Contents

- iii Note to Readers
- xv Preface
 - 1 PART 1 Introduction & Background
 - GHAPTER 1
 Introduction
 Diseases We No Longer See
 How This Book Is Organized and My Objectives
- 13 CHAPTER 2
 A Short History of the Development of Vaccines to Control Diseases

If the Diseases Are Gone, Why Do My Family and I Still Need All Those Vaccines? The Diseases That Vaccines Prevent: Then and Now

23 CHAPTER 3

Microorganisms, Infections, and Immune Responses
Microorganisms

Infections and Infectious Diseases How Pathogens Travel How Rapidly Pathogens Travel Our Remarkable Immune System

37 CHAPTER 4

What Is a Vaccine?

What Should a Vaccine Do?

Teaching the Immune System: How Vaccines Work

Community Immunity

What Is in a Vaccine?

Human Fetal Components of Some Vaccines

55 CHAPTER 5

The Development and Use of Vaccines

Vaccine Development, Regulation, and Recommendations

Vaccine Indications and Recommendations

Why Are So Many Childhood Vaccines Recommended for All Children?

Why Not Just Spread the Shots Out a Bit?

Can the Child's Immune System Handle All Those Vaccines?

Vaccine Adverse Events and Vaccine Side Effects

79 CHAPTER 6

Assessing the Risks

Comparing the Risks of "Apples and Oranges"

Dealing with Numbers

Did a Vaccine Cause That?

Cause or Coincidence

Epidemiology

How to Determine Whether a Vaccine Caused That

95 CHAPTER 7

Evaluating Information about Vaccines

Out of Sight, Out of Mind

How Does Misinformation about Vaccines Get Spread So Widely and So Quickly?

An Example of Misinformation and Reemerging Infectious Diseases

Identifying Misinformation about Vaccines

Who Are the Misinformers?

Evaluating Information about Immunizations on the Internet

- 115 PART 2
 The Diseases Vaccines Prevent
- 117 SECTION I

 Beginning to Control Infectious Diseases

121 CHAPTER 8 Diphtheria

The Illnesses That *C. diphtheriae* Cause
Diphtheria Antitoxin
Diphtheria Toxoid Vaccine
Diphtheria Toxoid Vaccine Side Effects
Do I Really Still Need to Worry about Diphtheria?
My Assessment of Risks

135 CHAPTER 9

Tetanus

The Illnesses that *C. tetani* Cause
Tetanus Toxoid Vaccine
Tetanus Toxoid Vaccine Side Effects
Do I Really Still Need to Worry about Tetanus?
My Assessment of Risks

147 CHAPTER 10

Whooping Cough (Pertussis)

The Illnesses That *B. pertussis* Cause
Whooping Cough Vaccines
Whooping Cough Vaccine Side Effects
Do I Really Still Need to Worry about Whooping Cough?
My Assessment of Risks

155 SECTION II Diseases Prevented by Viral Attenuation

159 CHAPTER 11 Yellow Fever

The Illnesses That Yellow Fever Virus Causes

Yellow Fever Vaccine
Yellow Fever Live Virus Vaccine Side Effects
Do I Really Still Need to Worry about Yellow Fever?
My Assessment of Risks

167 CHAPTER 12

Poliomyelitis

The Illnesses That Polioviruses Cause
Poliovirus Vaccines
Poliovirus Vaccines Side Effects
Do I Really Still Need to Worry about Poliomyelitis?
My Assessment of Risks

177 CHAPTER 13

Measles

The Illnesses That Measles Virus Causes
Measles Live Virus Vaccine
A Case of Measles in the US is a Public Health Emergency!
Measles Live Virus Vaccine Side Effects
Do I Really Still Need to Worry about Measles?
My Assessment of Risks

195 CHAPTER 14

Rubella

The Illnesses That Rubella Virus Causes
Rubella Live Virus Vaccine
An Initial Immunization Policy Conundrum
Rubella Live Virus Vaccine Side Effects
Do I Really Still Need to Worry about Rubella?
My Assessment of Risks

207 CHAPTER 15

Mumps

The Illnesses That Mumps Virus Causes Mumps Live Virus Vaccine Mumps Live Virus Vaccine Side Effects Do I Really Still Need to Worry about Mumps? My Assessment of Risks

213 SECTION III

Varicella Zoster Virus: Chickenpox and Shingles

217 CHAPTER 16

Chickenpox (Varicella)

The Initial Illnesses that VZV Causes (Chickenpox)

Chickenpox Live Virus Vaccine

Chickenpox Live Virus Vaccine Side Effects

Do I Really Still Need to Worry about Chickenpox?

My Assessment of Risks

229 CHAPTER 17

Shingles (Herpes Zoster)

The Illnesses That Reactivating VZV Causes (Shingles)

Shingles Vaccines

Shingles Subunit Vaccine Side Effects

Do I Really Still Need to Worry about Shingles?

My Assessment of Risks

237 SECTION IV

Infectious Diarrhea

Many Pathogens Cause Infectious Diarrhea

249 CHAPTER 18

Rotavirus Infections

The Illnesses That Rotaviruses Cause

Live Attenuated Rotavirus Vaccines

Live Attenuated Rotavirus Vaccines Side Effects

Do I Really Still Need to Worry about Rotaviruses?

My Assessment of Risks

259 SECTION V

Diseases Caused by Polysaccharide Encapsulated Bacteria

263 CHAPTER 19

Haemophilus influenzae Type b (Hib)

The Illnesses That Hib Causes

Hib Vaccines

Hib Conjugate Vaccine Side Effects

Do I Really Still Need to Worry about Hib?

My Assessment of Risks

277 CHAPTER 20

Streptococcus pneumoniae

The Illnesses That Pneumococci Cause in Young Children

The Illnesses That Pneumococci Cause in Adults

The Pneumococcal Vaccines

Pneumococcal Vaccines Side Effects

Do I Really Still Need to Worry about Pneumococci?

My Assessment of Risks

289 CHAPTER 21

Neisseria meningitidis

The Illnesses That Meningococci Cause

Meningococcal Vaccines

Meningococcal Polysaccharide Conjugate Vaccines Side Effects

Do I Really Still Need to Worry about Meningococcemia?

My Assessment of Risks

If You Want to Read More

299 SECTION VI

Infectious Hepatitis

Hepatitis A and B Viruses

Hepatitis C Virus

Hepatitis D and E Viruses

The Illnesses That Hepatitis Viruses Cause

303 CHAPTER 22

Hepatitis B

The Illnesses That HBV Causes

Hepatitis B (HepB) Vaccines
Recombinant Hepatitis B Vaccine (HepB) Side Effects
Do I Really Still Need to Worry about Hepatitis B?
My Assessment of Risks
If You Want to Read More

315 CHAPTER 23

Hepatitis A

The Illnesses That HAV Causes
Hepatitis A (HepA) Vaccine
Inactivated Hepatitis A Vaccine Side Effects
Do I Really Still Need to Worry about Hepatitis A?
My Assessment of Risks

325 SECTION VII The Human Papillomaviruses

327 CHAPTER 24

The Genital HPVs

The Illnesses That Genital HPVs Cause
HPV Vaccines
HPV Vaccines Side Effects
Do I Really Still Need to Worry about the Human Papillomaviruses?
My Assessment of Risks
If You Want to Read More

341 SECTION VIII The Influenza Viruses

345 CHAPTER 25

Influenza A and B Infections

Seasonal and Pandemic Influenza
The Illnesses That Influenza Causes
Influenza Vaccines
Influenza Vaccines Side Effects
Do I Really Still Need to Worry about Influenza?
My Assessment of Risks

361 SECTION IX

The Coronaviruses

The Human Coronaviruses
Emerging Infectious Disease Pathogens
Animal Coronaviruses as Human Pathogens

367 CHAPTER 26

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)

The Illnesses That SARS-CoV-2 Causes
SARS-CoV-2 Vaccines
SARS-CoV-2 Vaccines Side Effects
SARS-CoV-2 mRNA Vaccines Side Effects
SARS-CoV-2 Adenovirus Vaccine Side Effects
Do I Really Still Need to Worry about SARS-CoV-2?
My Assessment of Risks

385 PART 3 After Words

387 CHAPTER 27

Making Vaccine Decisions

Those Who Are Unimmunized May Not Be Exposed to the Pathogen Those Who Become Infected May Not Have a Terrible Outcome Vaccines Do Have Side Effects and Some of Them Can Be Serious Community Immunity Is Important for Everyone Making Vaccine Decisions

393 Glossary of Terms

399 Acknowledgments