

VIRGINIA EPIDEMIOLOGY BULLETIN

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Measles Outbreak In Northwest Virginia

Over 54 confirmed cases of measles have been reported from Frederick, Warren and Shenandoah Counties since the beginning of March, 1988. The outbreak was first recognized on March 2, when the Regional Health Director learned of four cases of measles in Frederick County. One of the patients had been hospitalized.

The Health Department initiated an investigation which uncovered additional cases of rash illness. Twenty of the 27 persons with reported rash illness were students at

the James Wood Middle School. Seventeen of the 27 had previously been vaccinated with measles vaccine between the ages of 12 and 14 months.

Further investigation revealed that, a month earlier, a six year old British child visiting the area had been clinically diagnosed as having rubeola by one of the local hospital emergency room physicians. This index case was never reported to the Health Department and the child returned to England. Ten days later, on February 17, another suspect

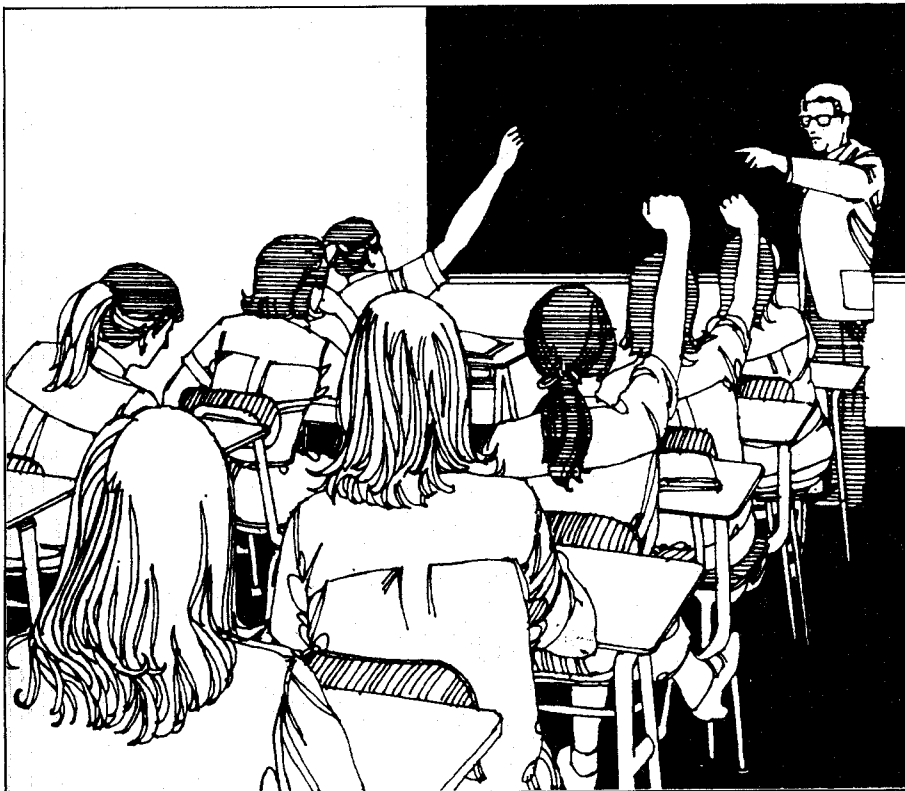
case had onset of illness. Although that patient did not know the child from England, it was subsequently learned that they had both attended the same church the day before the index case had rash onset.

The secondary case-patient attended the James Wood Middle School and rode the school bus until the day before rash onset. The same school bus transports students to several schools within Frederick County. Many of the bus and school contacts subsequently became ill with the disease.

An outbreak control plan was put into place. This included daily active surveillance of all schools, hospitals, and selected physicians (34 sites), interviews of all patients reported with rubeola-like rash, review of all school immunization records (approximately 12,100) reimmunization of students vaccinated before 15 months, and postponement of interscholastic activities. The outbreak spread into the two adjacent counties of Warren and Shenandoah, where similar actions were taken. Approximately 4,500 students and 200 adults had been reimmunized as of mid-April, at an approximate cost for vaccine alone of \$64,850 (excludes cost of personnel and equipment).

Comment: *All reports of suspected measles cases should be investigated rapidly. A measles outbreak exists in a community whenever one case of measles is confirmed. Once an outbreak oc-

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curs, preventing dissemination of measles depends on promptly vaccinating susceptible persons. Control activities should not be delayed until laboratory results on suspected cases are received. All persons who cannot readily provide proof of immunity should be vaccinated or excluded from the setting (e.g., school). Documentation of vaccination should be considered adequate only if the date of vaccination is provided.

An effective means of terminating school outbreaks and quickly increasing rates of immunization is to exclude all children or adolescents from the outbreak area who cannot present valid evidence of immunity. Students can be readmitted immediately after vaccination. Experience with outbreak control indicates that

almost all students who are excluded from the outbreak area because they lack evidence of immunity to measles quickly comply with requirements and can be readmitted to school. Pupils who have been exempted from measles vaccination because of medical, religious, or other reasons should be excluded until at least 2 weeks after the onset of rash in the last person with measles in the outbreak area.

Persons vaccinated between 12 and 14 months of age have been shown in some serologic and epidemic investigations to be at increased risk of acquiring measles compared with those vaccinated at ≥ 15 months of age. However, the increased risk of acquiring measles is small. Nevertheless, in many outbreaks, particularly in junior and senior high schools, persons vacci-

nated at 12-14 months of age appear to have played a substantial role in perpetuating transmission. Therefore, although the effectiveness of such a strategy in terminating outbreaks has not been demonstrated conclusively, the Committee recommends that revaccination of persons vaccinated at 12-14 months of age should be considered in outbreak settings, particularly in junior and senior high schools. If revaccination is recommended, local officials should establish a geographic zone of risk and limit revaccination to persons in this area. In the absence of an outbreak, routine revaccination of persons vaccinated at 12-14 months of age is not recommended.

**excerpted from Centers for Disease Control. Measles Prevention. MMWR 1987; 36:409-18, 423-5.*

***Recommendations of the Immunization Practices Advisory Committee (ACIP)
of the U.S. Public Health Service***

Immunization of Children Infected With Human Immunodeficiency Virus— Supplementary ACIP Statement

The Immunization Practices Advisory Committee (ACIP) recently reviewed data both on the risks and benefits of immunizing children infected with human immunodeficiency virus (HIV) (1) and on severe and fatal measles in HIV-infected children in the United States (2). Since this review, the committee has revised its previous recommendations for measles vaccination and for mumps and rubella vaccination.

Previously published ACIP statements on immunizing HIV-infected children have recommended vaccinating children with asymptomatic HIV infection, but not those with symptomatic HIV infection (3). After considering reports of severe measles in symptomatic HIV-infected children, and in the absence of reports of serious or unusual adverse effects of measles, mumps, and rubella (MMR) vaccination in limited studies of symptomatic patients (4,5), the committee feels that administration of MMR vaccine should be considered for all HIV-infected children, regardless of



Table 1. Recommendations for routine immunization of HIV-infected children—United States, 1988*

Vaccine	HIV infection	
	Known Asymptomatic	Symptomatic
DTP [†]	yes	yes
OPV [§]	no	no
IPV [¶]	yes	yes
MMR ^{**}	yes	yes ^{††}
HbCV ^{§§}	yes	yes
Pneumococcal	no	yes
Influenza	no	yes

*See accompanying text and previous ACIP statement (3) for details.

[†]DTP = Diphtheria and tetanus toxoids and pertussis vaccine.

[§]OPV = Oral, attenuated poliovirus vaccine; contains poliovirus types 1, 2, and 3.

[¶]IPV = Inactivated poliovirus vaccine; contains poliovirus types 1, 2, and 3.

^{**}MMR = Live measles, mumps, and rubella viruses in a combined vaccine.

^{††}Should be considered.

^{§§}HbCV = *Haemophilus influenzae* type b conjugate vaccine.

symptoms. This approach is consistent with the World Health Organization's recommendation for measles vaccination (6).

If the decision to vaccinate is made, symptomatic HIV-infected children should receive MMR vaccine at 15 months, the age currently recommended for vaccination of children without HIV infection and for those with asymptomatic HIV infection. When there is an increased risk of exposure to measles, such as during an outbreak, these children should receive vaccine at younger ages. At such times, infants 6 to 11 months of age should receive monovalent measles vaccine and should be revaccinated with MMR at 12 months of age or older. Children 12-14 months of age should receive MMR and do not need revaccination (7).

The use of high-dose intravenous immune globulin (IGIV) (approximately 5 gm% protein) administered at regular intervals is being studied to determine whether it will prevent a variety of infections in HIV-infected children. It should be recognized that MMR vaccine may be ineffective if administered to a child who has received IGIV during the preceding 3 months.

Immune globulin (IG) (16.5 gm% protein) can be used to prevent or modify measles infection in HIV-infected children if administered within 6 days of exposure. IG is indicated for measles-susceptible* household contacts of children with

asymptomatic HIV infection, particularly for those under 1 year of age and for measles-susceptible pregnant women. The recommended dose is 0.25 mL/kg intramuscularly (maximum dose, 15 mL) (7).

In contrast, exposed symptomatic HIV-infected patients should receive IG prophylaxis regardless of vaccination status. The standard postexposure measles prophylaxis regimen for such patients is 0.5 mL/kg of IG intramuscularly (maximum dose, 15 mL) (7). This regimen corresponds to a dose of protein of approximately 82.5 mg/kg (maximum dose, 2,475 mg). Intramuscular IG may not be necessary if a patient with HIV infection is receiving 100-400 mg/kg IGIV at regular intervals and received the last dose within 3 weeks of exposure to measles. Based on the amount of protein that can be administered, high-dose IGIV may be as effective as IG given intramuscularly. However, no data exist on the efficacy of IGIV administered postexposure in preventing measles.

Although postexposure administration of globulins to symptomatic HIV-infected patients is recommended regardless of measles vaccine status, vaccination prior to exposure is desirable. Measles exposures are often unrecognized, and postexposure prophylaxis is not al-

*Persons who are unvaccinated or do not have laboratory evidence or physician documentation of previous measles disease (7).

ways possible.

While recommendations for MMR vaccine have changed, those for other vaccines have not (3). A summary of the current ACIP recommendations for HIV-infected persons follows (Table 1). These recommendations apply to adolescents and adults with HIV infection as well as to HIV-infected children.

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Reprinted from *MMWR* 1988;37:181-3.

Cases of selected notifiable diseases, Virginia, for the period April 1, through April 30, 1988.

Disease	State					Regions				
	This Month	Last Month	Total to Date		Mean 5 Year To Date	This Month				
			1987	1988		N.W.	N.	S.W.	C.	E.
Measles	26	41	0	67	6	22	4	0	0	0
Mumps	22	3	8	29	13	0	0	1	15	6
Pertussis	0	5	32	7	15	0	0	0	0	0
Rubella	0	0	1	0	0	0	0	0	0	0
Meningitis—Aseptic	7	12	52	30	50	1	5	1	0	0
*Bacterial	19	12	64	58	94	4	3	4	0	8
Hepatitis A (Infectious)	45	74	109	129	63	1	8	0	9	27
B (Serum)	32	26	140	89	165	0	1	3	3	25
Non-A, Non-B	1	17	16	23	29	0	1	0	0	0
Salmonellosis	82	78	317	326	309	6	19	9	36	12
Shigellosis	18	29	47	118	48	2	2	3	5	6
Campylobacter Infections	24	14	135	99	127	3	10	0	8	3
Tuberculosis	41	42	112	146	118	4	15	9	7	6
Syphilis (Primary & Secondary)	34	41	80	139	136	0	5	5	14	10
Gonorrhea	1062	956	5035	4241	5841	—	—	—	—	—
Rocky Mountain Spotted Fever	0	0	0	0	1	0	0	0	0	0
Rabies in Animals	60	53	127	148	127	15	11	5	23	6
Meningococcal Infections	6	9	36	25	34	0	1	3	0	2
Influenza	32	690	1197	2239	1542	1	0	0	2	29
Toxic Shock Syndrome	0	0	0	0	2	0	0	0	0	0
Reye Syndrome	0	0	0	0	2	0	0	0	0	0
Legionellosis	3	1	2	5	5	1	0	0	1	1
Kawasaki's Disease	4	2	8	7	11	1	0	1	0	2
Acquired Immunodeficiency Syndrome	30	32	69	128	—	1	15	4	4	6

Counties Reporting Animal Rabies: Albemarle 1 bobcat, 1 raccoon; Alleghany 1 skunk; Amelia 7 raccoons; Arlington 2 raccoons; Botetourt 1 skunk; Chesterfield 8 raccoons; Clarke 1 raccoon; Cumberland 1 skunk; Fairfax 6 raccoons; Hanover 1 raccoon; Henrico 1 raccoon; King & Queen 1 skunk; Lancaster 1 raccoon; Loudoun 1 skunk; Madison 1 skunk; New Kent 1 skunk; Northumberland 2 cats, 1 raccoon; Page 1 raccoon, 7 skunks; Powhatan 1 raccoon; Prince William 2 skunks; Richmond City 3 raccoons; Shenandoah 1 skunk; Warren 2 raccoons; Washington 3 skunks; Westmoreland 1 fox.

Occupational Illnesses: Asbestosis 13; Carpal Tunnel Syndrome 5; Dermatitis 2; Loss of Hearing 7; Pneumoconioses 32.

*other than meningococcal

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