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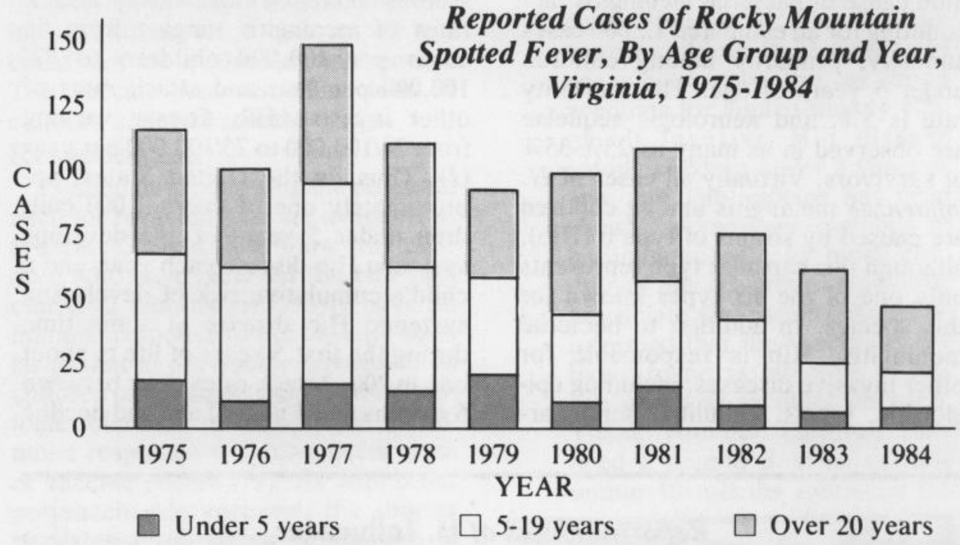
Rocky Mountain Spotted Fever Declining

As of May 14, only two cases of Rocky Mountain Spotted Fever (RMSF) have been reported during 1985 to the Division of Epidemiology. The five year (1980-1984) mean number of cases reported for the months of January through May is nine, a number unlikely to be matched during the remainder of May. Reported cases have been diminishing since 1981, as shown in the accompanying figure. The decline has been most notable in the 5-19 year age group, and its cause is not known. It is possible that the decrease is merely a reporting artifact. In 1981 an expanded case report form, developed by the Centers for Disease Control, was introduced. This form sought more detailed epidemiological, clinical and laboratory data than the one used previously. It is unlikely however, that this change of forms resulted in the subsequent drop in reports. Health officials in Oklahoma have also used this form and have noted an increase in the number of reports since 1981.[1] Other states in the South Atlantic region (North Carolina, South Carolina, Maryland) have experienced declines in reports similar to that noted for Virginia.

Reported Cases of Rocky Mountain Spotted Fever, By Age Group and Year, Virginia, 1975-1984



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Diptheria-Tetanus-Pertussis Vaccine

Reinstatement of Regular Schedule

The status of diptheria-tetanus-pertussis (DTP) vaccine availability in the United States and interim recommendations of the U.S. Public Health Service Interagency Group to Monitor Vaccine Development, Production, and Usage were recently reported (*1*). This statement recommended postponement of administration of the DTP vaccine doses usually given at ages 18 months and 4-6 years (fourth and fifth doses) until greater supplies are available.

Since November 1984, Lederle Laboratories has been distributing its own DTP vaccine, as well as that manufactured by Wyeth Laboratories. By following the recommendation of the Interagency Group, the quantities distributed have been sufficient to reduce the threat of critical shortages. On April 25, Connaught Laboratories announced its resumption of full-scale distribution of DTP vaccine and the availability of 2.2 million doses for immediate shipment. Connaught Laboratories will continue to produce vaccine at a level that will help meet U.S. needs.

Projected production schedules for the manufacturers indicate that supplies of DTP vaccine should be adequate to provide the normally recommended fourth and fifth doses of DTP and to provide the needed catch-up doses for children who have had them deferred.

In view of these developments, af-

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Haemophilus Influenzae Type b Vaccine

Introduction

A polysaccharide vaccine* against invasive (bacteremic) disease caused by *Haemophilus influenzae* type b recently has been licensed in the United States. The purposes of this statement are to summarize available information about this vaccine and to offer guidelines for its use in the prevention of invasive *H. influenzae* type b disease.

Haemophilus influenzae Disease

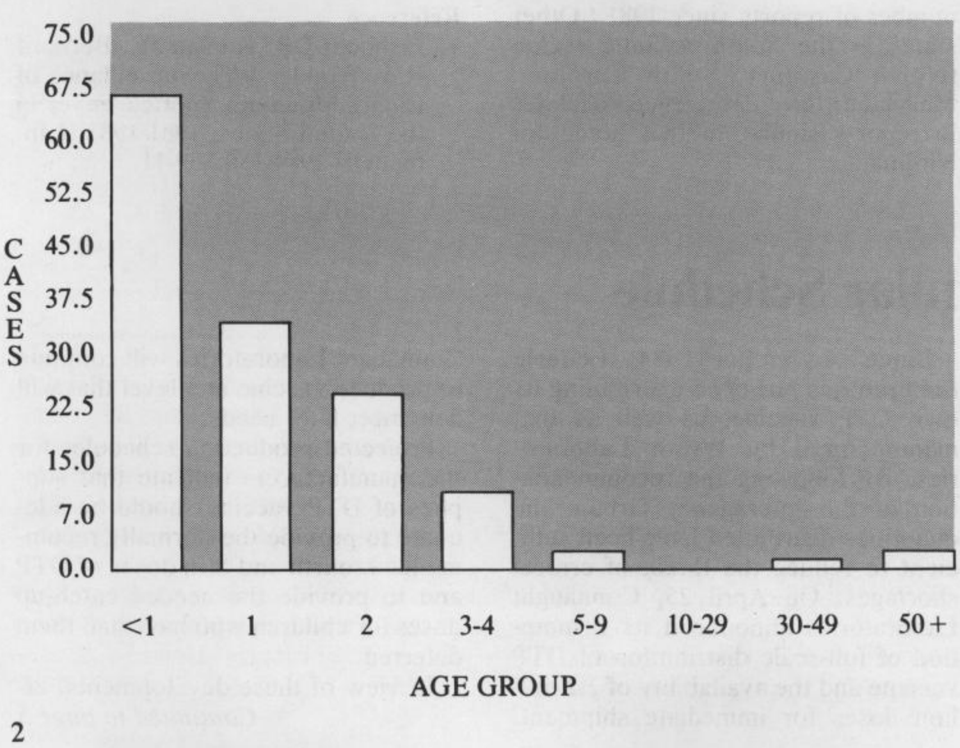
H. influenzae is a leading cause of serious systemic bacterial disease in the United States. It is the most common cause of bacterial meningitis, accounting for an estimated 12,000 cases annually, primarily among children under 5 years of age. The mortality rate is 5%, and neurologic sequelae are observed in as many as 25%-35% of survivors. Virtually all cases of *H. influenzae* meningitis among children are caused by strains of type b (Hib), although this capsular type represents only one of the six types known for this species. In addition to bacterial meningitis, Hib is responsible for other invasive diseases, including epiglottitis, sepsis, cellulitis, septic arthritis, osteomyelitis, pericarditis, and pneumonia. Nontypeable (noncapsulated) strains of *H. influenzae* commonly colonize the human respiratory tract and are a major cause of otitis media and respiratory mucosal infection but rarely result in bacteremic disease. Hib strains account for only 5%-10% of *H. influenzae* causing otitis media.

Several population-based studies of invasive Hib disease conducted within the last 10 years have provided estimates of the incidence of disease among children under 5 years of age, the major age group at risk. These studies have demonstrated attack rates of meningitis ranging from 51 cases per 100,000 children to 77/100,000 per year and attack rates of other invasive Hib disease varying from 24/100,000 to 75/100,000 per year (*1*). Thus, in the United States, approximately one of every 1,000 children under 5 years of age develops systemic Hib disease each year, and a child's cumulative risk of developing systemic Hib disease at some time during the first 5 years of life is about one in 200. Attack rates peak between 6 months and 1 year of age and decline thereafter. Approximately 35%-40% of Hib disease occurs among children 18 months of age or older, and 25% occurs above 24 months of age.

Incidence rates of Hib disease are increased in certain high-risk groups, such as Native Americans (both American Indians and Eskimos), blacks, individuals of lower socioeconomic status, and patients with asplenia, sickle cell disease, Hodgkin's disease, and antibody deficiency syndromes. Recent studies also have suggested that the risk of acquiring primary Hib disease for children under 5 years of age appears to be greater for those who attend day-care facilities than for those who do not (*2,3*).

The potential for person-to-person transmission of systemic Hib disease among susceptible individuals has been recognized in the past decade. Studies of secondary spread of Hib disease in household contacts of index patients have shown a substantially increased risk of disease among exposed household contacts under 4 years of age (*4*). In addition, numerous clusters of cases in day-care facilities have been reported, and recent studies suggest that secondary attack rates in day-care classroom contacts of a primary case also may be increased (*5,6*).

Reported Cases of H. **Influenzae Meningitis by Age Group, Virginia, 1984**



Haemophilus b Polysaccharide Vaccine

The Hib vaccine is composed of the purified, capsular polysaccharide of *H. influenzae* type b ([→3] ribose-β1→1 ribitol-1 phosphate-5→). Antibodies to this antigen correlate with protection against invasive disease. The Hib vaccine induces an antibody response that is directly related to the age of the recipient; infants respond infrequently and with less antibody than do older children or adults (*7*). Improved responses are observed by 18 months of age, although children 18-23 months of age do not respond as well as those 2 years of age or older. The frequency and magnitude of antibody responses reach adult levels at about 6 years of age (*8,9*). Levels of antibodies to the capsular polysaccharide also decline more rapidly in

*Official name: Haemophilus b Polysaccharide Vaccine.

immunized infants and young children than in adults.

In a manner similar to other polysaccharide antigens, revaccination with Hib vaccine results in a level of antibody comparable to that for a child of the same age receiving a first immunization (*10*). Such polysaccharide antigens have been termed

"T-cell independent" because of their failure to induce the T-cell memory response characteristic of protein antigens.

Limited data are available on the response to Hib vaccine in high-risk groups with underlying disease. By analogy to pneumococcal vaccine, patients with sickle cell disease or asplenia are likely to exhibit an immune response to the Hib vaccine. Patients with malignancies associated with immunosuppression appear to respond less well. Additional data on the immune response to Hib vaccine in these groups are needed.

A precise protective level of antibody has not been established. However, based on evidence from passive protection in the infant rat model and from experience with agammaglobulinemic children, an antibody concentration of 0.15 μg/ml correlates with protection (*7,8,11*). In the Finnish field trial, levels of capsular antibody greater than 1 μg/ml in 3-week postimmunization sera correlated with clinical protection for a minimum of 1½ years (*9,12,13*). Approximately 75% of children 18-23 months of age tested achieved a level greater than 1 μg/ml, as did 90% of 24-35 month old children (*9*). Measurement of Hib antibody levels is not routinely available, however, and determination of antibody levels following vaccination is not indicated in the usual clinical setting.

Effectiveness of Vaccine

In 1974, a randomized, controlled trial of clinical efficacy was conducted in Finland among children 3-71 months of age (*9*). Approximately 98,000 children, half of whom received the Hib vaccine, were enrolled in the field trial and followed for a 4-year period for occurrence of Hib disease. Among children 18-71 months of age, 90% protective efficacy (95% confidence limits, 55%-98%) in prevention of all forms of invasive Hib disease was demonstrated for the 4-year follow-up period. Although no disease occurred among over 4,000 children 18-23 months of age immunized with Hib vaccine and followed for 4 years, only two cases occurred in the control vaccine recipients in this age group. As a result, vaccine efficacy in the subgroup of children immunized at 18-23 months of age could not be evaluated statistically. The vaccine was not efficacious in children under 18 months of age.

Revaccination

Limited data regarding the potential need for revaccination are available at present. Current data show that children who have received the Hib vaccine 2-42 months previously have an immune response to the vaccine similar to that in previously unvaccinated children of the same age. No immunologic tolerance or impairment of immune response to a subsequent dose of vaccine occurs (*10*). As with other polysaccharide vaccines, the shorter persistence of serum antibodies in young children given Hib vaccine, compared with adults, suggests that a second dose of vaccine may be needed to maintain immunity throughout the period of risk, particularly for children in the youngest age group considered for vaccination (those 18-23 months of age). A second injection following the initial dose is likely to increase the protective benefit of vaccination for this high-risk group, because antibody titers 18 months after vaccination, although detectable in most vaccine recipients, are no longer significantly different from those in unvaccinated children of the same age.

Recommendations for Vaccine Use

Recently published data regarding vaccine efficacy and the risk of Hib disease among young children strongly support the use of Hib vaccine in the United States in high-risk persons for whom efficacy has been established. Specific recommendations are as follows:

1. **Immunization of all children at 24 months of age is recommended.** The precise duration of immunity conferred by a single dose of Hib vaccine at 24 months of age is not known, although, based on available data, protection is expected to last 1½-3½ years. Until further data are available to determine whether an additional dose of vaccine may be necessary to ensure long-lasting immunity, routine revaccination is not recommended.
2. **Immunization of children at 18 months of age, particularly those in known high-risk groups, may be considered.** Although the precise efficacy of the vaccine among children 18-23 months of age is not known, this age group accounts for approximately 12% of all invasive Hib disease among children under 5 years of age, and Hib vaccine has been shown by serologic methods to be immunogenic in most children of this age group. However, physicians and parents should be informed that the vaccine is not likely to be as effective in this age group as in older children. These younger children may need a second dose of vaccine within 18 months following the

initial dose to ensure protection. Additional data regarding the duration of the antibody response are needed to define the timing of a second dose more precisely.

Children who attend day-care facilities are at particular risk of acquiring systemic Hib disease. Initial vaccination at 18 months of age for this high-risk group should be considered.

Children with chronic conditions known to be associated with increased risk for Hib disease should receive the vaccine, although only limited data on immunogenicity and clinical efficacy in this group are available. These conditions include anatomic or functional asplenia, such as sickle cell disease or splenectomy (*14*), and malignancies associated with immunosuppression (*15*).

3. **Immunization of individuals over 24 months of age who have not yet received Hib vaccine should be based on risk of disease.** The risk of invasive Hib disease decreases with increasing age over the age of 2 years. Because the vaccine is safe and effective, however, physicians may wish to immunize previously unvaccinated healthy children between 2 years and 5 years of age to prevent the Hib disease that does occur in this age group. The potential benefit of this strategy in terms of cases prevented declines with increasing age of the child at the time of vaccination. Therefore, children 2-3 years of age who attend day-care facilities should be given a higher priority than day-care attendees who are 4-5 years old.
4. **Insufficient data are available on which to base a recommendation concerning use of the vaccine in older children and adults with the chronic conditions associated with an increased risk of Hib disease.**
5. **Vaccine is not recommended for children under 18 months of age.**

Measles Outbreak

An outbreak of rubeola has been occurring in the Appomattox, Lynchburg, and Amherst areas since mid-February. Of the ten cases confirmed to date, all were either school children who had received live virus vaccine on or around their first birthdays, children less than 15 months of age (i.e. not yet immunized), or young adults between the ages of 20 and 34 years of age (i.e. never immunized and no natural immunity).

6. **Simultaneous administration of Hib and DTP vaccines at separate sites can be performed, because no impairment of the immune response to the individual antigens occurs under these circumstances.**

Side Effects and Adverse Reactions

Polysaccharide vaccines are among the safest of all vaccine products. To date, over 60,000 doses of the Hib polysaccharide vaccine have been administered to infants and children, and several hundred doses have been given to adults (*9,16*). Only one serious systemic reaction has been reported thus far—a possible anaphylactic reaction that responded promptly to epinephrine. High fever (38.5 C [101.3 F] or higher) has been reported in fewer than 1% of Hib vaccine recipients. Mild local and febrile reactions were common, occurring in as many as half of vaccinated individuals in the Finnish trial. Such reactions appeared within 24 hours and rapidly subsided. Current preparations appear to result in fewer such local reactions. Simultaneous administration with DTP does not result in reaction rates above those expected with separate administration (*17*).

Precautions and Contraindications

The Hib vaccine is unlikely to be of substantial benefit in preventing the occurrence of secondary cases, because children under 2 years old are at highest risk of secondary disease. Because the vaccine will not protect against nontypeable strains of *H. influenzae,* recurrent upper respiratory diseases, including otitis media and sinusitis, are not considered indications for vaccination.

New Vaccine Development

New vaccines, such as the Hib polysaccharide-protein conjugate vaccines, are being developed and evaluated and may prove to be efficacious for children under 18 months of age.

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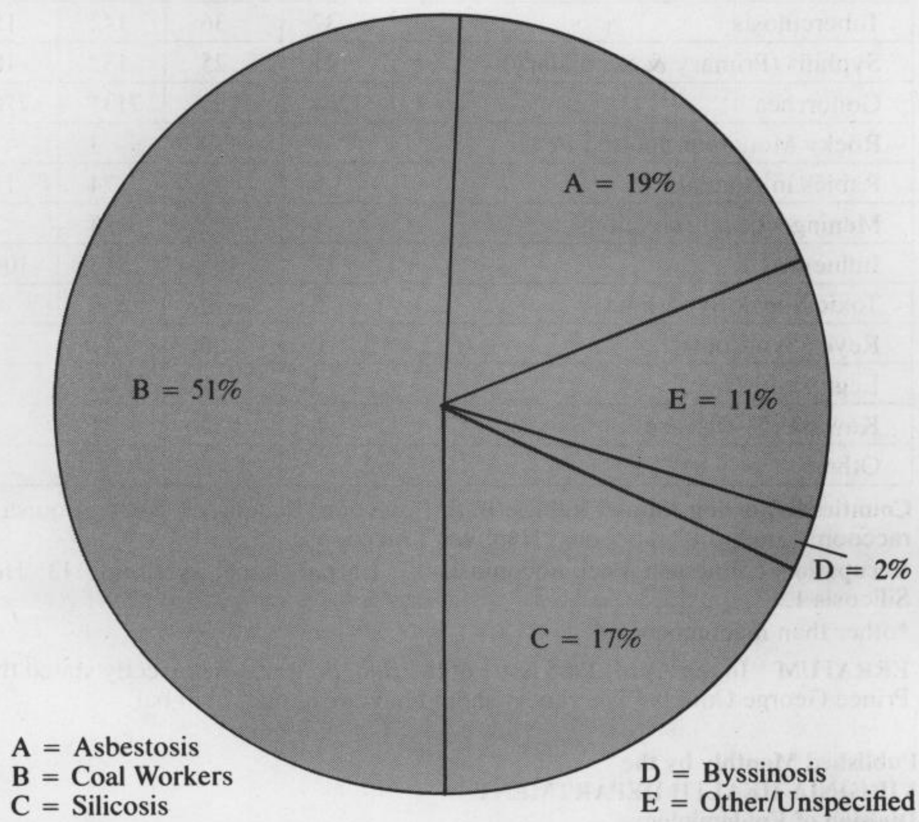
Reprinted from MMWR;1985:201-5.

Occupational Pneumoconioses: Still With Us

Coal Worker's Pneumoconiosis accounts for over half the cases of pneumoconiosis reported to the Department (see figure). As expected, most reports are from coal mining counties in southwestern Virginia. Asbestosis (including asymptomatic pleural disease noted on roentgenogram) is most frequently reported (53%) in former or current shipyard workers; these reports are therefore most commonly received from eastern Virginia. Almost all (94%) reported silicosis in Virginia has been in foundry workers; cement workers have accounted for the remainder.

This preliminary computer analysis is based on 269 reports from physicians, hospitals, and workmen's compensation claims (whether awarded or not) received during the period August 1984 through April 1985. Computerization of data for earlier years will enable future analysis of temporal trends for these diseases.

Reported Cases (N=269) of Pneumoconioses, By Type, Virginia, August 1984-April 1985



Reinstatement *(continued from page 1)* ter consultation with members of the Immunization Practices Advisory Committee and Committee on Infectious Diseases of the American Academy of Pediatrics, the Interagency Group now feels that the interim recommendations no longer apply. Immunization providers should resume administration of the complete DTP schedule and implement recall procedures for children under 7 years of age whose fourth (18 month) and fifth (4-6 years) doses were deferred. It is especially important to make every effort to provide DTP vaccine doses to such children scheduled to enter kindergarten or first grade in the fall.

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Month: May, 1985

Disease	State					Regions				
	This Month	Last Month	Total to Date 1985	Total to Date 1984	Mean 5 Year To Date	This Month N.W.	N.	S.W.	C.	E.
Measles	4	5	16	2	61	0	1	3	0	0
Mumps	5	5	21	8	34	0	2	0	0	3
Pertussis	0	1	3	7	11	0	0	0	0	0
Rubella	1	0	1	0	10	0	0	0	1	0
Meningitis—Aseptic	5	11	65	46	41	1	1	0	3	0
*Bacterial	10	24	120	117	105	1	1	1	1	6
Hepatitis A (Infectious)	7	21	87	46	79	0	1	5	0	1
B (Serum)	54	42	248	200	208	3	9	14	13	15
Non-A, Non-B	5	9	45	48	29	0	1	0	2	2
Salmonellosis	152	76	521	353	401	10	49	20	26	47
Shigellosis	7	6	30	108	206	0	5	0	0	2
Campylobacter Infections	49	36	196	178	92	12	9	2	12	14
Tuberculosis	37	36	142	158	—	—	—	—	—	—
Syphilis (Primary & Secondary)	21	25	132	180	240	1	4	1	5	10
Gonorrhea	1264	1296	7131	7704	8115	—	—	—	—	—
Rocky Mountain Spotted Fever	3	0	3	5	9	1	0	2	0	0
Rabies in Animals	9	19	74	117	134	4	3	0	2	0
Meningococcal Infections	1	9	33	34	39	1	0	0	0	0
Influenza	17	105	913	1088	1556	7	1	2	0	7
Toxic Shock Syndrome	0	0	0	5	3	0	0	0	0	0
Reyes Syndrome	0	0	1	4	8	0	0	0	0	0
Legionellosis	2	1	7	7	7	1	0	0	0	1
Kawasaki's Disease	6	2	21	6	10	1	0	3	0	2
Other:										

Counties Reporting Animal Rabies: Bath 1 raccoon; Fauquier 1 skunk; Louisa 1 raccoon; Shenandoah 1 raccoon; Fairfax 1 raccoon; Loudoun 2 raccoons; Hanover 2 raccoons.

Occupational Illnesses: Pneumoconiosis 17; Carpal tunnel syndrome 13; Hearing loss 4; Asbestosis 3; Dermatoses 1; Silicosis 1.

*other than meningococcal

ERRATUM In the April, 1985 issue of the *Bulletin* it was incorrectly stated that one rabid raccoon had been reported from Prince George County. The report should have read one rabid bat.

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