

REPORT OF THE COMMITTEE ON
INFECTIOUS DISEASES

Seventeenth Edition

1974

American
Academy of
Pediatrics

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INFECTIOUS DISEASES

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PREFACE

Those who utilize this seventeenth edition of the *Report of the Committee on Infectious Diseases*, also known as the *Red Book*, are urged once again to read the brief section outlining its purpose. It is essential to realize that the recommendations given by the Committee are guidelines, not rules; and, these recommendations should be employed with flexibility and logic. The Committee is an officially designated group of experts in infectious diseases of the American Academy of Pediatrics. Its deliberations are conducted and its recommendations are formulated with the awareness that children in North, Central, and South America will receive health care from physicians, medical assistants, and others who consult these pages.

Readers of previous editions will find the general format a familiar one, with the summaries of the diseases listed in alphabetical order. Two major changes have been made. The section on Parasitic Diseases has been greatly augmented and reorganized in a more lucid fashion. Dr. Thomas E. Frothingham, assisted by several consultants, has updated and enlarged the material for this section. The Committee feels that these alterations are considerably important because of an increased awareness of the prevalence of parasitic infestations in all the Americas, the greater numbers of children involved in foreign travel throughout the world, and the availability of newer chemoprophylactic and chemotherapeutic compounds. Dr. Martha D. Yow has prepared a set of tables on antimicrobials to provide ready assistance in the rational choice of effective antibiotics for treatment of infections in infants and children.

Constant changes in some fields will render material in this report "outdated" even before it is printed, for example, constant viral antigenic shifts and new developments in vaccines for immunization against influenza viruses continue at a rapid rate. Interested physicians may keep abreast of new information and recommendations by reading the American Academy of Pediatrics newsletter and the weekly *Morbidity and Mortality* report of the U.S. Public Health Service.

All members of the Committee on Infectious Diseases are teachers, investigators, or practitioners who give generously and cheerfully of their time to produce this report. Collaborator-consultants to whom the Committee turned for assistance are listed on the following pages; their contributions are acknowledged with gratitude. Because Dr. Franklin H. Top, Sr., who was editor of the *Red Book* for three editions, retired after the sixteenth edition, much of this edition's editorial chores were borne by Dr. Alex J. Steigman. Both Dr. Stanley L. Harrison, director, Department of Committees of the Academy, and Miss Agnes E. Dillon, editor, Department of Committees, have

won the friendship and admiration of all the Committee members through their untiring dedication to completion of this report.

Over the past several decades, new editions of this report have appeared at 2- or 3-year intervals. (The revision of the sixteenth edition was printed in 1971.) Material has already begun to accumulate for an eighteenth edition. As long as infectious diseases remain a major cause of morbidity and mortality among infants and children, new editions of the *Red Book* will be required as the American Academy of Pediatrics pursues its goals for the health and welfare of children in the Americas.

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PURPOSE OF THE REPORT

This report is intended to provide a succinct, up-to-date desk reference for pediatricians and others caring for children. It should be regarded as presenting flexible guidelines to the best, currently accepted procedures for diagnosis, treatment, and prevention of infectious diseases encountered in the United States, Canada, and Latin America. Hopefully, it will also be of value to public health workers and others planning delivery of preventive and therapeutic medical care in hospitals and community clinics which serve children.

The content of the *Red Book* has been carefully reviewed by the Committee, which includes pediatricians with particular interest and competence in the field of infectious diseases, as well as by laboratory and public health specialists. The Committee has received expert advice from the many consultants listed in this edition. Wherever possible, recommendations are based on factual data or, when these were lacking, on the best available clinical experience and practice. Suggestions are made for modifications suitable to certain "special circumstances." However, situations inevitably arise in the practice of medicine in which the physician must take individual factors into account and depart from recommendations based on "usual circumstances."

Variations between recommendations of the Committee writing the *Red Book* and those of other groups advising on similar problems have frequently been disturbing to physicians. Differences result from the characteristics of the audiences to which recommendations are addressed. The Committee charged with preparing this report has focused primarily on the patient receiving care in the pediatrician's office, realizing that authorities with different vantage points may logically make slightly different recommendations (e.g., the Advisory Committee on Immunization Practices of the U.S. Public Health Service, the Council on Environmental Health of the American Medical Association, the American Public Health Association Committee on Control of Communicable Diseases in Man, and individual state health departments). To minimize differences and to share experience and attitudes, the American Academy of Pediatrics and the U.S. Public Health Service Advisory Committee on Immunization Practices have, during the past 5 years, arranged for bilateral liaison representation. Nevertheless, minor variations are inevitable, particularly when data are scarce, or when new information has appeared so recently as to have been incorporated into one recommendation but not yet into the others.

The contributors have continued past efforts to orient this edition so it will increasingly render service to the Latin American members

PURPOSE OF THE REPORT

of the Academy and thereby indirectly to the children under their care. A Spanish translation is planned.

The Committee relies heavily on the continuing interest, criticism, and questions of Academy members to help keep it abreast of their problems. Comments and suggestions are welcomed.

The content of the Red Book has been carefully reviewed by the Committee, which includes pediatricians with particular interest and competence in the field of infectious diseases, as well as by laboratory and public health specialists. The Committee has received expert advice from the many consultants listed in this edition. Wherever possible, recommendations are based on factual data or, when these were lacking, on the best available clinical experience and practice. Suggestions are made for modifications suitable to certain "special circumstances." However, situations inevitably arise in the practice of medicine in which the physician must take individual factors into account and depart from recommendations based on "usual circumstances."

Variances between recommendations of the Committee within the Red Book and those of other groups advising on similar problems have frequently been discussed to physicians. Differences result from the characteristics of the audience to which recommendations are addressed. The Committee charged with preparing this report has found primarily on the patient receiving care in the pediatrician's office, realizing that authorities with different vantage points may logically make slightly different recommendations. As the Advisory Committee on Immunization Practices of the U. S. Public Health Service, the Council on Environmental Health of the American Medical Association, the American Public Health Association Committee on Control of Communicable Disease in Man, and a Division of Health Department, to name a few, and to name experience and attitudes, the American Academy of Pediatrics and the U. S. Public Health Service Advisory Committee on Immunization Practices have during the past 2 years, attended for bilateral liaison representation. Nevertheless, minor variations are inevitable, particularly when data are scarce, or when new information has appeared so recently as to have been incorporated into one recommendation but not yet into the others.

The contributors have continued past efforts to extend this edition so it will increasingly render service to the Latin American peoples.

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tended as a guide to be used with any needed modifications adapted judiciously to meet the requirements of an individual or a group. Immunization is a dynamic field in which the continuing changes require constant evaluation. Both the Academy's committee and the ACIP meet regularly to evaluate new data relevant to these recommendations and schedules. Changes in the Academy's recommendations published in its newsletter and distributed to the membership of the Academy. ACIP statements are circulated in Public Health Service's *Weekly and Monthly Reports*.

PART 1

ACTIVE IMMUNIZATION PROCEDURES

about the immunization practices they should know the antigens to administer, the routes of their use, and the associated reactions.

Active immunization of infants and children provides an effective means of disease prevention and health maintenance. During the past 30 years, a number of vaccines have been developed and are available for the physician to use in a variety of ways. No single set of recommendations for the use of these vaccines can be optimal for all situations and patients. A number of factors have been considered in preparing a schedule for active immunization of healthy infants and children. These factors include: (1) the current risk from the disease for which active immunization is available; (2) the characteristics of the vaccines, particularly their efficacy and safety; (3) the most efficient and expeditious ways to use the vaccines within the general framework and patterns of good health care.

Several national groups make recommendations on immunization policies and procedures. The Advisory Committee on Immunization Practices (ACIP) of the U.S. Public Health Service is concerned with organized public health and considers its statements in that context. The Committee on Infectious Diseases of the American Academy of Pediatrics formulates its recommendations for infants and children who receive their health care in physicians' offices, clinics, or similar facilities in which there is a pattern of attendance with certain predictable regularity. Because of the somewhat different perspectives of these two groups, minor differences in recommendations have appeared on occasion. A close liaison is maintained between the two committees to facilitate exchange of information. The inevitable, though minimal, differences which result should be interpreted with an awareness of the perspective of each committee and with the reminder that their statements contain **recommendations, not rules.**

Recommended Schedule for Active Immunization

The schedule for active immunization given in Table 1 is recommended for healthy infants and children in the Americas. It is in-

2 Active Immunization

tended as a guide to be used with any needed modifications adapted judiciously to meet the requirements of an individual or a group. Immunization is a dynamic field in which the continuing changes require constant evaluation. Both the Academy's committee and the ACIP meet regularly to evaluate new data relevant to these recommendations and schedules. Changes in the Academy's recommended programs are published in its newsletter and distributed to the membership of the Academy. ACIP statements are circulated in the Public Health Service's *Morbidity and Mortality* weekly report.

Parents (and patients of responsible age) should be fully informed about the immunization proposed. They should know the antigens to be administered, the reasons for their use, and the associated reactions which might occur. They should be encouraged to report any response of a severe or unusual nature to their physician. Any severe or unusual reactions should be carefully evaluated, documented, and reported to local or state health officials. Because such responses are rare, their statistical evaluation through central surveillance by the Center for Disease Control (CDC) in Atlanta, Georgia, is important. With inactivated antigens (such as DTP), unfavorable reactions are most likely to occur within a few hours or days of administration. However, the live attenuated virus vaccines multiply and may persist for days or weeks; and, an observation period of 30 days has been selected for surveillance of possible "vaccine-associated" disorders, except for rubella where 60-day surveillance is usually maintained.

Age to Commence Active Immunizations

The generally recommended age for beginning routine immunization of normal infants is 2 months, and the first vaccines given are DTP (diphtheria and tetanus toxoids combined with pertussis vaccine) and TOPV (trivalent oral poliovirus vaccine). Measles vaccine is most effective when given at or after 1 year of age because all maternal transplacental antibody has been catabolized by then. However, it may be administered as early as 6 months of age among populations where natural measles occurs frequently in the first year of life. Under such circumstances, a repeat dose of measles vaccine should then be given after the age of 1 year to immunize any infants whose earlier vaccine response had been blocked by passive immunity.

Immunizing Agents and Dosage

Because the concentration of antigen varies in different products, the manufacturer's package insert should be consulted regarding the volume of individual doses of immunizing agents.

TABLE 1
RECOMMENDED SCHEDULE FOR ACTIVE IMMUNIZATION
OF NORMAL INFANTS AND CHILDREN

2 mo	DTP ¹	TOPV ²
4 mo	DTP	TOPV
6 mo	DTP	TOPV
1 yr	Measles ³	Tuberculin Test ⁴
	Rubella ³	Mumps ³
1½ yr	DTP	TOPV
4-6 yr	DTP	TOPV
14-16 yr	Td ⁵ and thereafter every 10 years	

¹ DTP—diphtheria and tetanus toxoids combined with pertussis vaccine.

² TOPV—trivalent oral poliovirus vaccine. This recommendation is suitable for breast-fed as well as bottle-fed infants.

³ May be given at 1 year as measles-rubella or measles-mumps-rubella combined vaccines (see Rubella, section 9, and Mumps, section 9, for further discussion of age of administration).

⁴ Frequency of repeated tuberculin tests depends on risk of exposure of the child and on the prevalence of tuberculosis in the population group. The initial test should be at the time of, or preceding, the measles immunization.

⁵ Td—combined tetanus and diphtheria toxoids (adult type) for those more than 6 years of age in contrast to diphtheria and tetanus (DT) which contains a larger amount of diphtheria antigen. *Tetanus toxoid at time of injury*: For clean, minor wounds, no booster dose is needed by a fully immunized child unless more than 10 years have elapsed since the last dose. For contaminated wounds, a booster dose should be given if more than 5 years have elapsed since the last dose.

Storage of Vaccines

Because biologics are of varying stability, the manufacturers' recommendations for optimal storage conditions (e.g., temperature, light) should be carefully followed. Failure to observe these precautions may significantly reduce the potency and effectiveness of the vaccines.

Combined preparations which contain diphtheria and tetanus toxoids, adsorbed, and pertussis vaccine (DTP) are recommended for primary immunization of infants and young children. These depot antigens are preferred to combined fluid toxoids and pertussis vaccine ("plain" triple antigens without adjuvant) because they are more immunogenic. Neither the depot nor the "plain" triple antigens have been widely used on patients more than 6 years of age because of the possibility of reactions to either diphtheria or pertussis antigen. There is abundant evidence that untoward reactions to diphtheria antigen increase with age; however, there is none for the widely held belief that the same is true of reactions to pertussis antigen. Combined immunization by use of "plain" triple antigens without adjuvant is preferred by a few physicians. For this type of immunization, a schedule