

Detailed Table of Contents

Section A: General Principles of Vaccinology and Vaccine Practice

Chapter 1 Introduction to Vaccinology	15
Immunization.....	15
Live Vaccines.....	15
Non-live Vaccines.....	21
Passive Immunization.....	24
Basic Vaccine Immunology	25
Antibodies.....	25
The Extrafollicular Reaction	27
The Germinal Center Reaction.....	29
Cytotoxic T Cells	39
Additional Concepts	43
Correlates of Protection.....	43
Epidemiological Concepts.....	47
Genetics of Vaccine Responses and Adverse Events.....	52
Vaccines and Public Health.....	52
Goals of Immunization Programs.....	52
Public Health Impact of Vaccines	52
Chapter 2 Vaccine Infrastructure in the United States	61
Vaccine Development and Licensure.....	61
Emergency Preparedness and Response	69
Policy and Recommendations	73
Monitoring Delivery	80
Disease Surveillance	84
The Vaccine Safety Net	88
Vaccine Adverse Event Reporting System (VAERS)	90
Vaccine Safety Datalink (VSD)	91
Other Components of the Vaccine Safety Net	91
Financing.....	93
Supply	98
Chapter 3 Standards, Principles, and Regulations	103
Healthy People	103
Standards for Immunization Practices	103
Standards for Child and Adolescent Immunization Practices	103
Standards for Adult Immunization Practices.....	107
National Vaccine Injury Compensation Program (VICP)	107
Vaccine Adverse Event Reporting System (VAERS)	111
Vaccine Information Statements (VISs)	116
Public Readiness and Emergency Preparedness (PREP) Act	117
Occupational Safety and Health Administration (OSHA).....	117
Mandates and Exceptions	119
Day Care Centers and Schools	119
Hospitals and Other Institutions	122
COVID-19 Vaccination Mandates	123
Chapter 4 Vaccine Practice	127
Handling, Storage, and Transport	127
Improving Delivery.....	138
Reminder, Recall, and Tracking Systems.....	139

Missed Opportunities.....	139
Medical Home and Immunization Neighborhood.....	139
Immunization During the COVID-19 Pandemic.....	141
Standing Orders	141
School-Located Vaccination (SLV)	141
Immunization Information Systems	143
Immunization Coalitions	144
Other Strategies.....	144
Screening.....	145
Administration.....	145
General Issues.....	145
Routes	152
Anxiety, Pain, and Fever	154
Emergencies.....	155
Syncope.....	156
Anaphylaxis.....	156
Coding, Billing, and Costs.....	157
Chapter 5 General Recommendations	161
Ten Simple Rules by Which to Vaccine.....	161
Administration Errors.....	177
Testing for Immunity.....	177
Contraindications and Precautions	179
Chapter 6 Vaccination in Special Circumstances	195
Immune Deficiency States	195
Chronic Medical Conditions	198
Pregnancy, Postpartum, and Breast-Feeding.....	199
Newborns	230
Preterm and Low Birth Weight Infants	230
Inborn Errors of Metabolism	231
Adults ≥65 Years of Age	232
Health Care Personnel	233
International Adoptees, Refugees, and Immigrants	236
Travel	238
Miscellaneous Special Situations	243
Coverage Rates in Special Populations	243
Chapter 7 Addressing Concerns About Vaccines	251
Communicating Risks and Benefits	252
Understanding Vaccine Hesitancy	252
Risk vs Benefit.....	254
Communication Strategies	256
Teaching Vaccine Confidence	262
Vaccine Refusal	263
Antivaccinationism	268
The Costs of Public Concern	271
General Issues	273
Necessity of Vaccines	273
Natural vs Vaccine-Induced Immunity	273
Immune Overload and Alternative Schedules	275
Adjuvants	278
Additives	279
Adventitious Agents	280
Nonspecific Negative Effects	282

Fetal Tissue.....	282
Allergy and Autoimmune Disease	283
Hygiene Hypothesis	283
Asthma.....	283
Allergies	284
Type 1 Diabetes (T1D)	284
Celiac Disease	285
Other Autoimmune Diseases.....	285
Autism	285
Neurological Conditions.....	287
Encephalopathy.....	287
Guillain-Barré Syndrome.....	288
Multiple Sclerosis, Transverse Myelitis, and Acute Disseminated Encephalomyelitis.....	290
Bell's Palsy	282
Narcolepsy	282
Febrile Seizures.....	293
Miscellaneous Concerns.....	294
Sudden Infant Death Syndrome.....	294
Kawasaki Disease.....	295
Intussusception	295
Immune Thrombocytopenia.....	296
Miscarriage, Birth Defects, and Infertility.....	297
Chronic Fatigue	298
Clustered Anxiety-related Adverse Events	298
COVID-19 Vaccines.....	298
Chapter 8 Routine Schedules	313

Section B: Diseases and Vaccines

Chapters 9 through 33 have the following subheadings:

- The Pathogen
- Clinical Features
- Epidemiology and Transmission
- Immunization Program
- Vaccines
- Immunogenicity, Efficacy, Effectiveness, and/or Impact
- Safety
- Recommendations

Chapter 9 Adenovirus.....	331
Chapter 10 Anthrax.....	337
Chapter 11 Cholera.....	245
Chapter 12 COVID-19.....	251
Chapter 13 Dengue	401
Chapter 14 Diphtheria, Tetanus, and Pertussis	409
Chapter 15 Ebola.....	429
Chapter 16 <i>Haemophilus influenzae</i> type b.....	437
Chapter 17 Hepatitis A.....	443
Chapter 18 Hepatitis B.....	453
Chapter 19 Human Papillomavirus.....	473
Chapter 20 Influenza.....	489
Chapter 21 Japanese Encephalitis.....	513
Chapter 22 Measles, Mumps, and Rubella	519
Chapter 23 <i>Neisseria meningitidis</i>	535
Chapter 24 Polio.....	555
Chapter 25 Rabies	561
Chapter 26 Rotavirus	575
Chapter 27 Smallpox and Other Orthopoxviruses.....	585
Chapter 28 <i>Streptococcus pneumoniae</i>.....	599
Chapter 29 Tick-Borne Encephalitis.....	613
Chapter 30 Typhoid Fever	619
Chapter 31 Varicella	627
Chapter 32 Yellow Fever	639
Chapter 33 Zoster	647
Chapter 34 Combination Vaccines.....	655
Chapter 35 Appendix	669