



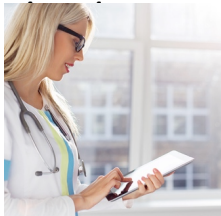
European Federation of Pharmaceutical  
Industries and Associations



# Prospects, Advantages and Challenges of Innovative Vaccines

Mel Kohn, MD MPH

European Parliament, May 23, 2018




**“Unlocking  
Tomorrow’s Cures”**





## Key Take-aways

- Vaccines are an important tool for protecting the public's health
- The great increase in effective vaccines in recent decades has prompted the development of many multicomponent vaccines
- Europe has been using multicomponent vaccines for many years
  - Currently most European countries recommend some multicomponent vaccines for routine use
- Despite the complexity and risks involved in developing and manufacturing multicomponent vaccines, vaccine manufacturers have worked hard to make these life-saving and innovative products available in Europe.

A young girl with dark hair is looking out of a car window. She is wearing a light-colored top. The background shows a blurred view of trees and a bright sky, suggesting a sunny day. The car's interior and window frame are visible in the foreground.

**“With the exception of safe water, no other modality, not even antibiotics, has had such a major effect on mortality reduction and population growth.”<sup>9</sup>**

**STANLEY A. PLOTKIN, MD**

**Vaccine Developer**

**Emeritus Professor of Pediatrics,**

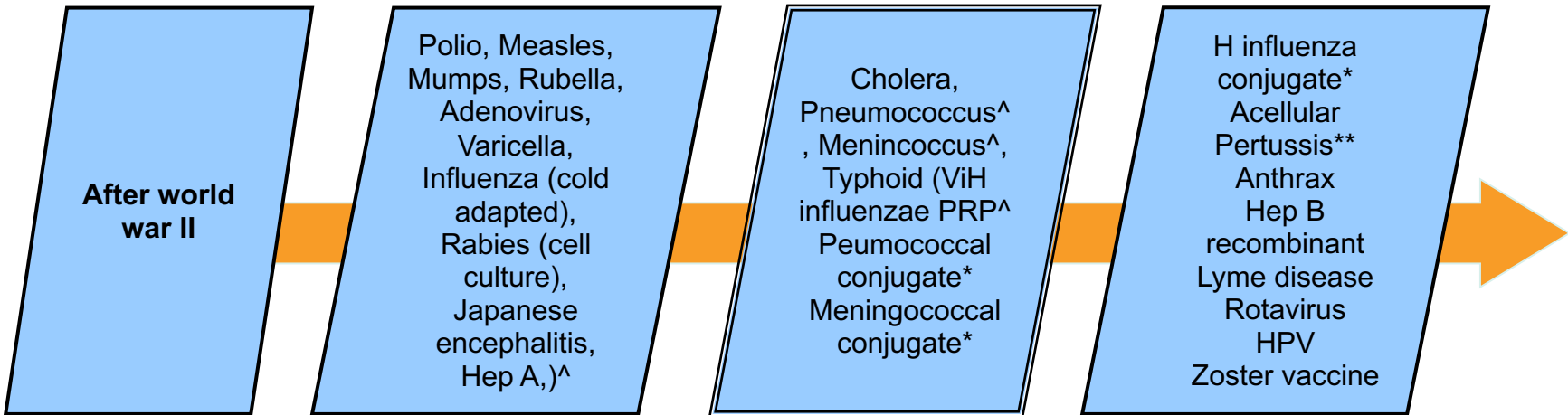
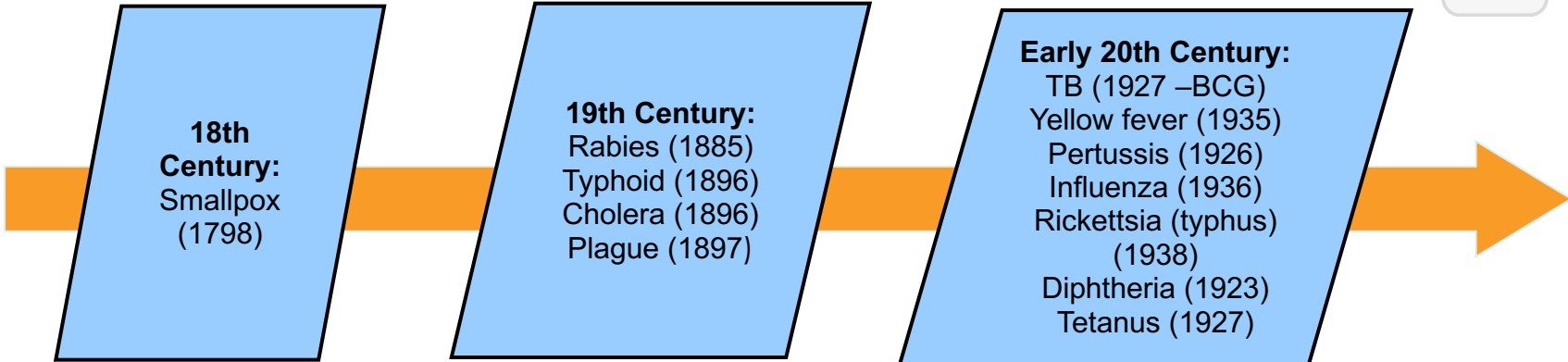
**University of Pennsylvania**

References:  
Plotkin SA et al. Vaccines, 5th ed. Saunders; 2008:Chapter 1:1–16.

**Emeritus Professor, Wistar Institute**



# The History of Vaccines



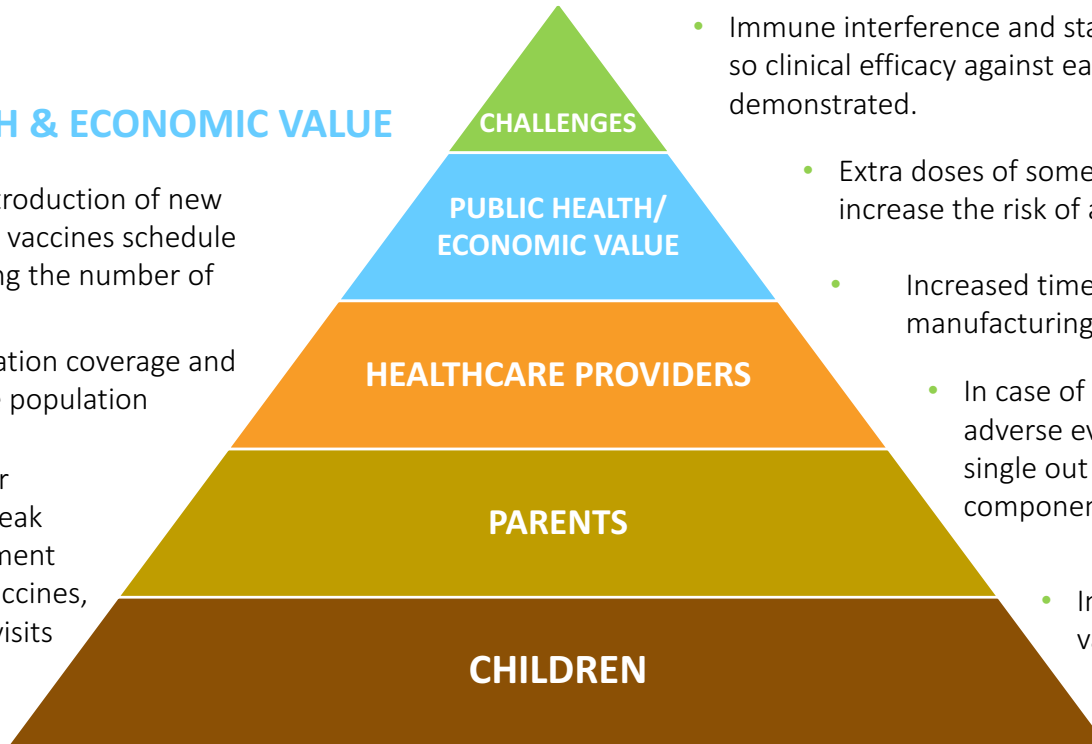


# COMBINATION VACCINES

## CHALLENGES

### PUBLIC HEALTH & ECONOMIC VALUE

- Allows for the introduction of new antigens into the vaccines schedule without increasing the number of injections
- Improved vaccination coverage and protection of the population
- Reduced costs for treatment, outbreak control, procurement and storage of vaccines, and vaccination visits



- Immune interference and stability may be issues, so clinical efficacy against each pathogen must be demonstrated.
- Extra doses of some antigens may increase the risk of adverse events
- Increased time and complexity of manufacturing and quality control
  - In case of allergic reaction or adverse event it can be difficult to single out the responsible component
- In general combination vaccines are more expensive

#### FOR CHILDREN

- Improved compliance and timeliness of vaccination leading to better protection
- Fewer potential local side effects **due to fewer injections**
- Reduces pain and discomfort for children **due to fewer injections**

#### FOR PARENTS

- Better acceptance from parents because of fewer injections
- Reduced time off and loss of productivity because of less need to return for deferred vaccinations

#### FOR HEALTHCARE PROVIDERS

- More efficient practice processes because of fewer administrative tasks, simplified supply and cold chain management
- Increased safety for healthcare staff due to reduced needle stick injuries from fewer injections



# Multicomponent Vaccines Are Widely Recommended in Europe

- Multicomponent vaccines covering 4 or 5 diseases at once are recommended for routine use in 26 European Union countries (as of January 2017)<sup>1</sup>

Vaccino	0-30gg	3' mese	4' mese	5' mese	6' mese	7' mese	11' mese	13' mese	15' mese	4' anno	11-12' anno	13-14' anno	15-44 anni	50-64 anni	> 64 anni
DTPa	DTPa	DTPa	DTPa							DTPa**					
IPV	IPV	IPV	IPV							IPV					
Epatite B	EpB - EpB*	EpB	EpB*				EpB								
Hib	Hib	Hb	Hb				Hib								
Pneumococco	PCV	PCV	PCV				PCV			**PCV			PCV/PPV		PCV
MPRV							MPRV			MPRV					
MPR							MPR			MPR					
Varicella							Varicella			MPR + V					
Meningococco C							MenC			MenACWY coniugato					
Meningococco B		Men B	Men B	Men B			Men B			Men B			Men B		
HPV										HPV 2 o 3 dosi					
Influenza							Influenza**						1 dose all'anno	1 dose all'anno	
Harper Zoster															1 dose†
Rotavirus							Rotavirus††								
Epatite A										EpA#			EpA#		2 dosi (0-6-12 mesi)

aP Pertussis (whooping cough)    PCV Pneumococcal disease  
 M Mumps    M Measles  
 IPV Poliomyelitis    R Rubella  
 Hib Haemophilus influenzae type b

\* Only for girls

<sup>1</sup>OBANDO-PACHECO P ET AL. NEW PERSPECTIVES FOR HEXAVALENT VACCINES VACCINE (2017)HTTP://DX.DOS.ORG/101016/J-VACCINE.2017.06.063





## Summary

- Vaccines are an important tool for protecting the public's health
- The great increase in effective vaccines in recent decades has prompted the development of many multi-component vaccines
- Europe has been using multicomponent vaccines for many years
  - Currently most European countries recommend multicomponent vaccines for routine use
  - Multicomponent vaccines contribute to
    - **Better adherence to immunisation programmes**
    - **Better compliance to immunisation schedules**
    - **Higher vaccination coverage**
    - **Reduced burden of vaccine preventable diseases**
- Despite the complexity and risks involved in developing and manufacturing multicomponent vaccines, vaccine manufacturers have worked hard to make these life-saving and innovative products available in Europe.



THANK YOU!

Q&A

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CURES

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