

EPIDEMIOLOGY AND PREVENTION OF VACCINE-PREVENTABLE DISEASES

14TH EDITION

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On the cover

This illustration depicts *Bordetella pertussis*.
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"He just thought it up and did it." – Apocalypse Now

Milestones in the History of Vaccination

400BCE

Hippocrates describes diphtheria, epidemic jaundice, and other conditions

1100s

Variolation for smallpox first reported in China

1721

Variolation introduced into Great Britain

1796

Edward Jenner inoculates James Phipps with cowpox, and calls the procedure vaccination ("vacca" is Latin for cow)

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1870
Louis Pasteur creates the first live, attenuated bacterial vaccine (chicken cholera)

1884-85
Pasteur creates the first live, attenuated viral vaccine for use in humans

1900
Paul Ehrlich formulates receptor theory of immunity

1901
First Nobel Prize in Medicine to von Behring for diphtheria antitoxin

1909
Theobald Smith discovers a method for inactivating diphtheria toxin

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Milestones in the History of Vaccination

1919

Calmette and Guerin create BCG, the first live attenuated bacterial vaccine for humans

1923

First whole-cell pertussis vaccine tested
Gaston Ramon develops diphtheria toxoid

1926

Ramon and Christian Zoeller develop tetanus toxoid

1931

Goodpasture describes a technique for viral culture in hens' eggs

1936

Thomas Francis and Thomas Magill develop the first inactivated influenza vaccine

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Milestones in the History of Vaccination

1948

John Enders and colleagues isolate Lansing Type II poliovirus in human cell line

1954

Enders and Peebles isolate measles virus
Francis Field Trial of inactivated polio vaccine

1955

Inactivated polio vaccine licensed

1961

Human diploid cell line developed

1963

Measles vaccine licensed
Trivalent oral polio vaccine licensed

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Milestones in the History of Vaccination

1965

Bifurcated needle for smallpox vaccine licensed

1966

World Health Assembly calls for global smallpox eradication

1967

Maurice Hilleman develops Jeryl Lynn strain of mumps virus

1969

Stanley Plotkin develops RA 27/3 strain of rubella vaccine virus

1971

MMR vaccine licensed

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Milestones in the History of Vaccination

1977

Last indigenous case of smallpox (Somalia)

1979

Last wild poliovirus transmission in the U.S.

1981

First hepatitis B vaccine licensed

1983

Smallpox vaccine withdrawn from civilian market

1986

First recombinant vaccine licensed (hepatitis B)
National Childhood Vaccine Injury Act passed

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Milestones in the History of Vaccination

1989

Two-dose measles vaccine recommendation

1990

First polysaccharide conjugate vaccine licensed (*Haemophilus influenzae* type b)

1994

Polio elimination certified in the Americas
Vaccines for Children program begins

1995

Varicella vaccine licensed
Hepatitis A vaccine licensed
First harmonized childhood immunization schedule published

1996

Acellular pertussis vaccine licensed for infants

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Milestones in the History of Vaccination

1997
Sequential polio vaccination recommended

1998
First rotavirus vaccine licensed

1999
Exclusive use of inactivated polio vaccine recommended
Rotavirus vaccine withdrawn

2000
Pneumococcal conjugate vaccine licensed for infants

2003
Live attenuated influenza vaccine licensed

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Milestones in the History of Vaccination

2004

Inactivated influenza vaccine recommended for all children 6–23 months of age

2004

Indigenous transmission of rubella virus interrupted

2005

Acellular pertussis vaccines licensed for adolescents and adults

2005

MMR-varicella (MMRV) licensed

2006

Second generation rotavirus vaccine licensed

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Milestones in the History of Vaccination

2006

First human papillomavirus
vaccine licensed

2006

First herpes zoster
vaccine licensed

2009

H1N1 influenza
pandemic declared

2010

Influenza vaccine
recommended for all persons 6
months and older

2013

First quadrivalent influenza
vaccine licensed

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Milestones in the History of Vaccination

2014
First serogroup B meningococcal vaccine licensed

2014
First 9-valent recombinant protein subunit HPV vaccine licensed

2017
First recombinant zoster vaccine licensed
2-dose HepB vaccine using a novel adjuvant licensed

2020
World Health Organization declares COVID-19 pandemic

2020
FDA authorizes the first COVID-19 vaccine through Emergency Use Authorization



