiée à la Gestion de la qualité
 - Double contrôle par les autorités de santé



COMBINATION VACCINALE HEXAVALENTE

Une combinaison pédiatrique immunisant **contre 6 maladies**



1 Vaccin

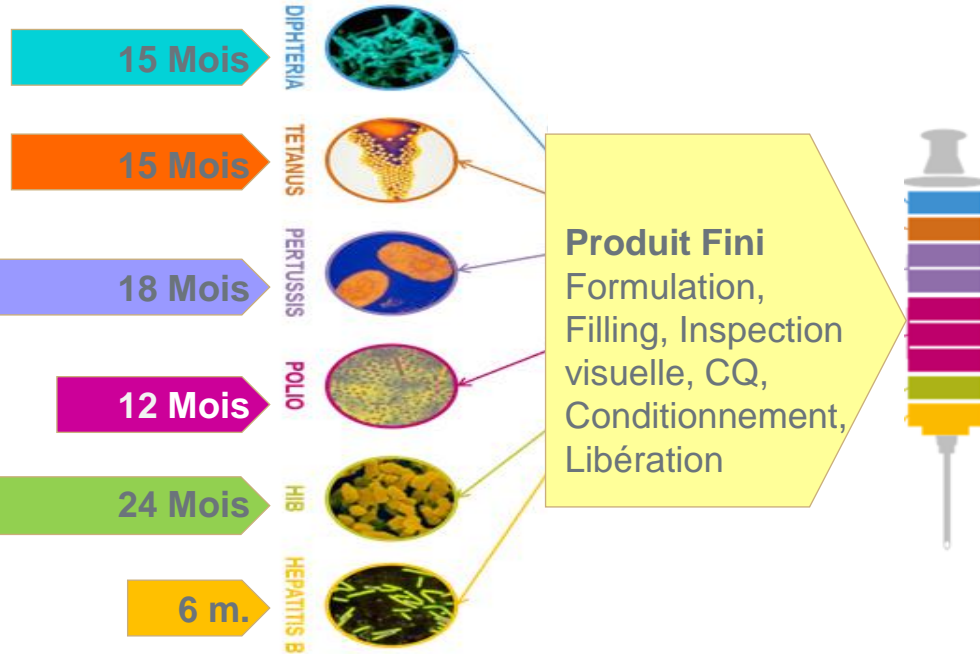
9 Antigènes

50 Etapes de fabrication

223 Méthodes Analytiques

1277 Tests Individuels

DOSSIER DE LOT VACCIN EN CHIFFRES



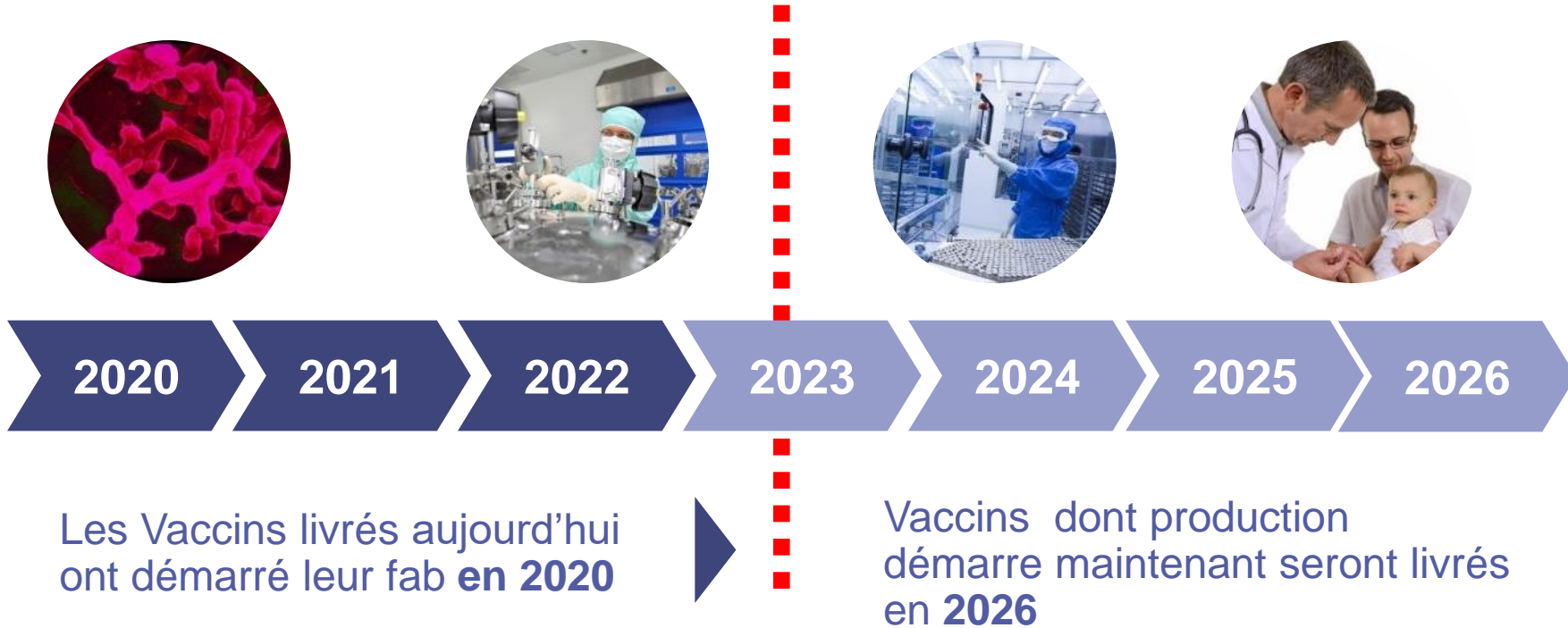
- ~ 1000 pages
- ~ 10 000 données
- > 50 pers complétant & double-vérifiant les saisies, + conformité aux limites et spécifications

ACTIVITES QUALITE POST LIBERATION

- Etudes de Stabilité
- Revue annuelle des échantillons de rétention (US CFR 21)
- Revue de Management du système qualité pharmaceutique
- Revues annuelles de qualité Produit
- Revalidations périodiques
- Réclamations techniques et Pharmacovigilance



ANTICIPATION OBLIGATOIRE: temps long entre prod & livraison



3 CHALLENGES PRINCIPAUX CONCERNANT LA FABRICATION VACCINS

1

COMPLEXITE & DUREE DE LA PRODUCTION

- Procédé Biotechnologie
- Cycle de production de 7 à 36 mois

2

AUGMENTATION NON ANTICIPEE DE LA DEMANDE GLOBALE

- Nombre limité de producteurs globaux

3

COMPLEXITE REGLEMENTAIRE

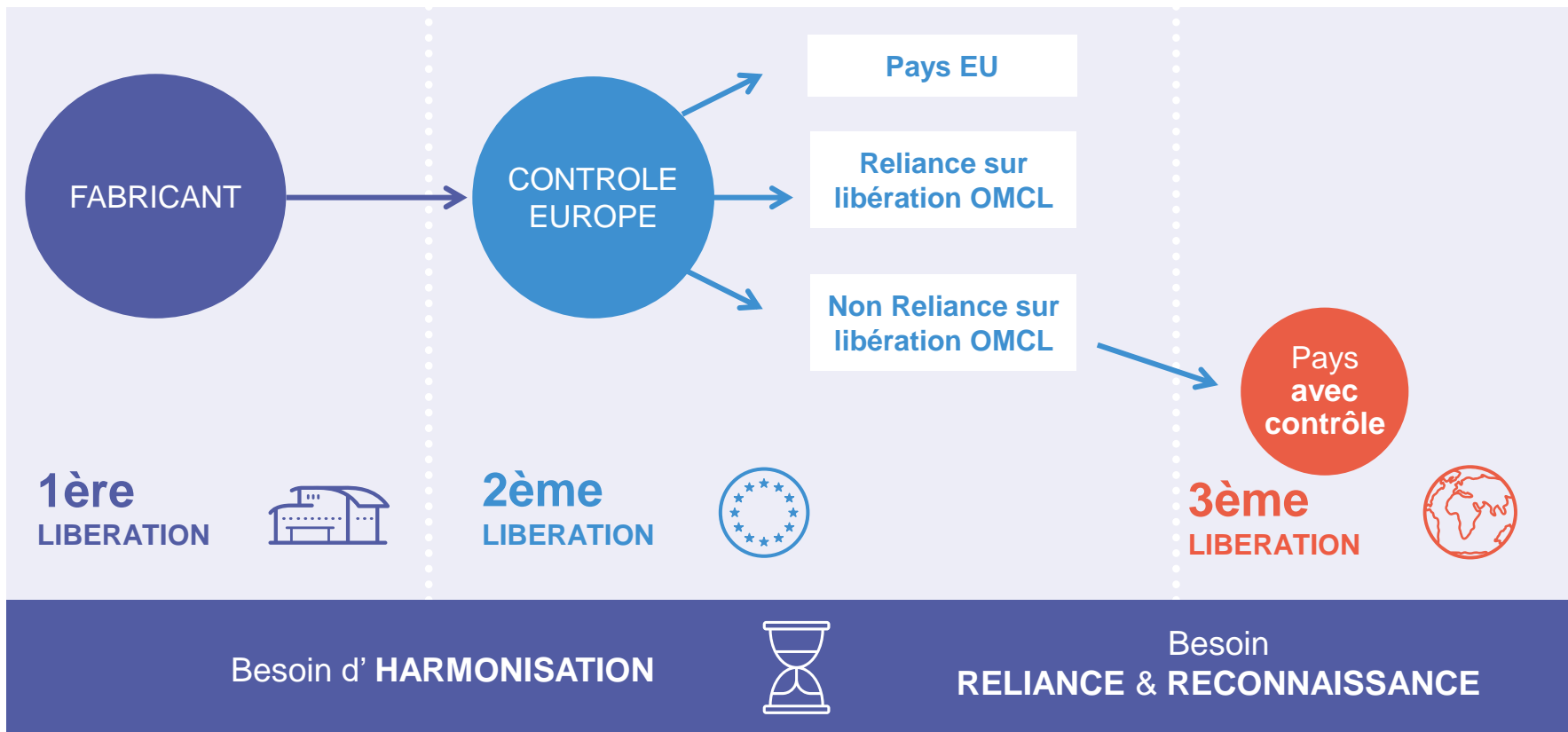
- TESTS REPETES MULTIPLES comptent pour 70 % du temps total de production
- VARIATIONS REGLEMENTAIRES

**COMPLEXITE
REGLEMENTAIRE**

COMPLEXITE REGLEMENTAIRE CROISSANTE

- LIBERATION DES LOTS PAR LES AUTORITES DE SANTE
- VARIATION POST APPROVAL

LIBERATION LOT PAR AUTORITES SANTE



CHALLENGE DES CHANGEMENTS POST APPROVAL

Companies sont
globalisées

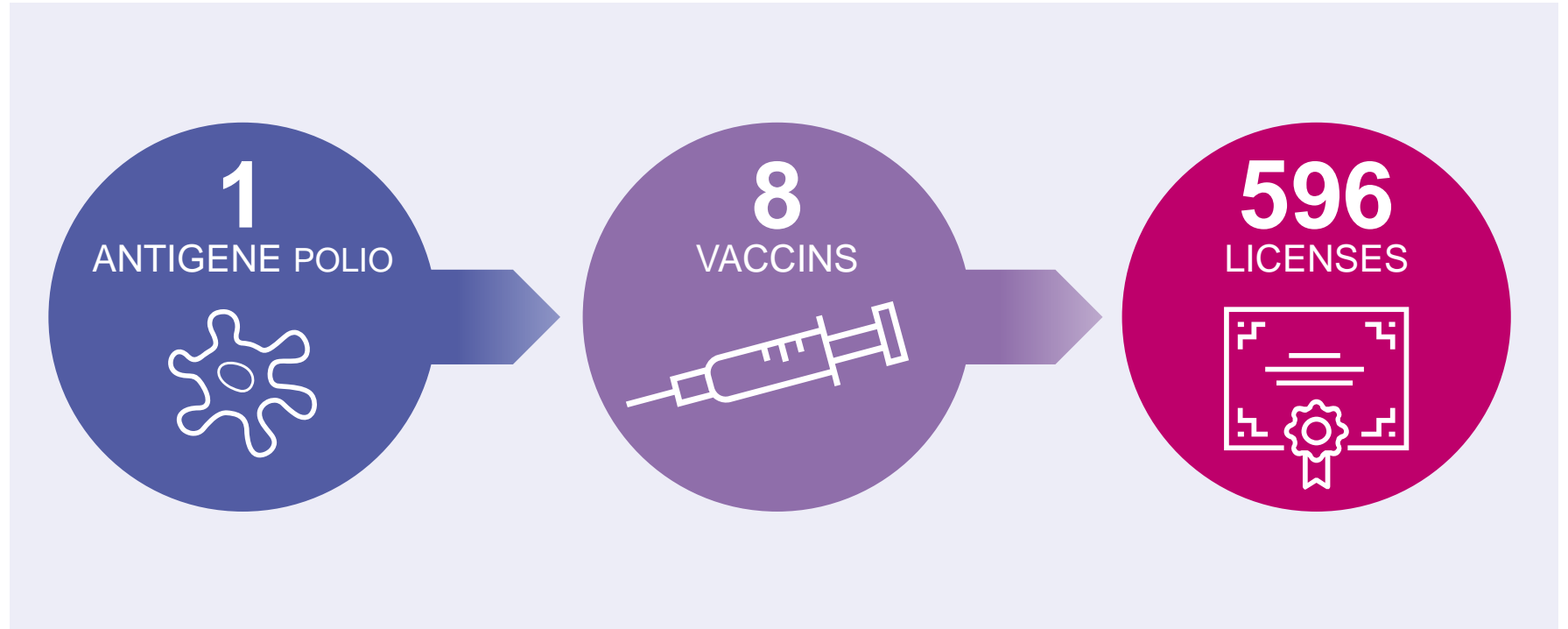


Approbations
réglementaires
sont nationales



1 ANTIGENE, PLUSIEURS VACCINS, ENREGISTREMENTS MASSIFS

Une énorme amplification



L'IMPACT D'UNE SEULE VARIATION

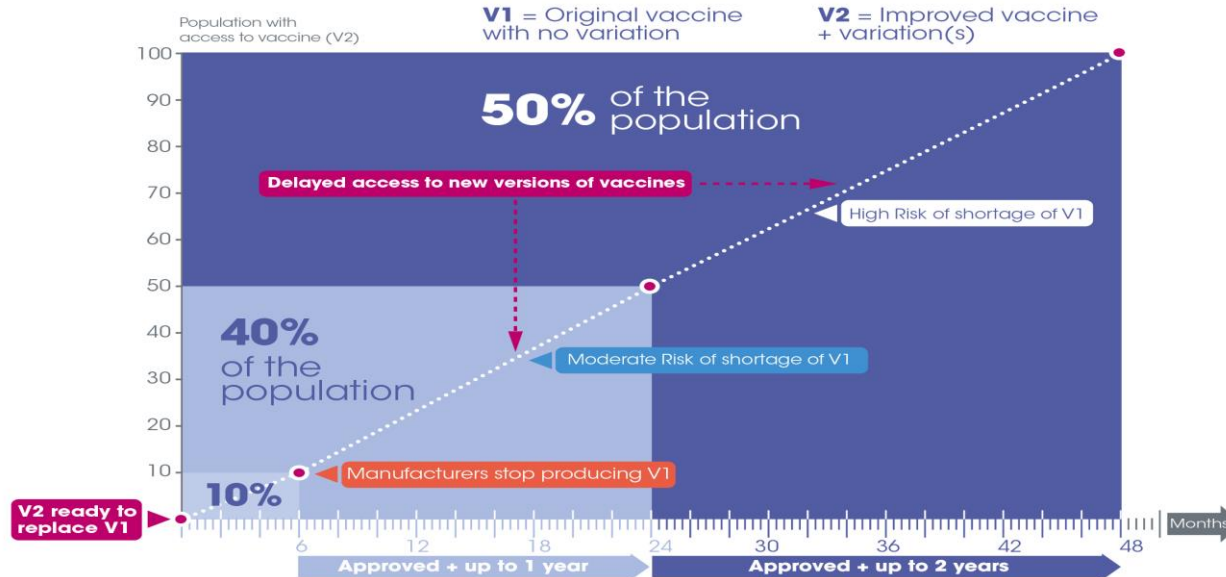


CHALLENGE des POST APPROVAL CHANGES



1 sur 2 est à risque de rupture du à Post Approval Changes

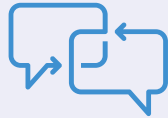
APPROVAL TIMES, RISK OF SHORTAGE AND INEQUITY



Source: IFPMA

APPEL A L'ACTION!

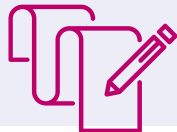
Créer un dialogue continu et ouvert entre les Institutions de Santé Publique & Industrie



Réduire la complexité des processus de libération des lots



Réduire le fardeau des changements réglementaires post approval



Chercher des solutions pour un approvisionnement amélioré



RELIANCE LIBERATION DES LOTS : WHO-NNB

WHO National Control Laboratories Network for Biologicals



World Health Organization

National Control Laboratory Network for Biologicals

WHO-NCL
Network for
Biologicals
(WHO-NNB)



Optimizing how we work together to accelerate access to quality, safe and efficacious vaccines and other biological products

Globalization of the vaccine industry and the increasing complexity of vaccines requires an international and collaborative approach to regulation

Launched in 2017, WHO-NNB is essential to WHO fulfilling its mandate to safeguard vaccines and facilitate and accelerate access to vaccines. NNB speeds up access to prequalified vaccines through sharing of lot release data of responsible national regulatory authority (NRAs) with recipient country NRAs.

THE NETWORK:

- builds mutual confidence among members
- promotes development of common standards
- facilitates sharing of best practices
- reduces redundant testing; liberating resources for other regulatory activities

"The WHO-NNB has proven to be an invaluable resource for us. By bringing together the national control laboratory community, the network not only facilitates the exchange of critical information and best practices, it has also contributed significantly to the implementation of a reliance approach in our lot release process."

Dr Quinton Meyer (PhD), Director
SA National Control Laboratory for Biological Products

EMERGENCY SITUATIONS - COVID-19

CHALLENGE:
Pandemic response requires an accelerated process if life-saving vaccines are to reach the population quickly. Many manufacturers developed vaccines against COVID-19 in record time. Regulatory processes risk slowing delivery of these vital health products to populations.

SOLUTION:
NNB enables the NRAs of importing countries, with the consent of the manufacturer, to view the NCL lot release data on the NNB SharePoint. Through this transparency and access to quality information an importing country can confidently rely on testing already undertaken.

BENEFIT:
Transparency around vaccine quality is enhanced, and trust is promoted between manufacturers and regulators. This saves financial resources and, most importantly, shortens the time taken to make the vaccine available for administration.

WORKING TOWARDS A FUTURE WHERE LIFE-SAVING
VACCINES ARE AVAILABLE FOR EVERYONE EVERYWHERE

PROMOTING GLOBAL COLLABORATION AND RELIANCE

► Information Exchange

Serving as a platform for confidential exchange of quality and technical information on vaccines (and other biological medicinal products) prequalified by WHO.

► Improving Procedures

Encouraging reliance on the batch release of the respective Network members by recipient countries and contributing to more cost-effective testing and more effective regulatory oversight.

► Forging Relationships

Cooperation and networking are increasing regulatory efficiency through greater reliance on existing quality resources, data and existing expertise.

► Sharing Best Practices

Promoting development of harmonized common standards and best practice, including the use of the 3R principles: reduction, replacement, refinement of animal based testing.

HOW CAN YOU PARTICIPATE

FULL MEMBERSHIP

- National regulatory authorities (NRAs)/national control laboratories (NCLs) from countries producing WHO-prequalified vaccines (or other biological medicinal products) who have responsibility for release of those vaccines
- WHO-contracted NCLs that perform physical testing of vaccines for WHO

ASSOCIATE MEMBERSHIP

CONCLUSION

- La fabrication des vaccins est longue et complexe
- Réduire la complexité réglementaire génère des **bénéfices de SANTE PUBLIQUE**
 - Facilite l'accès précoce des patients à l'innovation
 - Réduit les ruptures de stock et le temps de mise à disposition du marché
 - Permet une fourniture plus durable des vaccins et contribue à l'augmentation des taux de couverture & à la protection des populations
- Vaccination est un besoin global = nécessite une approche globale
- Coopération précoce entre les parties prenantes et anticipation sont clé

MERCI