Epidemiology and Prevention *of* Vaccine-Preventable Diseases

10th EDITION

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Milestones in the History of Vaccination

400BCE	1100s	1721	1796
Hippocrates describes diphtheria, epidemic jaundice, and other conditions	Variolation for smallpox first reported in China	Variolation introduced into Great Britain	Edward Jenner inoculates James Phipps with cowpox, and calls the procedure vaccination ("vacca" is Latin for cow)

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Milestones in the History of Vaccination

1870	1884	1885	1887	1900
Louis Pasteur creates the first live attenuated bacterial vaccine (chicken cholera)	Pasteur creates the first live attenuated viral vaccine (rabies)	Pasteur first uses rabies vaccine in a human	Institut Pasteur established	Paul Ehrlich formulates receptor theory of immunity

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Milestones in the History of Vaccination

1901	1909	1919	1923	1926
First Nobel Prize in Medicine to von Behring for diphtheria antitoxin	Theobald Smith discovers a method for inactivating diphtheria toxin	Calmette and Guerin create BCG, the first live attenuated bacterial vaccine for humans	First whole-cell pertussis vaccine tested Gaston Ramon develops diphtheria toxoid	Ramon and Christian Zoeller develop tetanus toxoid

Milestones in the History of Vaccination

1927	1931	1936	1948	1954
Yellow fever virus isolated	Goodpasture describes a technique for viral culture in hens' eggs	Thomas Francis and Thomas Magill develop the first inactivated influenza vaccine	John Enders and colleagues isolate Lansing Type II poliovirus in human cell line	Enders and Peebles isolate measles virus Francis Field Trial of inactivated polio vaccine

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Milestones in the History of Vaccination

1955	1961	1963	1965	1966
Inactivated polio vaccine licensed	Human diploid cell line developed	Measles vaccine licensed Trivalent oral polio vaccine licensed	Bifurcated needle for smallpox vaccine licensed	World Health Assembly calls for global smallpox eradication

Milestones in the History of Vaccination

1967	1969	1971	1977	1979
Maurice Hilleman develops Jeryl Lynn strain of mumps virus	Stanley Plotkin develops RA27/3 strain of rubella vaccine virus	MMR vaccine licensed	Last indigenous case of smallpox (Somalia)	Last wild poliovirus transmission in the U.S.

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Milestones in the History of Vaccination

1981	1983	1986	1989	1990
First hepatitis B vaccine licensed	Smallpox vaccine withdrawn from civilian market	First recombinant vaccine licensed (hepatitis B) National Childhood Vaccine Injury Act	Two-dose measles vaccine recommendation	First polysaccharide conjugate vaccine licensed (*Haemophilus influenzae* type b)

Milestones in the History of Vaccination

1994	1995	1996	1997	1998
Polio elimination certified in the Americas Vaccines for Children program begins	Varicella vaccine licensed Hepatitis A vaccine licensed First harmonized childhood immunization schedule published	Acellular pertussis vaccine licensed for infants	Sequential polio vaccination recommended	First rotavirus vaccine licensed

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Milestones in the History of Vaccination

1999	2000	2003	2004	2004
Exclusive use of inactivated polio vaccine recommended Rotavirus vaccine withdrawn	Pneumococcal conjugate vaccine licensed for infants	Live attenuated influenza vaccine licensed	Inactivated influenza vaccine recommended for all children 6–23 months of age	Indigenous transmission of rubella virus interrupted

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Milestones in the History of Vaccination

2005	2005	2006	2006	2006
Acellular pertussis vaccines licensed for adolescents and adults	MMR-varicella (MMRV) licensed	Second generation rotavirus vaccine licensed	First human papillomavirus vaccine licensed	First herpes zoster vaccine licensed

Vaccines and Related Products Distributed in the United States

Vaccine/Biologic	Brand Name	Manufacturer	Type	How Supplied
Diphtheria, Tetanus, acellular Pertussis	Infanrix®	GlaxoSmithKline	Inactivated	single-dose vial or syringe
Diphtheria, Tetanus, acellular Pertussis	Tripedia®	sanofi-pasteur	Inactivated	single-dose vial
Diphtheria, Tetanus, acellular Pertussis	Daptacel®	sanofi-pasteur	Inactivated	single-dose vial
Diphtheria, Tetanus, acellular Pertussis + Hib	TriHIBit®	sanofi-pasteur	Inactivated	single-dose vial
Diphtheria, Tetanus, acellular Pertussis +Hep B + IPV	Pediarix®	GlaxoSmithKline	Inactivated	single-dose vial or syringe
Diphtheria, Tetanus (DT; ped <7yrs, P-free)	generic	sanofi-pasteur	Inactivated	single-dose vial
Tetanus, diphtheria, adsorbed (Td; ≥7yrs, P-free)	Decavac®	sanofi-pasteur	Inactivated	single-dose syringe
Tetanus, diphtheria, adsorbed (Td; ≥7yrs)	generic	Mass Biologic Labs	Inactivated	15-dose vial
Tetanus, diphtheria, acellular Pertussis (Tdap; 10-18 yrs)	Boostrix®	GlaxoSmithKline	Inactivated	single-dose vial or syringe
Tetanus, diphtheria, acellular Pertussis (Tdap; 11-64 yrs)	Adacel™	sanofi-pasteur	Inactivated	single-dose vial
Tetanus toxoid (TT; ≥7 yrs) adsorbed	generic	sanofi-pasteur	Inactivated	10-dose vial
Tetanus toxoid (TT; adult booster use only)	generic	sanofi-pasteur	Inactivated	15-dose vial
Tetanus immune globulin (TIG)	HyperTET™	Talecris	Human immunoglobulin	single-dose syringe
Haemophilus influenzae type b (PRP-T)	ActHIB®	sanofi-pasteur	Inactivated	single-dose vial
Haemophilus influenzae type b (HbOC)	HibTITER®	Wyeth	Inactivated	single-dose vial
Haemophilus influenzae type b (PRP-OMP)	PedvaxHIB®	Merck	Inactivated	single-dose vial
Haemophilus influenzae type b (PRP-OMP) + Hep B	Comvax®	Merck	Inactivated	single-dose vial
Hepatitis A: ped/adol & adult formulations	Havrix®	GlaxoSmithKline	Inactivated	single-dose vial or syringe
Hepatitis A: ped/adol & adult formulations	Vaqta®	Merck	Inactivated	single-dose vial or syringe
Hepatitis A immune globulin	GamaSTAN™	Talecris	Human immunoglobulin	2 mL and 10 mL vials
Hepatitis B: ped/adol & adult formulations	Engerix-B®	GlaxoSmithKline	Inactivated	single-dose vial or syringe
Hepatitis B: ped/adol & adult formulations	Recombivax HB®	Merck	Inactivated	single-dose vial
Hepatitis B dialysis formulation	Recombivax HB®	Merck	Inactivated	single-dose vial
Hepatitis B immune globulin (HBIG)	HyperHEP B™	Talecris	Human immunoglobulin	1 mL syringe, 1 mL or 5 mL vial
Hepatitis B immune globulin (HBIG): ped formulation	HyperHEP B™	Talecris	Human immunoglobulin	single-dose 0.5 mL neonatal syringe
Hepatitis B immune globulin (HBIG)	Nabi-HB®	Nabi	Human immunoglobulin	single-dose vial
Hepatitis A & B: adult formulation	Twinrix®	GlaxoSmithKline	Inactivated	single-dose vial or syringe
Human papillomavirus (HPV)	Gardasil®	Merck	Inactivated	single-dose vial or syringe
Influenza (trivalent inactivated influenza vaccine [TIV])	Fluarix®	GlaxoSmithKline	Inactivated	10 single-dose syringes
Influenza (live attenuated influenza vaccine [LAIV])	FluMist®	Medimmune	Live, intranasal	10 single-use sprayers
Influenza (TIV)	Fluvirin®	Novartis	Inactivated	single-dose syringe & 10-dose vial
Influenza (TIV)	Fluzone®	sanofi-pasteur	Inactivated	10-dose vial
Influenza (TIV; ≥36 mos; no preservative)	Fluzone®	sanofi-pasteur	Inactivated	single-dose syringe (0.5 mL)
Influenza (TIV; ped 6-35 mos; no preservative)	Fluzone®	sanofi-pasteur	Inactivated	single-dose syringe (0.25 mL)
Influenza (TIV; ≥18 yrs)	FluLaval™	GlaxoSmithKline	Inactivated	10-dose vial
Measles, Mumps, Rubella (MMR)	M-M-R II®	Merck	Live, attenuated	single-dose vial
Measles	Attenuvax®	Merck	Live, attenuated	single-dose vial
Mumps	Mumpsvax®	Merck	Live, attenuated	single-dose vial
Rubella	Meruvax II®	Merck	Live, attenuated	single-dose vial
Measles, Mumps, Rubella + Varicella (MMRV)	ProQuad®	Merck	Live, attenuated	single-dose vial
Meningococcal conjugate (A/C/Y/W-135)	Menactra®	sanofi pasteur	Inactivated	single-dose vial
Meningococcal polysaccharide (A/C/Y/W-135)	Menomune®	sanofi pasteur	Inactivated	single-dose vial
Pneumococcal conjugate, 7-valent	Prevnar®	Wyeth	Inactivated	single-dose vial
Pneumococcal polysaccharide, 23-valent	Pneumovax 23®	Merck	Inactivated	single-dose vial or 5-dose vial
Polio (IPV)	IPOL®	sanofi pasteur	Inactivated	single-dose syringe or 10-dose vial
Rotavirus	RotaTeq®	Merck	Live, oral	single-dose tube
Varicella	Varivax®	Merck	Live, attenuated	single-dose vial
Varicella Zoster Immune Globulin (VZIG) (IND)	VariZIG™	Cangene	Human Immunoglobulin	125-U vial
Zoster	Zostavax®	Merck	Live, attenuated	single-dose vial
Anthrax, adsorbed	BioThrax™	BioPort	Inactivated	multi-dose vial
Japanese encephalitis	JE-VAX®	sanofi pasteur	Inactivated	single-dose vial
Rabies	Imovax®	sanofi pasteur	Inactivated	single-dose vial
Rabies	RabAvert®	Novartis	Inactivated	single-dose vial
Rabies Immune Globulin (RIG)	Imogam Rabies-HT®	sanofi-pasteur	Human immunoglobulin	2 mL and 10 mL vials
Rabies Immune Globulin (RIG)	HyperRAB™	Talecris	Human immunoglobulin	2 mL and 10 mL vials
Typhoid VI polysaccharide	Typhim Vi®	sanofi-pasteur	Inactivated	single-dose syringe and 20-dose vial
Typhoid, live oral Ty21a	Vivotif®	Berna	Live, attenuated	4-capsule package
Yellow Fever	YF-Vax®	sanofi-pasteur	Live, attenuated	single- and 5-dose vial

(Adapted from Immunization Action Coalition Item #P2019) February 2007