VIRGINIA DEPARTMENT OF HEALTH
DIVISION OF EPIDEMIOLOGY

VOLUME 80 NUMBER 5
DATE May 9, 1980

EPIDEMIOLOGY BULLETIN

James B. Kenley, M.D., Commissioner
Grayson B. Miller, Jr., M.D., Epidemiologist

EDITOR: Carl W. Armstrong, M.D.

RECOMMENDATION OF THE PUBLIC HEALTH SERVICE IMMUNIZATION PRACTICES ADVISORY COMMITTEE

INFLUENZA VACCINE 1980-81

This annual revision if influenza vaccine recommendations updates information on influenza activity in the United States during 1979-80 and provides information on the vaccine to be available for the 1980-81 influenza season.

INTRODUCTION

Influenza virus infections occur every year in the United States, but they vary greatly in incidence and geographic distribution. Infections may be asymptomatic, or they may produce a spectrum of manifestations, ranging from mild upper respiratory infection to pneumonia and death. Influenza viruses A and B are responsible for only a portion of all respiratory disease. However, they are unique in their ability to cause periodic widespread outbreaks of febrile respiratory disease in both adults and children. Influenza epidemics are frequently associated with deaths in excess of the number normally expected. During the period from 1968 to 1980, more than 150,000 excess deaths are estimated to have occurred during epidemics of influenza in the United States.

Efforts to prevent or control influenza in the United States have been aimed at protecting those at greatest risk of serious illness or death. Observations during influenza epidemics have indicated that influenza-related deaths occur primarily among chronically ill adults and children and in older persons, especially those over age 65. Therefore, annual vaccination is recommended for these "high-risk" individuals.

Influenza A viruses can be classified into subtypes on the basis of 2 antigens: hemagglutinin (H) and neuraminidase (N). Four subtypes of hemagglutinin (HO-H3) and 2 subtypes of neuraminidase (N1,N2) are recognized among viruses causing widespread disease among humans. Immunity to these antigens reduces the likelihood of infection and reduces the severity of diseases in infected persons. However, there may be sufficient antigenic variation (antigenic drift) within the same subtype over time that infection or immunization with 1 strain may not induce immunity to distantly related strains. Although influenza B viruses have shown much more antigenic stability than influenza A viruses, antigenic variation does occur and was noted in the 1979-80 influenza season. As a consequence, the antigenic composition of the most current strains is considered in selecting the virus strain(s) to be included in the vaccine.

The predominant strain of influenza virus in the United States during 1979-80 was B/Singapore/79, a variant of the prototype B/Hong Kong/72. Most reported influenza B outbreaks involved children and young adults, but outbreaks also occurred in older populations. Excess mortality due to pneumonia and influenza was noted in association with influenza B activity in 1979-80, confirming that infections with this virus can cause serious illness and death.

Isolates of influenza A virus of the H3N2 syubtype, similar to A/Texas 77 and A/Bangkok/79, were obtained from sporadic cases of febrile respiratory disease. A/Bangkok/79 strains show significant antigenic drift from A/Texas/77. Influenza A/Brazil/78 (H1N1)-like viruses caused outbreaks of illness among young people.

INFLUENZA VIRUS VACCINE FOR 1980-81

Influenza vaccine for 1980-81* will consist of inactivated trivalent preparations of antigens representative of influenza viruses expected to be prevalent: A/Brazil/78 (H1N1), A/Bangkok/79 (H3N2), and B/Singapore/79. The formulation will contain 7 micrograms of hemagglutinin of each antigen in each 0.5 ml dose. Persons 28 years and older will require only 1 dose. Because of lack of previous contact with H1N1 strains, persons less than 28 years of age who did not receive at least 1 dose of the 1978-79 or 1979-80 trivalent vaccine will require 2 doses of the 1980-81 vaccine. Those who received the 1978-79 or 1979-80 vaccine will require only 1 dose. The vaccine will be available as whole virion (whole-virus) and subvirion (split-virus) preparations. Based on past data, split-virus vaccines have been associated with somewhat fewer side effects than whole-virus vaccines in children. Thus, only split-virus vaccines are recommended for persons less than 13 years of age.

VACCINE USAGE

General Recommendations

Annual vaccination is strongly recommended for all individuals at increased risk of adverse consequences from infections of the lower respiratory tract. Conditions predisposing to such risk include (1) acquired or congenital heart disease associated with altered circulatory dynamics, actual or potential (for example, mitral stenosis, congestive heart failure, or pulmonary vascular overload); (2) any chronic disorder with compromised pulmonary function, such as chronic obstructive pulmonary disease, bronchiectasis, tuberculosis, severe asthma, cystic fibrosis, neuromuscular and orthopedic disorders with impaired ventilation, and residual pulmonary dysplasia following the neonatal respiratory distress syndrome; (3) chronic renal disease with azotemia or the nephrotic syndrome; (4) diabetes mellitus and other metabolic diseases with increased susceptibility to infection; (5) chronic, severe anemia, such as sickle cell disease; and (6) conditions which compromise the immune mechanism, including certain malignancies and immunosuppressive therapy.

Vaccination is also recommended for older persons, particularly those over age 65, because excess mortality in influenza outbreaks occurs in this age group.

In considering vaccination of persons who provide esential community services or who may be at increased risk of exposure, such as medical care personnel, the inherent benefits, risks, and cost of vaccination should be taken into account.

Table 1 summarizes vaccine and dosage recommendations by age group for 1980-81.

TABLE 1. Influenza vaccine* dosage, by age, 1980-81

Age group	Product	Dosage (ml)	Number of doses
28 years and older	whole virion (whole virus) or subvirion (split virus)	0.5	1
13-27 years	whole virion (whole virus) or subvirion (split virus)	0.5	2†
3-12 years	subvirion (split virus)	0.5	2†
6-35 months‡	subvirion (split virus)	0.25	2†

*Contains 7 µg each of A/Brazil/78, A/Bankok/79, and B/Singapore/79 hemagglutinin in each 0.5 ml.

† 4 weeks or more between doses; both doses essential for good protection, unless the individual received at least 1 dose of 1978-79 or 1979-80 vaccine. In latter instance, 1 dose is sufficient.

‡ Based on limited data. Since the likelihood of febrile convulsions is greater in this age group, special care should be taken in weighing relative risks and benefits.

*Official Name: Influenza Virus Vaccine, Trivalent.

se in Pregnancy

Only in the pandemics of 1918-19 and 1957-58 has strong evidence appeared relating influenza infections to increased maternal mortality. Although several studies have reported an increased risk of congenital malformations and childhood leukemia among children born to women who had influenza infection during pregnancy, other studies have not shown an increased risk; the issue is not settled.

Physicians prudently limit prescription of drugs and biologics for pregnant women. However, no evidence has been presented to suggest that influenza vaccination of pregnant women poses any special maternal or fetal risk. Furthermore, because influenza vaccine is an inactivated viral preparation, it does not share the theoretical risks that impel caution in the use of live-virus vaccines. Taking the above uncertainties into account, physicians should evaluate pregnant women for influenza immunization according to the same criteria applied to other persons. (See VACCINE USAGE--General Recommendations.)

SIDE EFFECTS AND ADVERSE REACTIONS

Recent influenza virus vaccines have been associated with few side effects. Local reactions, consisting of redness and induration at the site of injection lasting 1 or 2 days, have been observed in less than one-third of vaccinees. Three types of systemic reactions to influena vaccines have been described:

1. Fever, malaise, myalgia, and other systemic symptoms of toxicity, although infrequent, occur more often in children and others who have had no experience with influenza viruses containing the vaccine antigen(s). These reactions, which begin 6-12 hours after vaccination and persist 1-2 days, are usually attributed to the influenza virus itself (even though it is inactivated) and constitute most of the side effects of influenza vaccination.

2. Immediate responses, presumably allergic, such as flare and wheal or various respiratory expressions of hypersensitivity, occur extremely rarely after influenza vaccination. They probably derive from sensitivity to some vaccine component, most likely residual egg protein. Although current influenza vaccines contain only a small quantity of egg protein, on rare occasions they can provoke hypersensitivity reactions. Individuals with anaphylactic hypersensitivity to eggs should not be given influenza vaccine. This would include persons who, upon ingestion of eggs, develop swelling of the lips or tongue or experience acute respiratory distress or collapse.

3. Guillain-Barre' syndrome (GBS) is an uncommon illness characterized by ascending paralysis that is usually self-limited and reversible. Though most persons with GBS recover without residual weakness, approximately 5% of cases are fatal. Before 1976, no association of GBS with influenza vaccination was recognized. That year, however, GBS appeared in excess frequency among persons who had received the A/New Jersey/76 swine influenza vaccine. For the 10 weeks following vaccination, the excess risk was found to be approximately 10 cases of GBS for every million persons vaccinated-an incidence 5-6 times higher than that in unvaccinated persons. Younger persons (under 25 years) had a lower relative risk than others and also had a lower case-fatality rate. Analysis of data from GBS surveillance during the 1978-79 influenza season and provisional data from the 1979-80 influenza season suggest that in contrast to the 1976 situation, the risk of GBS in vaccinees was not significantly higher than that in non-vaccinees. Nonetheless, persons who receive influenza vaccine should be made aware of this possible risk as compared with the risk of influenza and its complications.

SOURCE: MORBIDITY AND MORTALITY WEEKLY REPORT, Vol.29/No.19/May 16, 1980

MONTH: May

DISEASE	STATE					REGIONS				
	THIS MONTH	LAST MONTH	TOTAL TO DATE 1980	TOTAL TO DATE 1979	MEAN 5 YEAR TO DATE	THIS MONTH N.W.	N.	S.W.	C.	
CHICKENPOX	86	87	275	821	714.4		22	30	4	30
MEASLES	59	63	268	165	861.0		2		45	12
MUMPS	3	9	46	64	189.2		2	1		
PERTUSSIS			2	7	6.2					
RUBELLA	26	11	46	144	262.0	4	1	16	1	4
MENINGITIS – ASEPTIC	7	4	31	31	21.0					7
BACTERIAL	26	16	92	74	53.4	3	7	3	6	7
ENCEPHALITIS – INFECTIOUS			1	12	8.6					
POST-INFECTIOUS			2	8	4.2					
HEPATITIS A (INFECTIOUS)	30	19	133	121	136.4	1	11	6	7	5
B (SERUM)	41	43	233	171	123.8	5	7	8	13	8
SALMONELLOSIS	142	49	354	333	233.6	35	17	12	37	32
SHIGELLOSIS	6	2	49	145	69.4		5			1
TUBERCULOSIS – PULMONARY	59	36	240	238	271.0	5	9	12	11	21
EXTRA-PULMONARY	14	12	49	46	41.6	3	1	4	3	3
SYPHILIS (PRIMARY & SECONDARY)	54	46	226	233	246.0	3	10	6	12	23
GONORRHEA	2,048	1,518	6,289	9,127	9,463.4					
ROCKY MOUNTAIN SPOTTED FEVER	14	1	15	22	20.2	3	1	2	7	1
RABIES IN ANIMALS	3	1	4	4	23.0	1		1	1	
MENINGOCOCCAL INFECTIONS	11	4	32	45	27.6	1	2	1	2	5
INFLUENZA	7	56	740	335	5,422.6		1	5	1	
MALARIA	10	5	27	9	6.2		5	1	1	
OTHER: KAWASAKI'S DISEASE	2	1	8	13	NA*		1		1	
HISTOPLASMOSIS	2		5	4	NA*			1	1	
REYE'S SYNDROME	3	2	21	13	6.0		1	2		

COUNTIES REPORTING ANIMAL RABIES: Henrico - 1 bat, Scott - 1 skunk, Shenandoah - 1 raccoon.

OCCUPATIONAL ILLNESSES: Occupational pneumoconioses 22, Occupational dermatitis 3. Occupational hearing loss 7, Occupational asthma 2.

*Not available

Published Monthly by the
VIRGINIA HEALTH DEPARTMENT
Division of Epidemiology
109 Governor Street
Richmond, Virginia
23219