



# Virology PHA-354

## Lecture Series I

# History of Vaccination

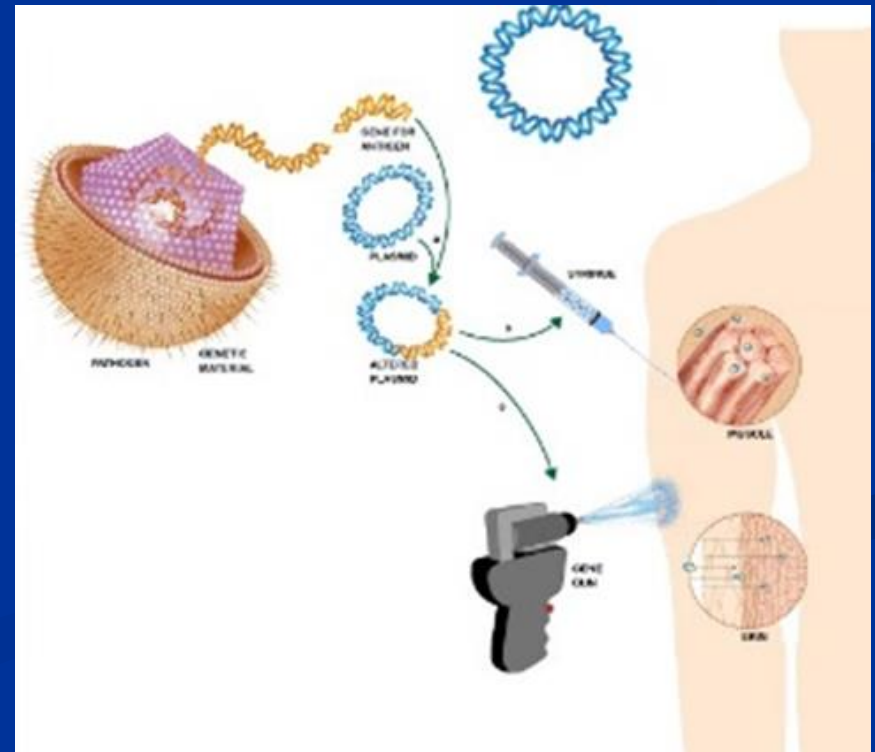
Dr. Haitham M. Amer, DVM, Ph.D.

Virology Department, Faculty of Veterinary Medicine, Cairo  
University, Giza, 12211, Egypt

# Principle of vaccination

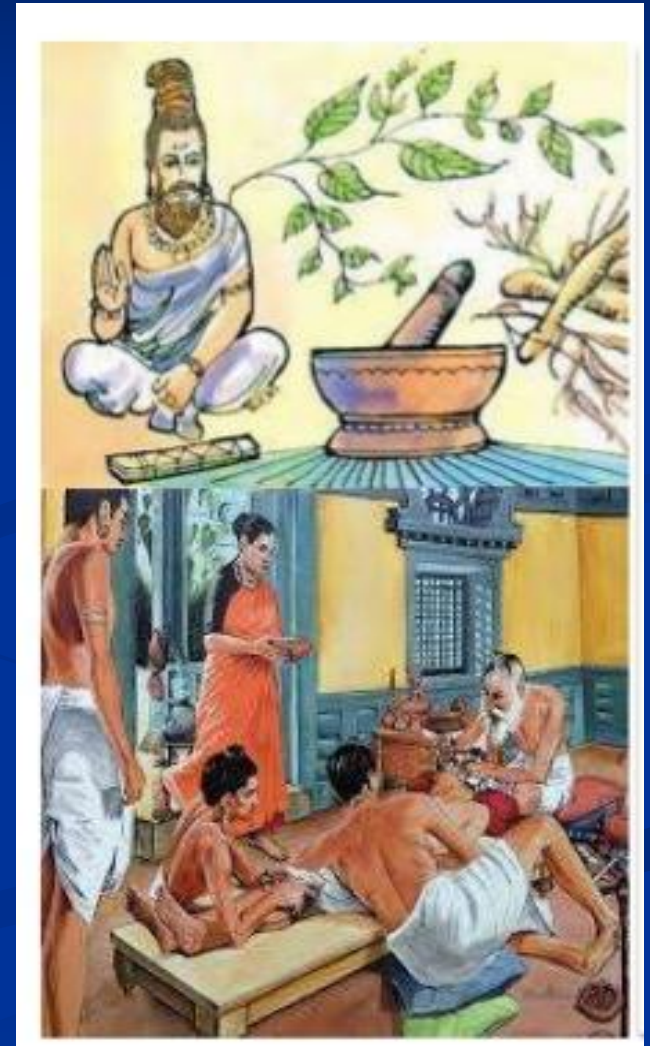
The vaccine tricks the immune system of the body to produce effector cells, proteins and antibodies to fight a form of the microbe that is not harmful.

When the host encounters the real threat, the body is ready to prevent it from harming the body



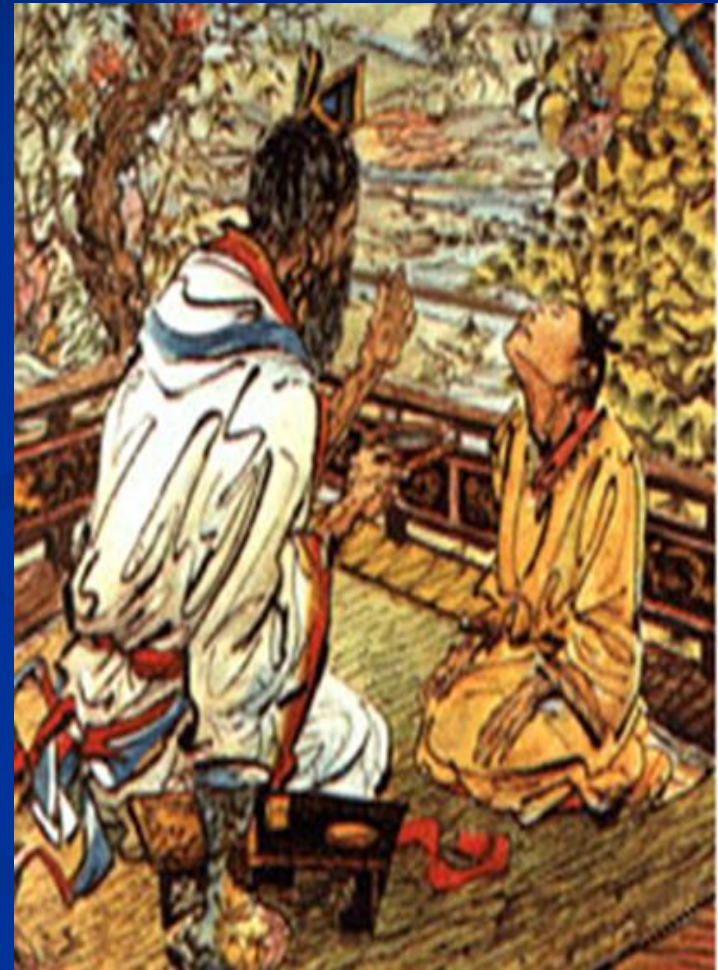
# Early form of immunization

It is mentioned in the ancient Ayurveda text that Buddhist monks drank snake venom to confer protection to snake bite.



# Variolation

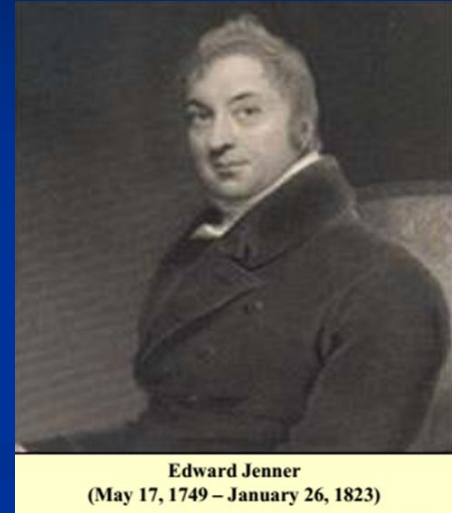
- The idea of attenuation of virulent infections was developed slowly over time.
- Variolation was started in China 1000 AC ..... India .... Turkey and Africa ..... Europe and Americas.
- The method involved grinding up smallpox scabs and blowing the matter into nostril.
- Inoculation have also been practiced by scratching matter from a smallpox sore into the skin.





# Edward Jenner

In 1796, Jenner inoculated a young boy in England with cowpox material to create immunity against smallpox.



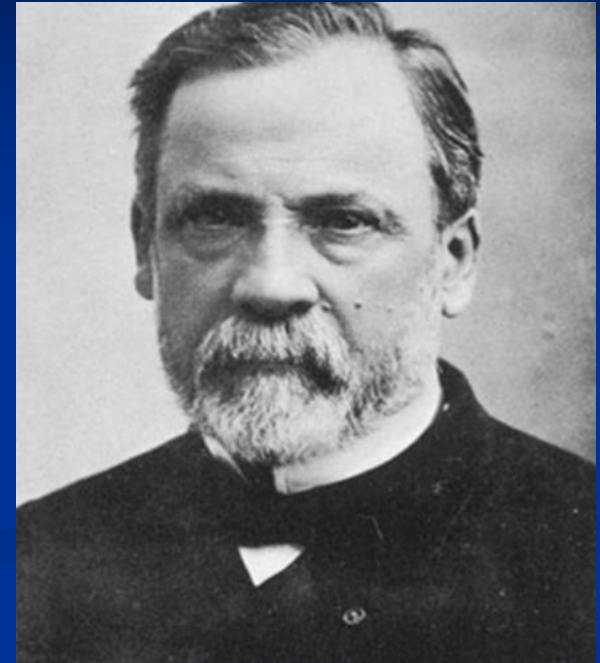
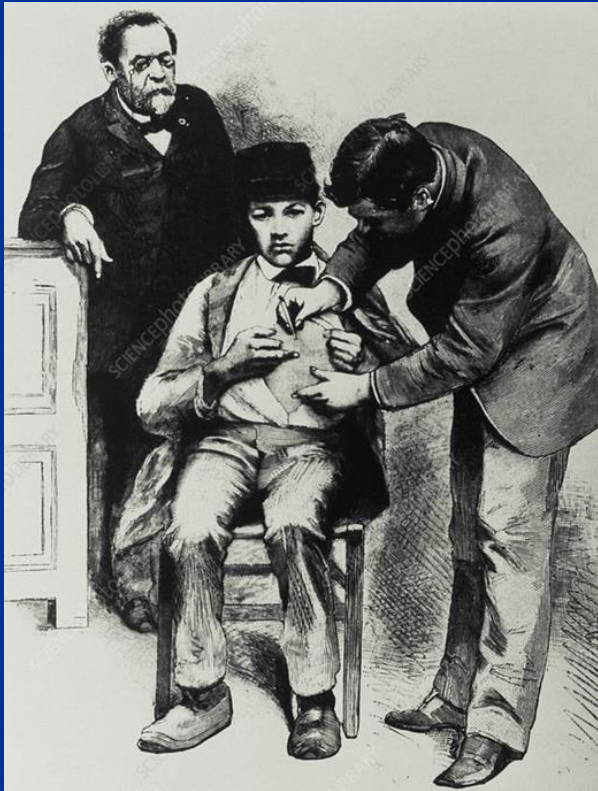
Edward Jenner  
(May 17, 1749 – January 26, 1823)

The method underwent medical and technological changes over the next 200 years.

Vaccination (from vacca=Cattle).

# Louis Pasteur

In 1885, Pasteur developed live rabies virus vaccine and used it in treatment of **Josep Meister**, a nine-year-old boy who had been bitten multiple times by a rabid dog.



Louis Pasteur  
(December 27, 1822 – September 28, 1895)

He also developed artificially attenuated microorganisms for vaccination against Anthrax in sheep, and fowl cholera (*Pasteurella*).

# 1890 - 1925

- Tetanus – first vaccine in 1890
- BCG (Bacillus Calmette-Guérin) – vaccine against tuberculosis. First used in humans in 1921, but widespread only after World War II.
- Diphtheria – first successful vaccine in 1923
- Pertussis – first successful vaccine in 1925 by Thorvald Madsen



Léon Charles Albert Calmette  
(July 12, 1863 – October 29, 1933)

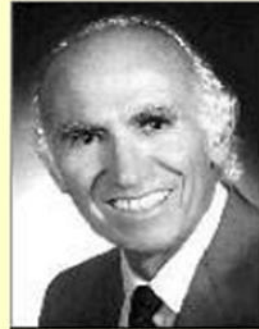


Jean-Marie Camille Guérin  
(December 22, 1872 - June 9, 1961)

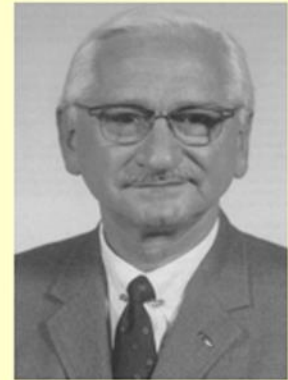


# 1942 - 1985

- DTP vaccine by Kendrick – 1942
- Polio vaccine by Salk – 1952
- Polio vaccine by Sabin – 1961
- Measles – 1963
- Mumps – 1967
- Rubella – 1970
- Hepatitis B – 1981
- Haemophilus influenzae B – 1985



Jonas Edward Salk  
(October 28, 1914 – June 23, 1995)

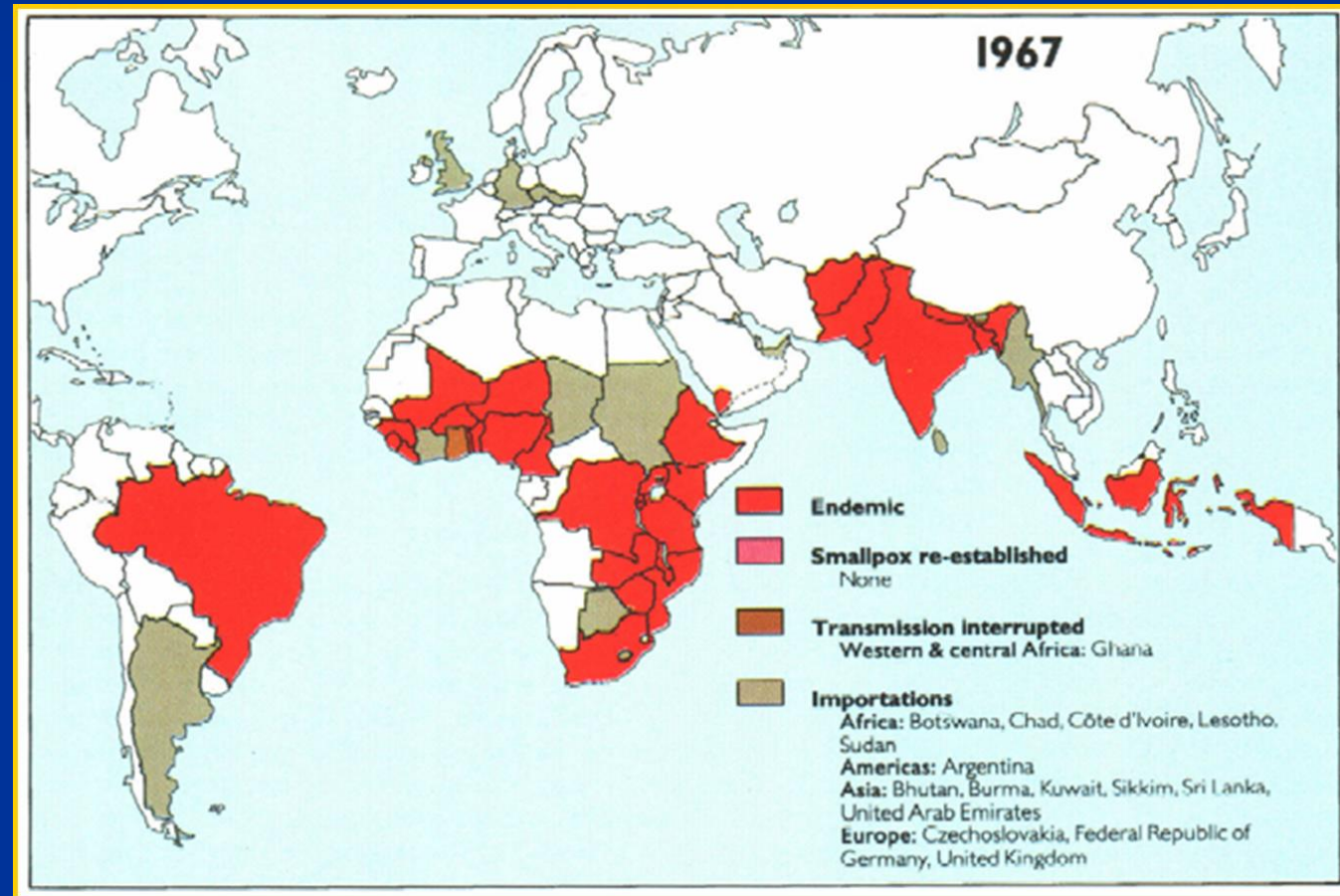


Albert Bruce Sabin  
(August 26, 1906 - March 3, 1993)



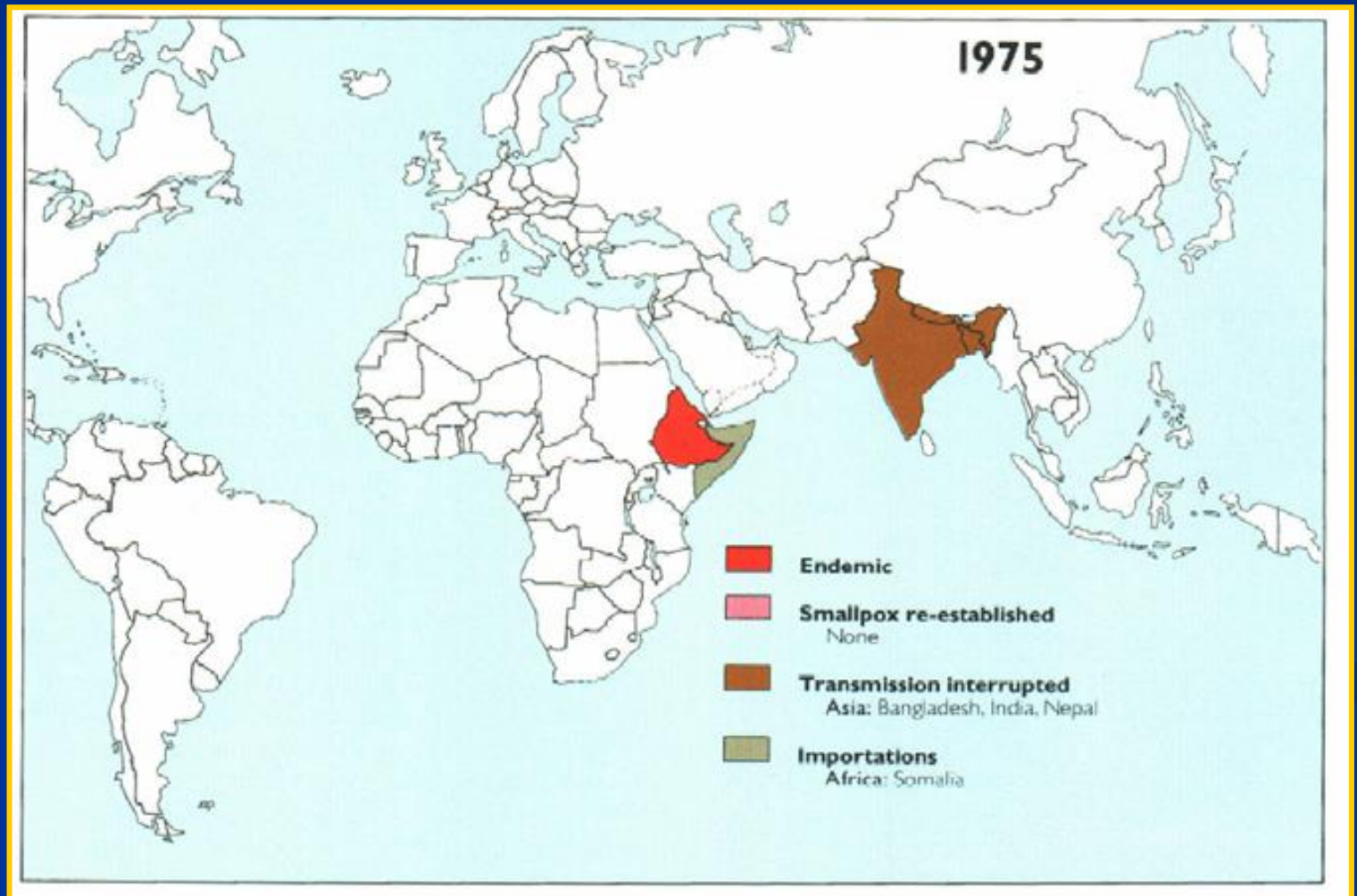
# Eradication of Smallpox

- 1958: Soviet Union calls for eradication.
- 1967: WHO team formed.



# Eradication of Smallpox

- 1975: Last major variola case in Bangladesh



# Eradication of Smallpox

- October 1977: Last variola case in Somalia

Official declaration by  
WHO that Smallpox is  
Eradicated: May 1980.



# Eradication of Rinder Pest



Early  
1980's



Early  
1990's



2000

Center for Food Security and Public Health  
Iowa State University 2006

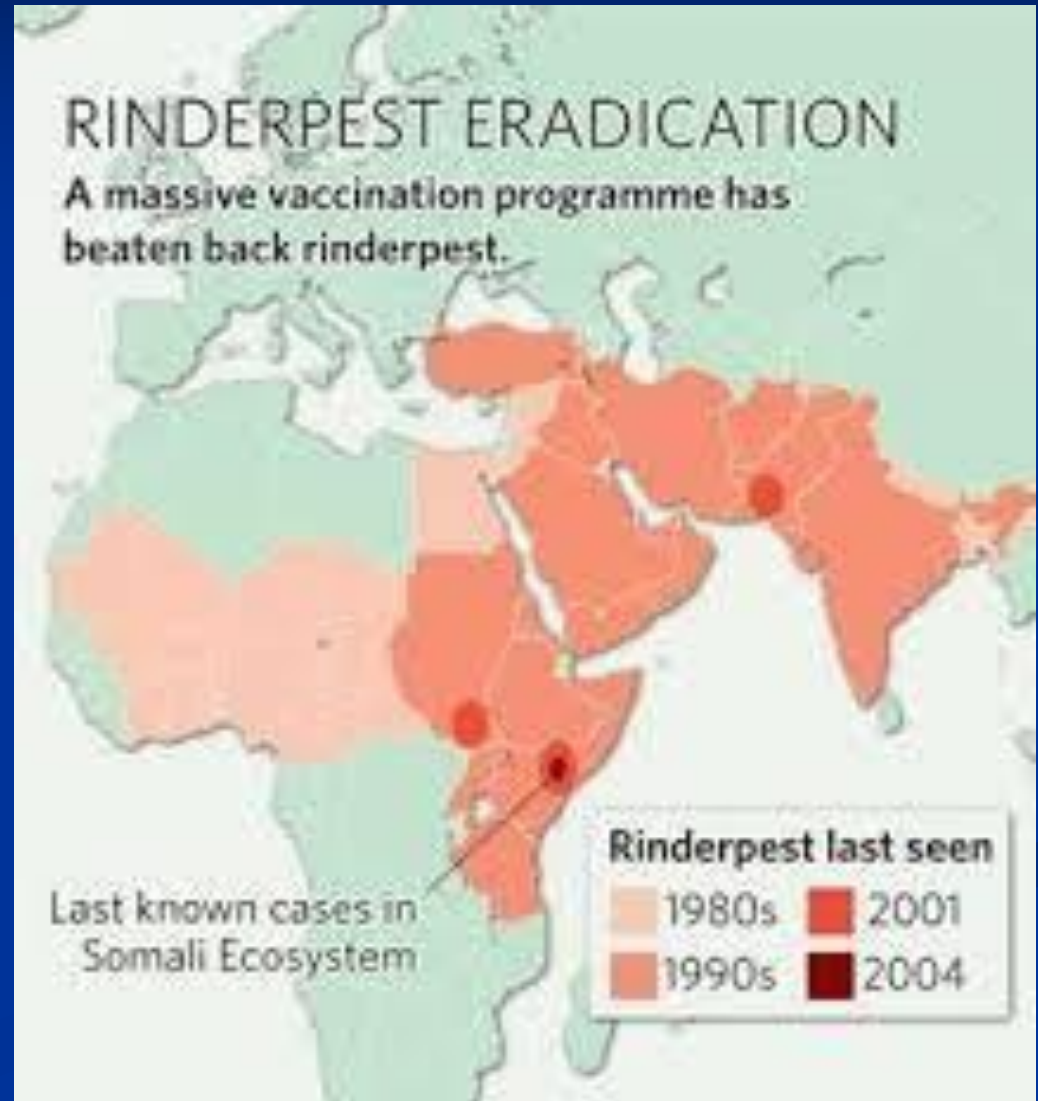


# Eradication of Rinder Pest



## RINDERPEST

First animal disease eradicated  
in human history



# Diseases eradicated or decreased by vaccination

1. Chicken Pox
2. Diphtheria
3. Measles
4. Pertussis
5. Pneumococcal Disease
6. Polio
7. Tetanus
8. Typhoid Fever
9. Yellow Fever
10. Smallpox



**Thanks!**





بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

الحمد لله الذي جعلنا من عباده  
العلماء

bro2Alain