Pneumococcal Vaccines

The Impact of Conjugate Vaccine
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Contents

Section Editors ix
Contributors xi
Dedication: Robert Austrian, M.D. xvii
Jeffrey N. Weiser, M.D.
Preface xix

I. History
1 The History of Pneumococcal Disease 3
   Barry M. Gray and Daniel M. Musher
2 History of Pneumococcal Immunization 19
   P. Helena Mäkelä and Jay C. Butler

II. Biological Basis
3 Genetics, Biosynthesis, and Chemistry of Pneumococcal Capsular Polysaccharides 33
   Janet Yother, Stephen D. Bentley, and John P. Hennessey, Jr.
4 Animal Models of Invasive Pneumococcal Disease 47
   David E. Briles, Susan K. Hollingshead, and Ingileif Jonsdottir
5 Animal Models of Pneumococcal Colonization 59
   Richard Malley and Jeffrey N. Weiser
### Contents

6 The Immunobiology of Polysaccharide and Conjugate Vaccines 67
David Goldblatt, Tracy Assari, and Clifford Snapper

7 Interactions of *Streptococcus pneumoniae* with Complement Proteins 83
Margaret K. Hostetter

III. **Clinical Disease and Epidemiology**

8 Epidemiology, Diagnosis, and Treatment of Serious Pneumococcal Infections in Children 95
Shabir A. Madhi and Stephen I. Pelton

9 Pneumococcal Pneumonia in Adults: Epidemiology, Clinical Features, Diagnosis, and Therapy 117
Jeffrey B. Rubins, David R. Boulware, and Edward N. Janoff

10 Pneumococcal Serotype Epidemiology 139
William P. Hausdorff, Angela B. Brueggemann, Jill G. Hackell, and J. Anthony G. Scott

IV. **Manufacturing and Product Release Issues**

11 Conjugation Chemistry 163
Andrew Lees, Velupillai Puvanesarajah, and Carl E. Frasch

12 Pneumococcal Vaccines: Manufacture and Quality Control for Product Release 175
Milan S. Blake

13 Licensing of Pneumococcal Conjugate Vaccines for Children and Adults: Regulatory Perspective from the European Medicines Agency and the U.S. Food and Drug Administration 183
Marion F. Gruber, Douglas Pratt, and Manfred Haase

V. **Immunogenicity**

14 Quantitation of Anti-Pneumococcal Capsular Antibody in Ligand-Binding Assays 199
Dace V. Madore, Sally A. Quataert, and Merja Vakevainen

15 Functional Assays for Pneumococcal Antibody 213
Moon H. Nahm and Sandra Romero-Steiner

16 Immunogenicity and Reactogenicity of Pneumococcal Conjugate Vaccines in Infants and Children 227
Helena Käyhty, Stephen Lockhart, and Lode Schuerman

17 Immunogenicity and Safety in Adults 245
Lisa A. Jackson and George R. Siber

18 Immunogenicity in High-Risk and Immunocompromised Children and Adults 261
Neil French, Sharon Nachman, and Stephen I. Pelton
VI. Efficacy and Safety

19 Nasopharyngeal Carriage 279  
KATHERINE L. O’BRIEN, RON DAGAN, AND P. HELENA MÄKELÄ  

20 Acute Otitis Media and Its Sequelae 301  
TERHI KILPI AND LODGE SCHUERMAN  

21 Meta-Analysis of the Efficacy of Conjugate Vaccines against Invasive Pneumococcal Disease 317  
KEITH P. KLUGMAN, FELICITY CUTTS, RICHARD A. ADEGBOLA, STEVEN BLACK, SHABIR A. MADHI, KATHERINE L. O’BRIEN, MATHURAM SANTOSHAM, HENRY SHINEFIELD, AND JONATHAN A. C. STERNE  

22 Efficacy and Safety of Conjugate Pneumococcal Vaccine in the Prevention of Pneumonia 327  
SHABIR A. MADHI AND KEITH P. KLUGMAN  

23 Establishing Immune Correlates of Protection 339  
ROBERT C. KOHBERGER, JUKKA JOKINEN, AND GEORGE R. SIBER  

VII. Public Health Impact

24 Direct and Indirect Effectiveness and Safety of Pneumococcal Conjugate Vaccine in Practice 353  
CYNTHIA G. WHITNEY AND MATTHEW R. MOORE  

25 Impact of Conjugate Pneumococcal Vaccine on Antibiotic Resistance 369  
RON DAGAN AND KEITH P. KLUGMAN  

26 Pharmacoeconomics of Pneumococcal Conjugate Vaccines 387  
ANUSHUA SINHA AND G. THOMAS RAY  

27 Opportunities and Challenges for Pneumococcal Conjugate Vaccines in Low- and Middle-Income Countries 405  
ORIN S. LEVINE AND BRIAN GREENWOOD  

VIII. Where Next

28 Protein Vaccines 421  
JAMES C. PATON AND JOHN W. BOSLEGO  

Conclusions 437  
GEORGE R. SIBER, KEITH P. KLUGMAN, AND P. HELENA MÄKELÄ  

Index 441
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Dedication

Robert Austrian, M.D., died on March 25, 2007, just before his ninety-first birthday. Since it was largely through his efforts that pneumococcal disease was recognized to be a continuing problem in the antibiotic era, and that the first licensed pneumococcal vaccine was developed, it seems fitting that this book be dedicated in his honor. Dr. Austrian had a remarkable career. His nearly 7-decade assault on the pneumococcus was best summarized by the words of Lewis Thomas, M.D., in the forward to Dr. Austrian’s book, Life with the Pneumococcus.

The major figures in American biomedical research come in several quite different classes. There are those who shift swiftly from problem to problem, sometimes leaping freely from one biological discipline to another and then back again, lighting finally on a soluble problem as though by accident. There are others who meditate on a single puzzle for years at a time, scarcely moving, and then, obsessed overnight by the idea of a lifetime, swoop down like nightowls on the single answer.

And there are those who pick out the one problem that will preoccupy them for an entire career of hard work and then just keep at it, year after year. This may seem the safest way to live a life in science, but it is actually, in real life, the chanciest of all gambles, like putting all your chips on a single number, play after play, until all your money runs out.

Robert Austrian’s career has been this last kind. He became fascinated by a single microorganism, Streptococcus pneumoniae, long ago, and simply stuck with it. As the years went by, some of his colleagues came to believe that he was simply stuck with it. Finally, not as a result of good luck or any nocturnal revelation or unforeseen laboratory accident, but as the uncommon reward for steady, meticulous, logical experimentation, he got what he was after: a polyvalent vaccine against pneumococcal infection.
The papers in this book are a nice historical record of how science goes when it is going slowly but going well. They are also a lesson in what most savvy investigators take on faith: if you can learn enough new things about living things at a fundamental level, sooner or later you may have the chance, as Austrian has had, to turn basic science onto applied science and, at last, into a useful product.

In fact, after this passage was written and the book appeared in 1985, Dr. Austrian spent another 22 years, until the day prior to his death, monitoring the evolution of pneumococcal types. It was my pleasure to work with him at the same institution over the last 15 of these years while he continued his work as an emeritus professor. While there are many treasured memories and lessons gained from interacting with this grand gentleman of medicine, one seems especially fitting for this book. Dr. Austrian’s career spanned the use of serum therapy, chemotherapy, antibiotics, and two generations of vaccines, each of which was initially believed to offer a final solution to the problem. The pneumococcus, however, has proven to be a particularly elusive and adaptable foe. Dr. Austrian would caution us to neither underestimate it nor be overly confident that the quest is complete.

JEFFREY N. WEISER, M.D.
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Preface

The first pneumococcal conjugate vaccine (PCV) was licensed 7 years ago in the United States and has now been introduced into general use in many countries in Europe and the rest of the world. Its dramatic impact on the target population was anticipated by the results of efficacy trials. The magnitude of herd immunity provided to unimmunized individuals of all ages was not, and has enormously enhanced the public health impact of the vaccine.

The introduction of this exciting vaccine has invigorated the field and stimulated a great many studies in multiple areas including animal models; immunologic mechanisms; conjugation methods; epidemiology of pneumococcal disease; serotype distributions and antibiotic resistance in many geographic areas; diagnostic methods; antibody response measurements; PCV immunogenicity in healthy and high-risk individuals; impact on colonization, invasive disease, otitis media, and pneumonia; and effectiveness studies of direct and indirect protective effects.

This book seeks to summarize, for professionals in academia, public health, government, or industry, the current state of the art of pneumococcal vaccines, with particular emphasis on the years after introduction of the conjugate vaccine.

George R. Siber
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Index

A
Absorbent, for ELISA, 202–203
Active Bacterial Core Surveillance program, 356, 373, 378
Adjuvants, 72–75, 180
Advance Market Commitment, for vaccine financing, 413–414
Advisory Committee on Immunization Practices, 26
Age, see also Children and infants; Elderly persons
  vs. serotypes, in carriage population, 280
AliA gene, of capsular polysaccharide, 37–39
Alternative pathway, of complement activation, 85, 88–89
Alum, for conjugate vaccines, 72, 238
American Type Culture Collection, 176, 202
Anemia, vaccine efficacy in, 410
Animal models, 47–58
  for bacteremia, 48–49
  biohazards in, 55
  control groups in, 54
  diversity of, 53
  importance of, 47
  inclusion criteria for, 54
  for meningitis, 52–53
  for otitis media, 52
  for pneumonia, 52
  for sepsis, 49–52
  statistical comparisons in, 54–55
  strain selection for, 53–54
  technical considerations for, 53–55
Antibiotics, see also specific antibiotics and groups
  historical view of, 10–13
  inappropriate use of, 370
  resistance to, see Resistance
usage decisions for, conjugate vaccine effects on, 379–380
Antibody(ies), capsular polysaccharide assays for, 199–211
  to colonized organisms, 281–282
  immunoassays for, 199–211
  kinetics of response, 251–252
  opsonophagocytosis assays for, 213–226
  persistence of, 236
  in pneumonia, 108
  vs. serotype, 251
Antigens
  for ELISA, 202
  polysaccharide, 67–69, 122–123
Asplenia, immunogenicity in, 267, 269
Aventis Pasteur, vaccines of, 247
Avidity assessment, 205–206
Azithromycin, resistance to, conjugate vaccine effects on, 370

B
B cells, polysaccharide antigen interactions with, 68
Bacteremia
  animal models for, 48–49
  in children, 95–98
  clinical features of, 95–96
  epidemiology of, 96–98, 405, 407
  occult, 96–98
  in pneumonia, 119, 124
Bile salts, for organism inactivation, 177
Binax NOW test, for capsular polysaccharide, 122
Biohazards, in animal studies, 55
Bioluminescent pneumococci, 54
Blood clearance assay, in bacteremia, 48–49
Blood culture, in pneumonia, 107, 122, 333
Bone marrow transplantation, immunogenicity in, 265, 267, 269–270
Booster dose
  carriage population after, 283, 288
  otitis media and, 229–230
  response to, 235–236
Breath sounds, in pneumonia, 118

C
C3 convertase, in complement activation, 85–86
Cancer, immunogenicity in, 271
Capsular polysaccharides, 33–46
  activation of, 166–167
  antibodies to, see Antibody(ies), capsular polysaccharide
  antigens of
    immune response to, 67–69
    in pneumonia, 122–123
    biosynthesis of, 39–42
    chemical identity of, 33–34
    in colonization promotion, 281
    common, 164
    complement interactions with, 88
    contaminating finished vaccine, 171
    fragments of, 164–166
    functionalization of, 167
    genetic factors in, 34–39
    isolation of, in manufacture, 177–178
    moisture content of, 178–179
    molecular weights of, 178
    physical evaluation of, 34
    reduction of size, 164–166
    regulation of, 39–42
    serologic identity of, 33

Capsular polysaccharides (Continued)

Chest pain
in empyema, 109
in pneumonia, 118

Chest radiography, in pneumonia, 109, 119–120, 328–329

Children and infants
animal models for, 51–52
bacteremia in, 95–98
carryage in, 355–356, 408–411
clearing of, 280

Conjugate vaccine effects on, 282–294, 355–356
antibiotic resistance and, 289, 291
with booster dose, 283, 288
in children, 370–379
clinical trials of, 283–291
duration, 293
factors influencing, 283
indirect, 290–291, 394–395
in infants, 283
in late-childhood administration, 288
long-term, 188
mechanisms of, 292–293
methodology for, 282–283
modeling of, 293–294
of nonpneumococcal organisms, 289
nonvaccine type organisms in, 291–292, 377
observational studies of, 286–287, 289
in otitis media, 310
replacement carriage, 291–292
universal vaccination and, 291
determinants of, 289–290
epidemiology of, 95
immune correlate models for, 346–348
mechanisms of, 280–281
in nonvaccinated community members, 290
phases of, 293–294
prevalence of, 279–280
protection against, 281–282
serotypes and, 140–141

Carrier proteins, in conjugate vaccines, 247;
see also specific vaccines, e.g., PCV-CPM
characterization of, 179–180
contaminating finished vaccine, 171
growth of, 179
immunogenicity and, 237–238
inactivation of, 179
interactions of, 71–72
manufacturing steps involving, 179–180
purification of, 179
selection of, 165–166

Case fatality rate, in meningitis, 100–104

CBPs (choline-binding proteins), for vaccines, 423–425
CD32, in opsonophagocytosis, 219
CD64, in opsonophagocytosis, 214
Cefotaxime-ceftriaxone, for meningitis, 105
Ceftriaxone, 379
Cerebrospinal fluid analysis, in meningitis, 98
Cetyltrimethylammonium bromide, in polysaccharide isolation, 178
Chemical structure, of capsular polysaccharides, 33–34

Committee for Proprietary Medicinal Products, 191

Common capsular polysaccharides, 164

Community-acquired pneumonia, epidemiology of, 117

Complement proteins, 83–92
activation of immunodeficiencies related to, 88–89
interference with, 86–87
pathways for, 84–85
deficiencies of, 88–89
degradation of, 86
discovery of, 83
efficiency of, 85–86
ligration of, 87–88
in phagocytosis, 86, 214–215
pneumococcal infections with, 86–88
polysaccharide interactions with, 88

types of, 83
Conformational epitopes, 34

Conjugate vaccines, 69–75
adjuvants for, 72–74
animal studies on, 69
antibiotic resistance and, 369–385
carriage effects of, 282–294, 355–356
carrier protein interactions with, 71–72
for children, immunogenicity of, 227–243
clinical trials of, opsonophagocytosis assays in, 218–221
dosing schedule for, 412–413
in elderly persons, 70
formulations for, 246–247

Haemophilus influenzae, see Haemophilus influenzae, conjugate vaccines for immunogenicity of in adults, 245–259

aluminum adjuvant and, 238
antibody persistence and, 236
booster dose response and, 229–230, 235–236
carrier-mediated interactions in, 237–238
in children, 227–243
experimental, 236–237
in invasive disease, 228
number of doses and, 233–235
in otitis media, 228–230
in pneumonia, 228
population variation in, 230–233
immunologic basis of, 69–70
importance of, for low- and middle-income countries, 405–408
invasive disease, 356–359
direct effects of, 372–374
immunogenicity of, 228
meta-analysis of, 317–326
manufacture of, 163–174, 175–196
monovalent bulk, 180
mucosal delivery of, 74–75
in otitis media, 302–312
in children, 228–230
herd effect in, 311
with immunization after first year, 307–308
with immunization in first year, 303–307
microbial balance and, 310
microbial population composition and, 310–311

Index
INDEX
Genetics, of capsular polysaccharides, 34–39
immune response and, 68
serotypes and, 149
Genotype, invasiveness of, 141–142
Geometric means titers, of opsonophagocytic
immune response, 193, 339–349
Hepatitis V vaccine, conjugated
Heat shock proteins, for vaccines, 428
Haemophilus influenzae
Gram stain, of sputum, 121–122
Gram, Hans Christian, 4
Good Manufacturing Practice, 175
Good Laboratory Environment, 176
Glycosyltransferase, in capsular
Glycoconjugate vaccines,
Global Alliance for Vaccines and
GlaxoSmithKline, vaccines of, 165, 233
Genotypes, invasiveness of, 141–142
Genetics, of capsular polysaccharides, 34–39
Hodgkin’s disease, immunogenicity in, 269, 271
Human immunodeficiency virus infection
in children, 263, 266
immunocompromise in, 262–264, 266–267
invasive disease in, meta-analysis of,
317–326
pneumonia in, 106, 107, 119, 329, 332
polysaccharide antibody persistence in,
236
replacement disease in, 363–364
serotype distribution in, 148
vaccine efficacy in, 263, 266, 410
vaccine trials in, 218, 228, 407–408
Hyaluronidase, for vaccines, 427
Hyporesponsiveness, induced by prior
vaccination, 250–251
I
I. G. Farbenindustrie, antibiotic discovery
by, 10
IgA1 protease, for vaccines, 427
Immune correlates of protection, 193, 339–3492
measurements for, 340
statistical models for, 340–342
for colonization, 346–348
for invasive disease, 342–344
for otitis media, 343, 345
for pneumococcal disease, 346
Immune response
to colonization, 281–282
to polysaccharide antigens, 67–69
Immunoassays, for capsular polysaccharide
antibodies, 199–211; see also
Enzyme-linked immunosorbent assay
(ELISA)
avidity assessment, 205–206
comparison of, 206
early methods for, 200
Luminex multiple-analyte technology for,
205
Immunochromatographic test, in
pneumonia, 122
Immunocompromise, 261–275; see also
Human immunodeficiency virus
infection
in asplenia, 267, 269–270
in bone marrow transplantation, 265,
267, 269–270
in cancer, 271
causes of, 261
in chronic obstructive pulmonary disease,
269, 271
in complement deficiency, 88–89
in Hodgkin’s disease, 269, 271
immunogenicity measurement in, 262–263
in organ transplantation, 265, 268–270
in otitis media, 265, 270
pneumococcal disease in, 5
in polysaccharide nonresponders, 270–271
serotype distribution in, 148
in sickle cell disease, 262, 264–265, 267
Immune response
immunogenicity of, 231–252
antibody persistence and, 236
booster dose response and, 235–236
carrier-mediated interactions in, 237–238
in children, 227–243
duration of, 24
ELISA evaluation of, 246, 248–250
experimental, 236–237
hyporesponsiveness in, 250–251
in immunocompromise, 261–275
immunoglobulin G subclasses in, 252
invasive disease, 228
number of doses and, 233–235
opsonophagocytosis assays of, 250
in otitis media, 228–230
in pneumonia, 228
polysaccharide vaccine challenge in, 252, 254–257
population variations in, 230–233
with second dose, 252–253
serotype and, 251
single-dose studies of, 246, 249
Immunoglobulin(s)
complement binding to, 85
in conjugate vaccine response, 68–69,
74–75
Immunoglobulin G, subclasses of, 252
Infanrix hexa, 191
Infants, see Children and infants
Infection control, 8
Influenza pandemic of 1918, vaccine trials
prompted by, 23
Information, on licensing regulations, 184
Interleukins, as vaccine adjuvants, 75
Intranasal challenge, in animal models,
50–51
Intraperitoneal challenge, in animal models,
50
Intravenous challenge, in animal models,
50
Invasive disease, see also Bacteremia;
Meningitis; Pneumonia
animal models for, 48–53
carriagge vaccine effects on, 372–374
immune correlate models for, 342–343
nonvaccine type organisms in, 373–374
serotype replacement and, 363–364
carriage effects on, 284
vaccine efficacy in, 317–326, 356–359
in children, 228
pharmacoeconomics evaluation and,
395
Invasive odds ratios, 142
Invasiveness
animal models for, 54
of genotypes, 141–142
of serotypes, 141–142
Investigational new drug application, 184
K
Klebs, Edwin, 3–4
Krushal-Wallis test, in animal models, 40
K Lectin pathway, of complement activation,
83, 88–89
Lectin, in polysaccharide immune response,
68
Labeling, 181
Lactococcus lactis, capsular polysaccharides
of, 40
Lectin pathway, of complement activation,
83, 88–89
Lectins, in polysaccharide immune response,
68
Hemophilus influenzae
bacteremia due to, 96–97
carriage of, conjugate vaccine effects on,
289
carrier proteins derived from, 237–238
conjugate vaccines for, 5–6, 163
carriage effects of, 284
carrier protein interactions with, 71
colonization and, 282
immunogenicity of, 251
malaria and, 410
in otitis media, 228
in pneumonia, 328
polyribosylribitol phosphate-tetanus
toxoid (PRP-T), 237–238
meningitis due to, 98, 104–105, 407
otitis media due to, 301, 374
Heat shock proteins, for vaccines, 428
Hematopoietic transplantation,
immunogenicity in, 263, 267, 269–270
Hepatitis V vaccine, conjugated
pneumococcal vaccine administered
with, 237–238
Herd protection, 150, 361–362, 377–379
in adults, 361–362
in low-income countries, 411
in older children, 361–362
for otitis media, 311
in unvaccinated children, 361
Hexavalent vaccines, conjugated
pneumococcal vaccine administered
with, 237–238
Hic protein, in complement interference,
86–87
Histidine triad proteins, for vaccines, 427
History
antibiotics, 10–13
discovery and early work, 3–7
pneumococcal disease, 3–17
serum therapy, 8–10
vaccines, 21–31
eye use of, 24–25
licensure, 26–27
renewed interest, 25–26
as treatment, 7–8
whole-cell, 22–24

INDEX

Lederle Laboratories, vaccines of, 25, 26, 247

Licensing, of vaccines, 183–196
adult, 192–194
European Union regulations on, 185–186
history of, 26–27
infant, 191
information sources for, 184
overview of, 184–185
pediatric, 186–192
second generation, 191–192
seven-valent conjugate
in European Union, 188–191
in United States, 186–188
United States regulations on, 184–186
World Health Organization guidance on, 191

Lipopolysaccharides, detoxified, in conjugate vaccines, 74

Lister, 22–23

Locking, in conjugate vaccine manufacture, 167

Logistic factors, for conjugate vaccine programs, in low-income countries, 411–413

Low- and middle-income countries, conjugate vaccines for, 405–418
epidemiologic data and, 405–411
expected impact of, 415
financial constraints on, 413–414
future developments in, 415–416
importance of, 405–408
infection pressure and, 408–411
logistic factors and, 411–413
pharmacoecconomics of, 398–400
programmatic problems with, 409–410
underlying conditions and, 410–411

Luminex multiple-analyte profiling technology, 205

Lung aspiration
in animal models, for sepsis, 50–51
specimens from, in pneumonia diagnosis, 107

Lyt proteins, for vaccines, 425–427

M

Macrolides
for pneumonia, 130–131
resistance to, 369–370, 373, 378
Malaria, vaccine efficacy in, 410

Malaria, vaccine efficacy in, 410

Malnutrition, vaccine efficacy in, 410

Mann-Whitney test
in animal models, 54–55

Manufacture, of conjugate vaccines, 163–174, 175–196
analytical characterization of, 170–172
capsular polysaccharide structures and, 164–165
carbohydrate preparation for, 166–167
carrier protein selection for, 165–166, 179–180
carbohydrate characterization of, 176–179
carbohydrate conjugation step in, 166–167, 180
carbohydrate filling step in, 180
carbohydrate formulation in, 180
carbohydrate growth phase of, 177
carbohydrate history of, 175–176
carbohydrate inactivation phase of, 177
carbohydrate labeling of, 181
carbohydrate monovalent bulks in, 180
packing of, 181
polysaccharide isolation in, 177–178
protein preparation for, 167
purification in, 178
quality testing in, 180–181
seed production and maintenance for, 176
stability testing in, 177, 180–181
strain selection for, 176
unreacted components in, 171

7-valent, 167–168
11-valent, 168–170
Massachusetts Pneumonia Study, 10
Measles-mumps-rubella vaccine
pneumococcal vaccine administered with, 237–238
mechanical ventilation, for pneumonia, 8
MefA proteins, in resistance, 370
MEGA transposon-like element, in resistance, 370

Meningitis
animal models for, 52–53
in children, 98–106
diagnosis of, 98–106
empyema in, 109
epidemiology of, 98–104, 107, 407
mortality in, 98, 100–105
neurologic sequelae of, 104–105
serotypes in, 409
treatment of, 105–106
vaccine efficacy in, pharmacoecconomics evaluation and, 395

Meningococcal conjugate vaccine, 69–70, 228
Meningococcal outer protein complex, in conjugate vaccines, 165; see also PCV-OMPC

Merck Sharp & Dohme vaccines, 25–26, 247; see also Vaccine(s), 23-valent

Meta-analysis, of conjugate vaccines, in animal models, for sepsis, 222

Meta-analysis
for immune correlates of protection, 340–342
for colonization, 346–348
for immune correlates of protection, 340–342
for invasive disease, 342–344
for otitis media, 343, 345
for pneumonia, 346

Microbial size, of capsular polysaccharides, 34

Monophosphoryl lipid A, in conjugate vaccines, 164–165

for immune correlates of protection, 340–342
for colonization, 346–348
for immune correlates of protection, 340–342
for invasive disease, 342–344
for otitis media, 343, 345
for pneumonia, 346

Molecular size, of capsular polysaccharides, 34

Moraxella catarrhalis
 carriage of, conjugate vaccine effects on, 289
in otitis media, 374

Mortality
in animal models, 49–52
in meningitis, 98, 100–105
pharmacoecconomics evaluation and, 396
in pneumonia, 5, 106, 117, 124–125, 405–408, 409
productivity costs of, 397

Mouse models, see Animal models

Moxifloxacin, for pneumonia, 127

Mucosal infections, see also Otitis media;

Pneumonia
conjugate vaccine effects on, 374–376

Mucosal vaccines, conjugate, 74–75

Multilocus sequence typing, in invasiveness evaluation, 141–142

Multiplex opsonophagocytosis assays, 217–218

Mycobacterium phlei, 178

N

NanA protein, for vaccines, 427
Nasopharyngeal carriage, see Carriage/colonization

National Institutes of Health funding recommendations of, 25
vaccines of, 247

National Research Council, penicillin research by, 12

Navajo and Apache Native American study, 187

Neisseria meningitidis
meningitis due to, 98–99, 104–105
outer membrane complex of, in conjugate vaccines, 71–74

Neurologic disorders, in meningitis, 104–105

Neutrophils, in opsonophagocytosis, 214

Nonresponders, polysaccharide, 270–271

Northern California Kaiser Permanente OME Study, 308

OME Study, 308

Opsonophagocytosis
importance of, 215
mechanisms of, 214
as primary defense, 214–215
replication in laboratory, 216
vaccine elicitation of, 215–216

Opsonophagocytosis assays, 191
in children, 219–221
development of, 216–218
vs. ELISA, 206
flow cytometer-based, 217
future directions for, 221–222
in immunogenicity evaluation, 250
in infants, 218–219
in vitro system for, 216
killing-type, 216–217
minimal level of protection determination with, 222
multiplex, 217–218
for noncapsular antigens, 222

**P**

Stability testing, 177, 180–181
Standardization, of opsonophagocytosis assays, 221–222
Staphylococcus aureus
carryage of, conjugate vaccine effects on, 289
pneumonia due to, 107
Statistical comparisons, in animal models, 54–55
Statistical models, for immune correlates of protection, 340–342
for colonization, 346–348
for invasive disease, 342–344
for otitis media, 343, 345
for pneumonia, 346
Sternberg, George M., 3–4
Streptococcus agalactiae
capsular polysaccharides of, 36, 39–41
CppA protein of, 88
vaccines for, opsonophagocytosis assays for, 222
Streptococcus mitis, 13, 39
Streptococcus oralis, 39
Streptococcus pneumoniae, see also
Pneumococcal disease; Vaccines bioluminescent, 54
capsular polysaccharides of, 33–46
colonization, 281
Complement protein interactions of, 83–92
discovery of, 3–6
evolution of, 13
serotypes of, see Serotype(s)
Streptococcus pyogenes
capsular polysaccharides of, 36–37
CppA protein of, 88
vaccines for, opsonophagocytosis assays for, 222
Streptococcus thermophilus, 40
Student’s t test, in animal models, 55
Sudden infant death syndrome, 361
Sulfanilamide, 11
Sulfapyridine, 11–12
Summary of product characteristics, 186
Surface adhesin A, detection of, in pneumonia, 123
Symptoms, see Clinical features
Syntheses, in capsular polysaccharide synthesis, 39, 41–42
Syringes, for low-income countries, 411–412
T
T cells
adjuvants inducing, 74
in colonization, 281
capsular polysaccharide antigen interactions with, 69–70
Target bacteria method, in opsonophagocytosis assays, 217
Tet proteins, in resistance, 370
Tetanus toxoid, in conjugate vaccines, 75, 179
as carrier protein, 165, 237–238
interactions of, 71–72
Tetanus toxoid-pneumococcal conjugate vaccine, 69
Therapy, see Treatment
tnp gene, of capsular polysaccharide, 38
Toll-like receptors
in adjuvant action, 72–74
polymorphisms of, in vaccine immune response, 68
in polysaccharide immune response, 68
Transplantation, immunogenicity of bone marrow, 265, 267, 269–270
organ, 265, 268–270
Treatment of meningitis, 105–106
of pneumonia, 125–127, 130–132
antibiotics in, 10–13
supportive, 8
vaccines used in, 7–8
Trimethoprim-sulfamethoxazole, resistance to conjugate vaccine effects on, 373, 377
mechanisms of, 370
Tropism, animal models for, 54
U
UDP-acyethylglucosamine, in capsular polysaccharide synthesis, 39–40
UDP-glucuronic acid, in capsular polysaccharide synthesis, 39, 42
United Kingdom Medicines Control Agency, 189
United States, licensing regulations of, 184–188
University of Rochester, vaccines of, 247
Urinary antigen assays, for pneumonia, 109, 122
V
Vaccine(s)
bloodstream infection of, 219
conjugate vaccines for, 218
in adenovirus infection, 218
in HIV infection, 266, 268
immunogenicity of, 234, 248, 255
opsonophagocytosis assay evaluation of, 218
in polysaccharide nonresponders, 271
6-valent, 25
7-valent, 164
in asplenia, 267, 269
in bone marrow transplantation, 269–270
carriage effects of, 284, 286, 288, 290, 293
carrier protein for, 165
characteristics of, 247
carriage effects of, 143–144, 409–410
in HIV infection, 263–266, 268
in Hodgkin’s disease, 271
immune correlates of protection for, 339–349
immunogenicity of, 228–231, 236–237, 248–252, 253–254
invasive disease, 317–326
licensing of, 184, 186
limitations of, 421
in low-income countries, 408, 411–412
manufacture of, 167–168
opsonophagocytosis assay evaluation of, 218
in organ transplantation, 268–270
in otitis media, 270, 302–305, 307, 309–312
in pneumonia, 329, 331
in routine immunization programs, 354
serotype distribution and, 148–149
serotypes included in, 164
in sickle cell disease, 267
8-valent
carriage effects of, 286
immunogenicity of, 236
in polysaccharide nonresponders, 271
9-valent
carriage effects of, 284, 288, 290
efficacy of, 411
immunogenicity of, 228, 230, 234, 236–238
in low-income countries, 407–408
opsonophagocytosis assay evaluation of, 219
in otitis media, 307, 308
in pneumonia, 329, 331, 334–335
10-valent
carriage effects of, 284, 288, 290
efficacy of, 408
reactogenicity of, 238
11-valent
carriage effects of, 284
carrier protein for, 165
characteristics of, 247
immunogenicity of, 228–232, 234–238, 248
in low-income countries, 407–408
manufacture of, 168–170
opsonophagocytosis assay evaluation of, 219
in otitis media, 302, 304–306, 309–311
Index

13-valent characteristics of, 247
coverage of, 144
immunogenicity of, 236–237, 246, 249
in low-income countries, 408
reactogenicity of, 238

14-valent, 26, 192
23-valent, 26

adjuvants in, 72
in asplenia, 267, 269
chemical structures of, 164
in chronic obstructive pulmonary disease, 269, 271
colonization and, 282
history of, 26
in HIV infection, 263–266, 268–269
in Hodgkin’s disease, 269, 271

immunogenicity of, 246
licensing of, 183–184, 186, 188–195
limitations of, 421
nonresponders to, 270–271
opsonophagocytosis assay evaluation of, 219–220
in organ transplantation, 268–270
polysaccharide physical properties in, 34
serotypes included in, 164
in sickle cell disease, 267
Vaccine Adverse Event Reporting System, 360–361
Vaccines and Related Biologics Advisory Committee, 188, 191–192
Vancomycin, for meningitis, 105
Vibrio cholerae conjugate vaccine, 71
Viral infections, colonization during, 280

Virulence
animal models for, 54
capsular polysaccharides in, 67

W
Whole-cell vaccines, 22–24, 428–429
World Health Organization
guidelines for infant vaccines, 191
ligand-binding assay recommendations of, 200–204, 206
pneumococcal disease statistics of, 407
respiratory infection management guidelines of, 327–328
Wyeth, vaccines of, 247
Wyeth Lederle Vaccines S.A. Belgium, 188–189
Wzx flippase, of capsular polysaccharide, 38
Wzy-synthesis mechanisms, 37–41