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Use of Mammography for Breast Cancer Screening — Rhode Island, 1987

Rhode Island's age-adjusted mortality rates for breast cancer have been consistently higher than national rates since at least 1950 (*1*). During this period, while age-adjusted mortality rates have remained relatively stable, demographic changes due to an aging population have led to increasing numbers of deaths from breast cancer. In 1986, the number of Rhode Island women who died from this cause was 232—more than the number who died from any other type of cancer.

The Rhode Island Department of Health's Breast Cancer Screening Program is designed to reduce breast cancer mortality by promoting annual breast cancer screening, including mammography, for women ≥40 years of age. Components of the program include a broad promotional effort, a strong quality assurance program, lowered costs for mammography, and a scheduling and notification system located in the Department of Health. Women with positive, suspicious, or inconclusive findings are followed up by personal contact from health department staff, and their mammograms are also reviewed by a panel of radiologists. If widely instituted, this intervention has the potential for substantially reducing breast cancer mortality (*2,3*).

A survey of Rhode Island women aged ≥40 was conducted to establish a baseline for evaluating the program. Women were interviewed concerning their knowledge, attitudes, and practices related to breast cancer screening, including mammography. For this survey, random-digit dialing was used to select a sample of Rhode Island households with telephones. Households that could be contacted were screened for the presence of women aged ≥40. If more than one possible respondent was identified in a household, one respondent was selected by using a procedure that randomized the selection. Because only 6% of households contacted had more than one eligible respondent, no adjustment has been made in the analysis for the lower probability of selecting women living in households with other eligible respondents. There were 852 completed interviews, for a response rate of 78%. Thirty-seven percent of women aged ≥40 reported having had a mammogram within the past year, and 70% reported having had a physical breast examination (Table 1). The likelihood of having had a mammogram or a physical breast examination in the past year was found to vary with the woman's age, education, and income. The age group

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with the lowest proportion (29%) of women who had had a mammogram in the past year was the age group ≥70. However, 69% of this age group had had a physical breast examination, a proportion similar to that of other age groups. Among all women aged ≥40, both the proportion of women having had a mammogram and the proportion of women having had a physical breast examination increased with education and income. Nearly half of the women in the highest income group and 44% of college graduates had had a mammogram in the previous year, and 78% of both groups had had a physical breast examination. The lowest utilization rates for both procedures occurred among the poor. Since 92% of all women had seen a physician in the previous year, the observed variations in screening practices with age, education, and income do not appear to stem from differing frequencies of contact with the medical-care system (Table 1).

The proportion of women who had had both a physical breast examination and a mammogram in the past year was 35%, just below the proportion who had had a mammogram. When respondents were grouped by age, education, and income, the proportion having had both screening procedures follows closely the total proportion having had a mammogram. Of the women who reportedly had a mammogram in the past year, 96% also had had a physical breast examination. Of those who had not had a mammogram, 54% had had a physical breast examination in the past year.

Women who had not had a mammogram in the past 3 years were asked—in an open-ended question—for the reason. Many (32%) responded that they did not

TABLE 1. Percentage of women ≥40 years of age who, in the past year, saw a physician, had a physical breast examination (PE), had a mammogram, and had both PE and a mammogram, by age group, years of schooling, and income — Rhode Island, 1987

Group	Percentage in Sample*	Saw Physician	PE	Mammogram	PE and Mammogram
All Respondents	**100†**	**92**	**70**	**37**	**35**
Age Group (years)					
40–49	28	89	72	37	37
50–59	22	91	73	38	37
60–69	27	94	67	42	39
≥70	23	97	69	29	27
Years of Schooling					
0–11	31	95	64	30	27
12–15	53	92	71	39	38
≥16	15	92	78	44	43
Income Level§					
Below Poverty Level (PL)	13	93	59	21	19
1–1.9 times PL	20	91	65	35	32
2–2.9 times PL	16	93	67	33	32
≥3 times PL	33	93	78	48	46

*Items may not add to 100 because of missing responses.
†N = 852.
§Income levels are expressed in relation to poverty income. Poverty income varies with family size and is based on annual guidelines established by the Department of Health and Human Services for the period July 1, 1987–July 30, 1988 (*4*).

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believe it was necessary, usually because they currently had no symptoms, or that mammography had not been recommended to them (23%), and they had not thought to request it (Table 2). Others reported fear or dislike of physicians or the procedure itself (11%), procrastination (8%), lack of time (4%), or their physician's recommendation *not* to have a mammogram (3%). Very few respondents said that their main reason for not having a mammogram was the cost of the procedure.

Forty-four percent of the women surveyed said that their physicians had ever recommended that they have a mammogram for screening purposes, i.e., as a routine examination when no symptoms are present. Of those women aged ≥40 who had received such a recommendation from their physician, 60% had had a screening mammogram in the past year. Of those not receiving such a recommendation, 8% had had a screening mammogram in the past year.

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Editorial Note: The use of mammography for breast cancer screening has been shown to reduce breast cancer mortality among women, whether performed with or without a breast examination by a physician (*2,3*). On the basis of these findings, the National Cancer Institute has recommended the increased use of mammography as a key cancer screening objective for the year 2000 (*5*). Both the National Cancer Institute and the American Cancer Society recommend annual physical breast examinations for women aged ≥40. Both organizations also recommend that women aged 40–49 have a mammogram every 1 or 2 years and that women aged ≥50 have a mammogram every year (*6,7*).

Despite the demonstrated efficacy of mammography in screening for breast cancer, most previous studies have shown that few women in the recommended age group are screened regularly (*8*). The preponderance of evidence from national surveys indicates that 20% or fewer women in the target groups for breast cancer screening have ever had a mammogram. Although most of these data were collected nearly 10 years ago, more recent evidence suggests that national screening rates are lower than those observed for Rhode Island. The Health Promotion and Disease Prevention Supplement to the 1985 National Health Interview Survey of the National Center for Health Statistics showed that only 45% of women aged 45–64 and 39% of women aged ≥65 had had a physical breast examination in the previous year (*9*).

TABLE 2. "Most important reason" given by women ≥40 years of age for not having a mammogram in the past 3 years — Rhode Island, 1987

Reason	Percentage Reporting
Believe the test is not necessary	32
Test was never recommended	23
Fear of physicians or of test	11
Procrastination	8
Lack of time or cannot schedule test	4
Physician said not to have test	3
Lack of funds or insurance	1
No reason/no response	18

Cancer Screening — Continued

Data from the first quarter of 1987 obtained from the Cancer Control Supplement to the 1987 National Health Interview Survey indicate that, nationwide, an estimated 16% of women aged ≥40 had had a mammogram in the past year that was not performed because of a health problem (*10*). Compared with national data, the survey of Rhode Island women showed unexpectedly high levels of recent breast cancer screening even among women with lower levels of education and income. Approximately 70% of women aged ≥40 reported having had a physical breast examination, and 31% reported having had a mammogram for screening purposes, i.e., not because of a health problem, in the past year. Explanations for these differences are unclear, but they may be partly due to the higher degree of urbanization and access to health care in Rhode Island than in the United States as a whole.

Clearly, a major focus of any breast cancer screening program should be to increase the proportion of primary-care physicians who recommend screening mammograms. A nationwide survey of physicians sponsored by the American Cancer Society in 1984 revealed the attitudes that must be overcome (*11*). When mammography is performed, it is nearly always part of a complete screening regimen for breast cancer, according to these data. In Rhode Island, a recommendation by a physician appears to have increased a woman's compliance with guidelines for mammographic screening more than sevenfold. Given the apparent motivating force of a physician's recommendation, as shown by the Rhode Island data, the number of physicians who endorse and recommend mammography must increase if promotional programs for breast cancer screening are to be successful.

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Recommendations of the Immunization Practices Advisory Committee

Prevention and Control of Influenza

These recommendations update information on the vaccine and antiviral agent available for controlling influenza during the 1988–89 influenza season (superseding MMWR *1987;36:373–80,385–7). Changes include statements about 1) updating of the influenza strains in the trivalent vaccine for 1988–89, 2) increased emphasis on the need for vaccination of health-care workers, 3) prevention of influenza in persons with human immunodeficiency virus (HIV) infection, and 4) dosage considerations for amantadine.*

INTRODUCTION

Influenza A viruses are classified into subtypes on the basis of two antigens: hemagglutinin (H) and neuraminidase (N). Three subtypes of hemagglutinin (H1, H2, H3) and two subtypes of neuraminidase (N1, N2) are recognized among influenza A viruses that have caused widespread human disease. Immunity to these antigens, especially the hemagglutinin, reduces the likelihood of infection and the severity of disease if infection occurs. However, over time there may be enough antigenic variation (antigenic drift) within the same subtype that infection or vaccination with one strain may not induce immunity to distantly related strains of the same subtype. Although influenza B viruses have shown more antigenic stability than influenza A viruses, antigenic variation does occur. For these reasons, major epidemics of respiratory disease caused by new variants of influenza continue to occur. The antigenic characteristics of current strains provide the basis for selecting virus strains included in each year's vaccine.

Typical influenza illness is characterized by abrupt onset of fever, sore throat, and nonproductive cough. Unlike many other common respiratory infections, it can cause extreme malaise lasting several days. More severe illness can result if influenza virus invades the lungs (primary viral pneumonia) or if secondary bacterial pneumonia occurs. High attack rates of acute illness and lower-respiratory-tract complications during influenza epidemics usually result in dramatic increases in visits to physicians' offices, walk-in clinics, and emergency rooms by persons of all ages.

Elderly persons and those with underlying health problems are at increased risk for complications of influenza infection. Such high-risk persons are more likely than the general population to require hospitalization if infected. One recent study showed that, during major epidemics, hospitalization rates for high-risk adults increased twofold to fivefold, depending on age group. Previously healthy children and younger adults occasionally are hospitalized for influenza-related complications, but the relative increase in their hospitalization rates is much less than that for high-risk groups.

A significant increase in mortality further indicates the impact of influenza epidemics. This increase is a direct result not only of pneumonia, but also of cardiopulmonary or other chronic diseases that can be exacerbated by influenza infection. Ten thousand or more excess deaths have been documented in each of 19 different epidemics during the years 1957–1986; more than 40,000 excess deaths occurred in each of several recent epidemics. Approximately 80%–90% of the excess deaths attributed to pneumonia and influenza were among persons ≥65 years of age;

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however, influenza-associated deaths have also been reported among children or previously healthy adults <65 years of age during major epidemics.

Because the proportion of elderly persons in the U.S. population is increasing, and because age and its associated chronic diseases are risk factors for severe influenza illness, the toll from influenza can be expected to increase unless control measures are used more vigorously. The number of younger persons at high risk for infection-related complications is also increasing for various reasons, such as the success of neonatal intensive-care units, better management of diseases such as cystic fibrosis, better survival rates for organ-transplant recipients, and the spread of HIV infection.

OPTIONS FOR THE CONTROL OF INFLUENZA

Two measures are available in the United States to reduce the impact of influenza: immunoprophylaxis with inactivated (killed-virus) vaccine and chemoprophylaxis or therapy with the antiviral drug amantadine. *Vaccination of high-risk persons each year before the influenza season is the single most important measure for reducing the impact of influenza.* Vaccination can be highly cost-effective 1) when it is aimed at individuals who experience the most severe consequences and who have a higher-than-average risk of infection and 2) when it is administered to high-risk individuals during routine health-care visits before the influenza season, making special visits to physicians' offices or clinics unnecessary. Recent reports indicate that, when there is a good match between vaccine and epidemic strains of virus, achieving high vaccination rates in closed populations can reduce the risk of outbreaks by inducing herd immunity. When outbreaks of influenza A do occur in closed populations, they can be stopped by chemoprophylaxis for all residents.

Other indications for prophylaxis (whether with vaccine or amantadine) include the strong desire of any person to avoid an influenza infection, reduce the severity of disease, or reduce the chances of transmitting influenza to high-risk persons with whom they have frequent contact. Unlike vaccine, which protects against influenza types A and B, amantadine is effective only against influenza A.

Amantadine therapy is most likely to benefit persons who seek medical attention shortly after the abrupt onset of an acute respiratory infection during an influenza A epidemic. Early amantadine therapy may reduce the severity and duration of illness in high-risk individuals who have not been vaccinated or who were not protected by vaccination.

Influenza is known to be transmitted in medical settings. Measures such as using isolation precautions for ill patients individually or in groups, limiting visitors, and avoiding elective admissions and surgery during an influenza outbreak may limit further transmission of virus within hospitals and other institutions. However, unlike amantadine prophylaxis, these measures have not been shown to be effective in controlling outbreaks. Likewise, the effectiveness of closing schools or classrooms during explosive outbreaks has not been established.

INACTIVATED VACCINE FOR INFLUENZA A AND B

Influenza vaccine is made from highly purified, egg-grown viruses that have been rendered noninfectious (inactivated). Most vaccines distributed in the United States have been chemically treated (split-virus preparations) to reduce the incidence of febrile reactions in children. Influenza vaccine currently contains three virus strains (two type A and one type B) representing influenza viruses recently circulating worldwide and believed likely to circulate in the United States the following winter.

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The potency of the present vaccine is such that it causes minimal systemic or febrile reactions. Most vaccinated young adults develop hemagglutination-inhibition antibody titers that are likely to protect them against infection by strains like those in the vaccine and, often, by related variants that may emerge. Elderly persons and persons with certain chronic diseases may develop lower postvaccination antibody titers than healthy young adults and, thus, may be more susceptible to upper-respiratory-tract infection. Nevertheless, influenza vaccine can still be effective in preventing lower-respiratory-tract involvement or other complications, thereby reducing the risk of hospitalization and death.

RECOMMENDATIONS FOR USE OF INACTIVATED INFLUENZA VACCINE

Influenza vaccine is recommended for 1) high-risk persons ≥6 months of age and their medical-care providers or household contacts; 2) children and teenagers receiving long-term aspirin therapy who, therefore, may be at increased risk of developing Reye syndrome after an influenza virus infection; and 3) other persons who wish to reduce their chances of acquiring influenza. Vaccine composition and dosages for the 1988–89 season are given in Table 1. Guidelines for the use of vaccine among different groups are given below.

Remaining 1987–88 vaccine should not be used.

Although the current influenza vaccine often contains one or more antigens used in previous years, immunity declines in the year following vaccination. Therefore, annual vaccination is required.

During the past decade, data on influenza vaccine immunogenicity and side effects have generally been obtained when vaccine has been administered intramuscularly. Because there has been no adequate evaluation of recent influenza vaccines administered by other routes, the intramuscular route should be used. Adults and older children should be vaccinated in the deltoid muscle, and infants and young children, in the anterolateral aspect of the thigh.

TABLE 1. Influenza vaccine* dosage, by age of patient — 1988–89 season

Age Group	Product†	Dosage§	Number of Doses	Route¶
6–35 mos	Split virus only	0.25 mL	1 or 2**	IM
3–12 yrs	Split virus only	0.50 mL	1 or 2**	IM
>12 yrs	Whole or split virus	0.50 mL	1	IM

*Contains 15 μg each of A/Taiwan/1/86 (H1N1), A/Sichuan/2/87 (H3N2), and B/Victoria/2/87 hemagglutinin antigens in each 0.5 mL. Manufacturers include Connaught (Fluzone® whole or split, distributed by E.R. Squibb & Sons); Parke-Davis (Fluogen® split); and Wyeth Laboratories (Influenza Virus Vaccine, Trivalent® split). For further product information, call Connaught (800)822-2463, Parke-Davis (800)223-0432, and Wyeth (800)321-2304.

†Because of the lower potential for causing febrile reactions, only split virus (subvirion) vaccine should be used in children. Immunogenicity and side effects of split and whole virus vaccines are similar in adults when vaccines are used according to the recommended dosage.

§It may be desirable to administer influenza vaccine to high-risk children when they receive routine pediatric vaccines, but in a different site. Although studies have not been conducted, simultaneous administration should not lessen immunogenicity or enhance adverse reactions.

¶The recommended site of vaccination is the deltoid muscle for adults and older children. The preferred site for infants and young children is the anterolateral aspect of the thigh.

**Two doses are recommended for children ≤12 years old who are receiving influenza vaccine for the first time.

Influenza — Continued

TARGET GROUPS FOR SPECIAL VACCINATION PROGRAMS

Groups at greatest risk of influenza-related complications:

1) Adults and children with chronic disorders of the pulmonary or cardiovascular systems requiring regular medical follow-up or hospitalization during the preceding year, including children with asthma.
2) Residents of nursing homes and other chronic-care facilities housing patients of any age with chronic medical conditions.

Groups at moderate risk of influenza-related complications:

1) Otherwise healthy persons ≥65 years old.
2) Adults and children who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression.

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TABLE I. Summary — cases of specified notifiable diseases, United States

Disease	23rd Week Ending			Cumulative, 23rd Week Ending		
	Jun. 11, 1988	Jun. 13, 1987	Median 1983-1987	Jun. 11, 1988	Jun. 13, 1987	Median 1983-1987
Acquired Immunodeficiency Syndrome (AIDS)	262	U *	150	13,723	8,044	3,080
Aseptic meningitis	104	154	131	1,755	2,210	1,942
Encephalitis: Primary (arthropod-borne & unspec)	11	21	21	290	387	387
Post-infectious	1	6	6	43	50	50
Gonorrhea: Civilian	9,886	15,715	16,095	290,666	348,950	366,256
Military	214	283	283	5,339	7,405	9,025
Hepatitis: Type A	432	489	389	10,386	10,990	9,655
Type B	405	524	478	9,209	11,187	10,919
Non A, Non B	36	74	66	1,075	1,401	1,549
Unspecified	22	45	93	903	1,402	2,124
Legionellosis	24	21	10	363	383	287
Leprosy	1	2	7	73	92	118
Malaria	20	10	15	289	324	329
Measles: Total†	34	71	71	1,384	2,287	1,557
Indigenous	31	64	64	1,249	2,016	1,392
Imported	3	7	10	135	271	190
Meningococcal infections	43	51	51	1,539	1,593	1,528
Mumps	96	253	108	2,655	8,798	1,937
Pertussis	36	30	30	937	758	807
Rubella (German measles)	3	7	15	99	181	268
Syphilis (Primary & Secondary): Civilian	599	556	493	16,484	14,773	12,198
Military	-	2	4	82	78	91
Toxic Shock syndrome	4	9	7	125	140	175
Tuberculosis	342	447	447	8,489	8,954	8,954
Tularemia	11	4	9	61	55	64
Typhoid Fever	10	4	4	153	130	131
Typhus fever, tick-borne (RMSF)	20	29	31	104	119	156
Rabies, animal	61	116	116	1,766	2,283	2,283

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1988		Cum. 1988
Anthrax	-	Leptospirosis (N.C. 1)	13
Botulism: Foodborne (Utah 1)	9	Plague	1
Infant	16	Poliomyelitis, Paralytic	-
Other	2	Psittacosis (Mont. 2, Oreg. 1)	35
Brucellosis (Calif. 1)	25	Rabies, human	-
Cholera	-	Tetanus (La. 1)	19
Congenital rubella syndrome	3	Trichinosis (Alaska 1)	9
Congenital syphilis, ages < 1 year	-		
Diphtheria	-		

*Because AIDS cases are not received weekly from all reporting areas, comparison of weekly figures may be misleading.
†Three of the 34 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending June 11, 1988 and June 13, 1987 (23rd Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988
UNITED STATES	13,723	1,755	290	43	290,666	348,950	10,386	9,209	1,075	903	363	73
NEW ENGLAND	584	76	10	-	8,802	11,196	370	532	79	47	19	11
Maine	17	5	1	-	189	336	14	24	3	1	2	-
N.H.	15	10	-	-	128	186	29	32	5	3	1	-
Vt.	4	5	3	-	68	89	4	16	5	1	1	-
Mass.	330	33	5	-	3,134	4,133	190	340	53	37	12	10
R.I.	28	19	-	-	807	873	46	56	9	-	3	1
Conn.	190	4	1	-	4,476	5,579	87	64	4	5	-	-
MID. ATLANTIC	4,660	182	33	1	44,566	56,395	621	1,191	68	97	89	6
Upstate N.Y.	679	102	21	1	5,949	7,278	367	328	35	10	36	-
N.Y. City	2,491	33	7	-	19,793	30,354	131	558	7	67	12	5
N.J.	1,078	47	5	-	6,515	6,955	111	287	23	20	20	1
Pa.	412	-	-	-	12,309	11,808	12	18	3	-	21	-
E.N. CENTRAL	1,009	234	70	5	45,552	50,163	558	933	62	47	81	-
Ohio	221	83	25	2	10,979	10,982	161	245	16	8	32	-
Ind.	78	33	10	-	3,593	4,019	63	147	7	16	5	-
Ill.	475	36	12	3	13,134	15,252	88	96	5	4	-	-
Mich.	194	74	16	-	14,489	15,306	165	339	23	19	34	-
Wis.	41	8	7	-	3,357	4,604	81	106	11	-	10	-
W.N. CENTRAL	284	79	18	4	11,760	14,008	646	459	50	16	36	-
Minn.	52	16	2	1	1,564	2,207	35	63	6	3	1	-
Iowa	17	17	8	-	906	1,366	30	44	8	-	9	-
Mo.	149	23	1	-	6,625	7,155	371	276	25	8	8	-
N. Dak.	1	-	-	-	72	137	2	3	1	3	1	-
S. Dak.	4	6	-	1	221	267	2	2	2	-	11	-
Nebr.	16	3	2	2	668	806	21	21	-	-	4	-
Kans.	45	14	5	-	1,704	2,070	185	50	8	2	2	-
S. ATLANTIC	2,247	414	39	16	83,861	91,460	919	1,932	163	136	73	1
Del.	20	11	2	-	1,202	1,349	16	59	5	1	6	-
Md.	254	47	4	3	8,549	10,051	122	304	15	6	9	1
D.C.	229	9	-	1	5,933	6,187	9	22	3	1	-	-
Va.	146	50	15	2	5,758	6,769	179	129	35	91	6	-
W. Va.	6	8	1	-	610	710	7	29	2	3	-	-
N.C.	141	66	12	-	13,276	13,947	163	354	35	-	23	-
S.C.	74	5	-	1	6,170	7,660	26	257	7	3	10	-
Ga.	314	44	1	-	16,413	15,579	178	289	7	3	8	-
Fla.	1,063	174	4	9	25,950	29,208	219	489	54	28	11	-
E.S. CENTRAL	362	117	22	5	22,407	25,761	371	577	72	6	10	1
Ky.	42	36	6	1	2,179	2,631	321	104	30	2	4	-
Tenn.	177	12	6	-	7,453	8,965	28	296	19	-	2	-
Ala.	89	55	10	2	7,274	8,228	7	139	17	4	2	1
Miss.	54	14	-	2	5,501	5,937	15	38	6	-	2	-
W.S. CENTRAL	1,124	190	22	-	32,805	39,381	1,097	723	84	225	10	13
Ark.	42	3	2	-	3,057	3,784	127	44	1	4	2	-
La.	180	35	3	-	6,973	7,241	63	160	14	9	4	-
Okla.	68	17	4	-	2,989	4,341	236	82	22	17	4	-
Tex.	834	135	13	-	19,786	24,015	671	437	47	195	-	13
MOUNTAIN	450	76	19	1	6,325	9,133	1,501	735	121	89	18	-
Mont.	8	2	-	-	207	222	21	27	6	3	-	-
Idaho	4	1	-	-	180	326	63	46	3	1	-	-
Wyo.	3	1	-	-	106	188	1	5	3	-	1	-
Colo.	149	27	3	-	1,424	1,943	104	95	29	42	5	-
N. Mex.	22	4	2	-	588	940	274	110	8	1	-	-
Ariz.	160	21	5	-	2,235	3,203	758	286	41	25	9	-
Utah	34	12	4	1	258	304	175	68	23	13	2	-
Nev.	70	8	5	-	1,327	2,007	105	98	8	4	1	-
PACIFIC	3,003	387	57	11	34,588	51,453	4,303	2,127	376	240	27	41
Wash.	175	-	3	4	2,672	3,867	969	307	67	21	7	2
Oreg.	95	-	-	-	1,349	1,938	699	266	37	12	-	1
Calif.	2,676	342	51	7	29,781	44,433	2,499	1,501	267	200	17	34
Alaska	10	8	2	-	480	798	130	30	4	4	-	1
Hawaii	47	37	1	-	306	417	6	23	1	3	3	3
Guam	1	-	-	-	56	94	3	3	-	2	1	3
P.R.	627	14	2	-	621	987	15	112	20	20	-	-
V.I.	10	-	-	-	170	120	1	3	2	-	-	-
Amer. Samoa	-	-	-	-	23	40	-	1	-	-	-	-
C.N.M.I.	-	-	-	-	19	-	1	2	-	4	-	-

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending June 11, 1988 and June 13, 1987 (23rd Week)

Reporting Area	Malaria	Measles (Rubeola)					Meningococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1988	1988	Cum. 1988	1988	Cum. 1988	Cum. 1987	Cum. 1988	1988	Cum. 1988	1988	Cum. 1988	Cum. 1987	1988	Cum. 1988	Cum. 1987
UNITED STATES	289	31	1,249	3	135	2,287	1,539	96	2,655	36	937	758	3	99	181
NEW ENGLAND	25	-	19	-	46	196	124	7	94	1	80	19	-	1	1
Maine	2	-	-	-	-	3	3	-	-	-	11	1	-	-	1
N.H.	-	-	13	-	44	149	14	7	90	1	23	2	-	-	-
Vt.	-	-	-	-	-	23	6	-	1	-	2	3	-	-	-
Mass.	17	-	1	-	-	5	54	-	3	-	34	5	-	-	-
R.I.	4	-	-	-	-	1	20	-	-	-	1	-	-	1	-
Conn.	2	-	5	-	2	15	27	-	-	-	9	8	-	-	-
MID. ATLANTIC	38	3	442	-	23	427	150	3	220	-	36	106	-	8	7
Upstate N.Y.	16	-	4	-	2	23	75	-	43	-	21	80	-	1	5
N.Y. City	15	3	28	-	1	358	29	3	82	-	1	-	-	5	1
N.J.	5	-	2	-	11	9	45	-	29	-	4	6	-	1	1
Pa.	2	-	408	-	9	37	1	-	66	-	10	20	-	1	-
E.N. CENTRAL	16	13	109	-	18	271	167	13	548	2	104	97	1	22	22
Ohio	2	-	2	-	4	5	68	-	68	-	21	26	-	-	-
Ind.	-	13	43	-	-	-	18	-	43	2	53	1	-	-	-
Ill.	-	-	51	-	10	103	7	11	210	-	2	7	1	18	20
Mich.	13	-	13	-	4	27	51	2	153	-	18	27	-	4	2
Wis.	1	-	-	-	-	136	23	-	74	-	10	36	-	-	-
W.N. CENTRAL	8	-	10	-	-	144	61	1	112	-	38	44	-	-	1
Minn.	4	-	10	-	-	30	14	-	-	-	7	8	-	-	-
Iowa	-	-	-	-	-	-	-	-	30	-	14	6	-	-	1
Mo.	3	-	-	-	-	112	23	1	29	-	6	16	-	-	-
N. Dak.	-	-	-	-	-	1	-	-	-	-	6	3	-	-	-
S. Dak.	-	-	-	-	-	-	2	-	-	-	2	2	-	-	-
Nebr.	-	-	-	-	-	-	6	-	11	-	-	-	-	-	-
Kans.	1	-	-	-	-	1	16	-	42	-	3	9	-	-	-
S. ATLANTIC	40	-	241	-	11	74	278	34	389	6	99	150	-	3	12
Del.	-	-	-	-	-	22	1	-	-	-	3	-	-	-	2
Md.	3	-	5	-	2	-	26	8	72	-	17	4	-	-	2
D.C.	5	-	-	-	-	1	7	25	143	-	-	-	-	-	-
Va.	8	-	144	-	2	-	31	-	94	-	16	36	-	-	1
W. Va.	-	-	6	-	-	-	2	-	7	2	2	22	-	-	-
N.C.	9	-	-	-	1	2	48	-	31	1	27	62	-	-	-
S.C.	4	-	-	-	-	-	30	-	4	-	-	-	-	-	-
Ga.	3	-	-	-	-	-	41	-	19	-	17	17	-	-	1
Fla.	8	-	86	-	6	49	92	1	19	3	17	9	-	3	6
E.S. CENTRAL	6	-	43	-	-	2	153	3	338	-	14	12	-	-	2
Ky.	-	-	32	-	-	-	29	-	146	-	-	1	-	-	2
Tenn.	-	-	-	-	-	-	95	3	183	-	8	3	-	-	-
Ala.	4	-	-	-	-	-	19	-	6	-	5	6	-	-	-
Miss.	2	-	11	-	-	2	10	N	N	-	1	2	-	-	-
W.S. CENTRAL	27	2	11	2	2	187	98	21	519	-	65	44	-	7	5
Ark.	-	-	-	-	-	-	12	-	78	-	5	2	-	3	2
La.	5	-	-	-	-	-	30	7	171	-	9	11	-	-	-
Okla.	6	-	8	-	-	2	8	4	154	-	24	31	-	1	-
Tex.	16	2	3	2†	2	185	48	10	116	-	27	-	-	3	3
MOUNTAIN	15	-	116	-	2	423	43	3	136	3	325	76	-	6	19
Mont.	1	-	-	-	-	105	-	-	2	-	1	3	-	-	3
Idaho	-	-	-	-	1	-	4	-	1	-	242	27	-	-	1
Wyo.	-	-	-	-	-	2	-	-	2	-	1	2	-	-	1
Colo.	7	-	116	-	1	5	11	-	25	2	15	19	-	2	-
N. Mex.	1	-	-	-	-	305	10	N	N	1	2	5	-	-	-
Ariz.	4	-	-	-	-	5	10	3	93	-	44	19	-	-	4
Utah	1	-	-	-	-	-	7	-	3	-	19	1	-	3	10
Nev.	1	-	-	-	-	1	1	-	10	-	1	-	-	1	-
PACIFIC	114	13	258	1	33	563	465	11	299	24	176	210	2	52	112
Wash.	8	-	2	-	-	1	40	-	16	1	40	29	-	-	-
Oreg.	6	-	1	-	-	35	23	N	N	-	4	14	-	-	1
Calif.	95	13	254	-	29	523	384	11	270	5	92	82	1	43	78
Alaska	2	-	-	-	-	-	5	-	6	1	4	3	-	-	-
Hawaii	3	-	1	1†	4	4	13	-	7	17	36	82	1	9	33
Guam	-	-	-	-	1	2	-	-	2	-	-	-	-	1	1
P.R.	1	-	171	-	-	411	6	-	5	-	6	12	-	1	2
V.I.	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-

*For measles only, imported cases includes both out-of-state and international importations.
N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending June 11, 1988 and June 13, 1987 (23rd Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988
UNITED STATES	16,484	14,773	125	8,489	8,954	61	153	104	1,766
NEW ENGLAND	439	232	11	173	285	1	11	1	3
Maine	5	1	2	3	15	-	-	-	1
N.H.	5	2	3	-	8	-	-	-	2
Vt.	1	1	2	1	6	-	1	-	-
Mass.	178	111	4	107	151	1	7	1	-
R.I.	14	6	-	14	24	-	-	-	-
Conn.	236	111	-	48	81	-	3	-	-
MID. ATLANTIC	3,415	2,731	19	1,470	1,558	-	22	2	177
Upstate N.Y.	221	95	9	244	243	-	4	1	4
N.Y. City	2,224	1,963	2	668	757	-	8	1	-
N.J.	367	281	3	268	266	-	10	-	-
Pa.	603	392	5	290	292	-	-	-	173
E.N. CENTRAL	490	420	19	960	1,041	1	15	7	49
Ohio	50	48	15	176	200	-	4	7	-
Ind.	25	27	-	101	113	-	2	-	13
Ill.	242	233	-	396	415	-	6	-	10
Mich.	156	78	4	234	271	1	2	-	6
Wis.	17	34	-	53	42	-	1	-	20
W.N. CENTRAL	106	63	16	222	262	31	4	18	222
Minn.	8	7	1	38	63	-	2	-	78
Iowa	10	11	4	16	17	-	-	-	13
Mo.	59	27	6	113	141	23	2	14	6
N. Dak.	1	-	-	3	4	-	-	-	44
S. Dak.	9	7	1	19	9	5	-	1	63
Nebr.	13	7	2	7	12	2	-	-	6
Kans.	6	4	2	26	16	1	-	3	12
S. ATLANTIC	5,879	5,028	10	1,869	1,838	4	18	29	580
Del.	57	40	1	18	19	1	-	-	20
Md.	311	265	1	190	155	-	1	5	151
D.C.	263	150	-	80	57	-	-	-	4
Va.	199	118	-	187	179	2	8	3	186
W. Va.	6	5	-	37	54	-	-	1	48
N.C.	340	272	5	156	196	-	1	14	-
S.C.	264	335	-	206	162	-	-	3	35
Ga.	951	705	-	301	288	1	2	2	99
Fla.	3,488	3,138	3	694	728	-	6	1	37
E.S. CENTRAL	873	861	12	715	763	5	3	15	140
Ky.	31	6	5	177	199	4	1	2	60
Tenn.	366	368	4	193	236	-	-	8	45
Ala.	255	210	3	218	234	-	1	3	35
Miss.	221	277	-	127	94	1	1	2	-
W.S. CENTRAL	1,795	1,827	14	1,105	1,021	12	6	27	265
Ark.	98	88	-	115	114	6	-	1	44
La.	349	326	-	159	121	-	2	-	1
Okla.	73	77	4	100	102	6	-	22	19
Tex.	1,275	1,336	10	731	684	-	4	4	201
MOUNTAIN	301	312	14	185	261	5	6	4	155
Mont.	2	8	-	5	8	-	1	3	114
Idaho	-	3	2	2	17	-	-	1	-
Wyo.	1	1	-	1	1	-	-	-	17
Colo.	42	46	2	17	55	4	3	-	2
N. Mex.	22	29	-	38	39	1	1	-	4
Ariz.	78	147	5	98	125	-	1	-	17
Utah	9	14	5	-	6	-	-	-	1
Nev.	147	64	-	24	10	-	-	-	-
PACIFIC	3,186	3,299	10	1,790	1,925	2	68	1	175
Wash.	98	66	2	106	113	-	3	-	-
Oreg.	125	120	-	63	54	-	5	-	-
Calif.	2,937	3,104	8	1,533	1,635	-	58	1	169
Alaska	7	2	-	18	30	2	-	-	6
Hawaii	19	7	-	70	93	-	2	-	-
Guam	1	2	-	7	23	-	-	-	-
P.R.	267	447	-	91	127	-	2	-	31
V.I.	1	3	-	3	2	-	-	-	-
Amer. Samoa	-	2	-	-	-	-	-	-	-
C.N.M.I.	1	-	-	8	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending June 11, 1988 (23rd Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	>65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	594	413	111	43	15	12	47
Boston, Mass.	167	104	34	13	8	8	24
Bridgeport, Conn.	38	32	4	1	1	-	2
Cambridge, Mass.	19	15	3	1	-	-	1
Fall River, Mass.	35	31	3	1	-	-	-
Hartford, Conn.	43	25	9	6	1	2	1
Lowell, Mass.	31	20	6	4	1	-	-
Lynn, Mass.	17	14	3	-	-	-	2
New Bedford, Mass.	28	22	4	2	-	-	1
New Haven, Conn.	41	27	8	5	1	-	4
Providence, R.I.	29	17	9	2	1	-	1
Somerville, Mass.	8	6	1	1	-	-	-
Springfield, Mass.	48	35	9	3	-	1	6
Waterbury, Conn.	44	32	8	3	1	-	4
Worcester, Mass.	46	33	10	1	1	1	1
MID. ATLANTIC	2,679	1,708	528	298	72	73	126
Albany, N.Y.	51	35	10	1	1	4	2
Allentown, Pa.	12	9	3	-	-	-	1
Buffalo, N.Y.	91	62	20	5	-	4	8
Camden, N.J.	30	16	5	5	2	2	1
Elizabeth, N.J.	34	26	5	1	-	2	3
Erie, Pa.†	48	34	9	1	3	1	5
Jersey City, N.J.	53	37	4	6	2	4	2
N.Y. City, N.Y.	1,390	865	264	186	39	36	42
Newark, N.J.	87	36	20	20	6	5	4
Paterson, N.J.	32	18	4	8	2	-	1
Philadelphia, Pa.	414	258	97	38	11	10	23
Pittsburgh, Pa.†	45	26	12	3	1	3	-
Reading, Pa.	31	30	1	-	-	-	4
Rochester, N.Y.	111	80	24	5	1	1	17
Schenectady, N.Y.	35	26	7	2	-	-	1
Scranton, Pa.†	31	23	5	2	1	-	1
Syracuse, N.Y.	104	72	21	7	3	1	6
Trenton, N.J.	34	19	9	6	-	-	1
Utica, N.Y.	23	17	5	1	-	-	1
Yonkers, N.Y.	23	19	3	1	-	-	3
E.N. CENTRAL	2,438	1,593	519	184	60	82	97
Akron, Ohio	73	50	14	4	1	4	3
Canton, Ohio	38	32	3	3	-	-	4
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	155	97	38	12	3	5	13
Cleveland, Ohio	159	98	42	12	2	5	6
Columbus, Ohio	133	78	28	17	3	7	2
Dayton, Ohio	125	79	35	8	1	2	2
Detroit, Mich.	271	157	52	41	11	10	4
Evansville, Ind.	59	44	12	1	-	2	2
Fort Wayne, Ind.	53	39	11	2	1	-	-
Gary, Ind.	13	8	3	2	-	-	-
Grand Rapids, Mich.	68	45	14	3	5	1	7
Indianapolis, Ind.	193	135	32	8	10	8	5
Madison, Wis.	48	36	7	2	3	-	4
Milwaukee, Wis.	159	110	35	5	3	6	10
Peoria, Ill.	52	36	10	3	1	2	4
Rockford, Ill.	53	33	14	4	1	1	4
South Bend, Ind.	58	40	10	5	1	2	5
Toledo, Ohio	91	57	23	6	4	1	5
Youngstown, Ohio	73	57	11	1	-	4	1
W.N. CENTRAL	888	602	175	56	31	24	34
Des Moines, Iowa	80	56	19	3	2	-	2
Duluth, Minn.	28	19	6	1	1	1	2
Kansas City, Kans.	43	23	11	6	2	1	-
Kansas City, Mo.	124	83	22	10	8	1	5
Lincoln, Nebr.	49	36	12	-	1	-	3
Minneapolis, Minn.	175	117	29	15	3	11	8
Omaha, Nebr.	101	76	15	4	3	3	6
St. Louis, Mo.	150	94	32	14	6	4	2
St. Paul, Minn.	57	42	12	1	1	1	2
Wichita, Kans.	81	56	17	2	4	2	4
S. ATLANTIC	1,313	788	288	137	50	46	42
Atlanta, Ga.	146	92	31	12	10	1	3
Baltimore, Md.	197	109	53	22	8	5	5
Charlotte, N.C.	82	58	12	8	2	2	4
Jacksonville, Fla.	128	84	26	11	3	4	2
Miami, Fla.	123	57	31	22	9	4	-
Norfolk, Va.	76	50	9	7	3	7	3
Richmond, Va.	98	64	23	6	2	3	2
Savannah, Ga.	55	33	15	5	-	2	3
St. Petersburg, Fla.	81	61	10	4	2	4	3
Tampa, Fla.	91	57	16	9	4	2	8
Washington, D.C.	201	100	53	28	7	12	6
Wilmington, Del.	35	23	9	3	-	-	3
E.S. CENTRAL	721	446	169	62	26	18	45
Birmingham, Ala.	121	78	29	5	5	4	4
Chattanooga, Tenn.	63	33	20	6	4	-	8
Knoxville, Tenn.	82	53	13	10	1	5	5
Louisville, Ky.	98	66	24	5	1	2	5
Memphis, Tenn.	156	92	40	16	7	1	11
Mobile, Ala.	52	33	9	4	4	2	2
Montgomery, Ala.	34	23	5	4	-	2	1
Nashville, Tenn.	115	68	29	12	4	2	9
W.S. CENTRAL	1,336	810	283	136	51	56	66
Austin, Tex.	48	37	5	5	1	-	4
Baton Rouge, La.	52	27	11	7	5	2	4
Corpus Christi, Tex.	28	15	8	2	-	3	2
Dallas, Tex.	205	111	51	23	13	7	8
El Paso, Tex.	55	33	10	6	3	3	3
Fort Worth, Tex	89	54	19	9	1	6	10
Houston, Tex.§	308	176	74	34	13	11	7
Little Rock, Ark.	68	41	12	10	-	5	4
New Orleans, La.	136	90	20	16	3	7	-
San Antonio, Tex.	186	119	38	15	8	6	13
Shreveport, La.	44	27	11	2	-	4	7
Tulsa, Okla.	117	80	24	7	4	2	4
MOUNTAIN	646	420	102	50	48	25	30
Albuquerque, N. Mex.	108	62	12	10	22	2	10
Colo. Springs, Colo.	40	29	5	3	2	1	6
Denver, Colo.	111	72	21	9	5	4	3
Las Vegas, Nev.	89	58	14	10	3	3	-
Ogden, Utah	13	8	-	1	2	2	-
Phoenix, Ariz.	103	69	15	8	5	6	3
Pueblo, Colo.	22	19	2	-	1	-	1
Salt Lake City, Utah	56	33	14	1	5	3	-
Tucson, Ariz.	104	70	19	8	3	4	7
PACIFIC	2,052	1,346	378	219	51	52	116
Berkeley, Calif.	8	6	1	1	-	-	1
Fresno, Calif.	73	54	10	7	2	-	12
Glendale, Calif.	27	22	4	1	-	-	-
Honolulu, Hawaii	69	44	13	6	2	4	14
Long Beach, Calif.	87	55	18	10	3	1	3
Los Angeles Calif.	593	366	126	70	15	11	20
Oakland, Calif.	85	51	17	8	1	8	5
Pasadena, Calif.	29	20	5	3	1	-	3
Portland, Oreg.	126	92	17	11	4	2	5
Sacramento, Calif.	122	82	19	12	4	5	12
San Diego, Calif.	169	113	22	26	2	6	14
San Francisco, Calif.	171	108	34	22	3	3	4
San Jose, Calif.	178	113	39	13	7	6	13
Seattle, Wash.	158	106	29	16	3	4	2
Spokane, Wash.	64	48	8	5	3	-	3
Tacoma, Wash.	93	66	16	8	1	2	5
TOTAL	12,667††	8,126	2,553	1,185	404	388	603

*Mortality data in this table are voluntarily reported from 121 cities in the United states, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

[[[[[[[[[Data not available. Figures are estimates based on average of past available 4 weeks.

Influenza — Continued

3) Children and teenagers (aged 6 months–18 years) who are receiving long-term aspirin therapy and, therefore, may be at risk of contracting Reye syndrome after an influenza infection.

Groups potentially capable of nosocomial transmission of influenza to high-risk persons. Individuals attending high-risk persons can transmit influenza infections to them while they are themselves incubating infection, undergoing subclinical infection, or working despite the existence of symptoms. Some high-risk persons (e.g., the elderly, transplant recipients, or persons with acquired immunodeficiency syndrome [AIDS]) can have relatively low antibody responses to influenza vaccine. Efforts to protect them against influenza may be improved by reducing the chances that their care providers may expose them to influenza. Therefore, the following groups should be vaccinated:

1) Physicians, nurses, and other personnel who have extensive contact with high-risk patients (e.g., primary-care and certain specialty clinicians and staff of chronic-care facilities and intensive-care units, particularly neonatal intensive-care units).
2) Providers of home care to high-risk persons (e.g., visiting nurses, volunteer workers) as well as all household members of high-risk persons, including children, whether or not they provide care.

VACCINATION OF OTHER GROUPS

General Population: Physicians should administer influenza vaccine to any person who wishes to reduce his/her chances of acquiring influenza infection. Persons who provide essential community services may be considered for vaccination to minimize the disruption of essential activities during severe epidemics.

Pregnant Women: Pregnancy has not been shown to be a risk factor for severe influenza infection, except in the largest pandemics of 1918–19 and 1957–58. However, pregnant women who have medical conditions that increase their risks of complications from influenza should be vaccinated, as the vaccine is considered safe for pregnant women. Administering the vaccine after the first trimester is a reasonable precaution to minimize any concern over the theoretical possibility of teratogenicity. However, it is undesirable to delay vaccination of pregnant women with high-risk conditions who will still be in the first trimester of pregnancy when the influenza season begins.

Persons infected with human immunodeficiency virus (HIV): Increases in infections and complications caused by various respiratory pathogens have been observed in persons infected with HIV. However, similar increases due to influenza have not been reported during recent epidemics. Nevertheless, because influenza may result in serious illness and complications in some HIV-infected persons, vaccination is a prudent precaution.

PERSONS WHO SHOULD NOT BE VACCINATED

Inactivated influenza vaccine should not be given to persons who have an anaphylactic hypersensitivity to eggs (see *Side Effects and Adverse Reactions* below). Persons with acute febrile illnesses normally should not be vaccinated until their temporary symptoms have abated.

TIMING OF INFLUENZA VACCINATION ACTIVITIES

Influenza vaccine should be offered beginning in September. Except in years of pandemic influenza (e.g., 1957 and 1968), high levels of influenza activity generally do

Influenza — Continued

not occur in the contiguous 48 states before December. Therefore, organized vaccination campaigns where high-risk persons are routinely accessible are *optimally* undertaken in November. In facilities such as nursing homes, it is particularly important to avoid administering vaccine too far in advance of the influenza season because antibody can begin to decline within a few months. Such vaccination programs may be undertaken in September or October if regional influenza activity is expected to begin earlier than normal.

Children ≤12 years of age who have not been vaccinated previously require two doses with at least 1 month between doses. The second dose should be given before December. Vaccine can be given to both children and adults up to and even after influenza virus activity is documented in a region.

STRATEGIES FOR IMPLEMENTING INFLUENZA VACCINE RECOMMENDATIONS

More effective programs are needed for giving influenza vaccine to high-risk persons, their health-care providers, and their household contacts. Programs for administering vaccine in nursing homes and other chronic-care facilities, physicians' offices, health maintenance organizations, hospitals, and employee health clinics must be carefully planned. High-risk adults and children who do not live in nursing homes or other chronic-care facilities should be offered influenza vaccine at their last regular medical appointment before the influenza season (i.e., before December). If they do not have a regular medical appointment scheduled in the fall, they should be notified by their health-care providers to come in specifically to receive influenza vaccine. From September through February, hospital discharge procedures should include influenza vaccination of high-risk patients. Medical-care personnel and support staff should ensure that no high-risk patient resides in or leaves a medical-care facility in the fall without being offered and urged to receive influenza vaccine. Equally important, administrators and infection-control staff of health-care facilities should establish procedures for offering vaccine to patient-care staff that take into account barriers to vaccination. More staff members will be vaccinated if vaccine is readily available at the worksite (e.g., on patient-care units during all shifts rather than at an employee health clinic).

Educational materials about influenza and its control are available from a variety of sources. For information on sources of educational materials and a selected bibliography, contact the Centers for Disease Control, Center for Prevention Services, Technical Information Services, 1600 Clifton Road, N.E., Atlanta, Georgia 30333.

SIDE EFFECTS AND ADVERSE REACTIONS

Because influenza vaccine contains only noninfectious viruses, it cannot cause influenza. Occasional cases of respiratory disease following vaccination represent coincidental illnesses unrelated to influenza vaccination. The most frequent side effect of vaccination is soreness around the vaccination site for up to 1 or 2 days; this occurs in less than one-third of vaccinees.

In addition, the following two types of systemic reactions have occurred:

1) Fever, malaise, myalgia, and other systemic symptoms occur infrequently and most often affect persons who have had no exposure to the influenza virus antigens in the vaccine (e.g., young children). These reactions begin 6–12 hours after vaccination and can persist for 1 or 2 days.
2) Immediate, presumably allergic, reactions such as hives, angioedema, allergic asthma, or systemic anaphylaxis occur extremely rarely after influenza vaccination. These reactions probably result from hypersensitivity to some vaccine

Influenza — Continued

component—most likely residual egg protein. Although current influenza vaccines contain only a small quantity of egg protein, they are presumed capable of inducing immediate hypersensitivity reactions in persons with severe egg allergy, and such persons should not be given influenza vaccine. This includes persons who develop hives, have swelling of the lips or tongue, or experience acute respiratory distress or collapse after eating eggs. Persons with a documented immunoglobulin E (IgE)-mediated hypersensitivity to eggs, including those who have experienced occupational asthma or other allergic responses from occupational exposure to egg protein, may also be at increased risk of reactions from influenza vaccine.

Unlike the 1976 swine influenza vaccine, subsequent vaccines prepared from other virus strains have not been associated with an increased frequency of Guillain-Barré syndrome. Although influenza vaccination can inhibit the clearance of warfarin and theophylline, clinical studies have consistently failed to show any adverse effects attributable to these drugs in patients receiving influenza vaccine.

SIMULTANEOUS ADMINISTRATION OF OTHER VACCINES, INCLUDING CHILDHOOD VACCINES

The target groups for influenza and pneumococcal vaccination overlap considerably. Both vaccines can be given at the same time at different sites without increasing side effects. However, influenza vaccine is given annually, and it is currently recommended that pneumococcal vaccine be given only once. Detailed immunization records should be provided to each patient to record the date when pneumococcal vaccine was given.

High-risk children usually see a health professional to receive routine pediatric vaccines. These visits provide a good opportunity to administer influenza vaccine simultaneously but in a different site. Although studies have not been conducted, simultaneous administration should not diminish immunogenicity or increase adverse reactions.

ANTIVIRAL AGENTS FOR INFLUENZA A

Two antiviral drugs have specific activity against influenza A viruses: amantadine hydrochloride and rimantadine hydrochloride. Currently, only amantadine is approved for marketing in the United States.

Both amantadine and rimantadine interfere with the replication cycle of type A influenza viruses, although the specific mechanisms of their antiviral activity are not completely understood. Both drugs are 70%–90% effective in preventing illnesses caused by naturally occurring strains of type A influenza viruses. However, they *are not effective against type B influenza.* When administered within 24–48 hours after the onset of illness, they can reduce the duration of fever and other systemic symptoms, allowing the patient to return more rapidly to routine daily activities. Since these drugs may not prevent infection itself, persons who take them can still develop immune responses that will protect them when they are subsequently exposed to antigenically related viruses.

Increasing the availability of rapid viral diagnostic tests and improving the dissemination of information about areas where influenza A virus infections have been confirmed will allow for more efficient and appropriate use of antiviral agents. Such information is reported throughout the influenza season in the *MMWR* and is also available by computer telecommunication through the Public Health Foundation.

Influenza — Continued

AMANTADINE PROPHYLAXIS RECOMMENDATIONS

Amantadine is recommended under certain circumstances, particularly for control of presumed influenza A outbreaks in institutions housing high-risk persons. Chemoprophylaxis should begin as early as possible after the outbreak is recognized. Contingency planning is needed in chronic-care facilities to establish specific steps for rapidly administering amantadine to residents and staff when influenza outbreaks occur. For outbreak control, amantadine should be administered to all residents of the institution whether or not they received influenza vaccine the previous fall. Amantadine should also be offered to unvaccinated staff who provide care to high-risk patients. For prophylaxis, the antiviral drug should be taken each day for the duration of influenza activity in the community.

Amantadine prophylaxis is also recommended in the following situations:

1) *As an adjunct to late vaccination of high-risk persons.* It is not too late to vaccinate even when influenza A is known to be in the community. However, because the development of an antibody response following vaccination takes about 2 weeks, amantadine should be used during this period. Amantadine does not interfere with the antibody response to the vaccine.
2) *To reduce the spread of infection and to maintain care for high-risk persons in the home.* Unvaccinated persons who provide home care for high-risk persons (e.g., household members, visiting nurses, volunteer workers) should also receive amantadine prophylaxis during the period when influenza A outbreaks occur.
3) *For immunodeficient persons.* As a supplement to the protection afforded by vaccination, amantadine prophylaxis is indicated for high-risk patients who may have a poor antibody response to influenza vaccine, such as persons with AIDS. Whereas adults with AIDS can be expected to have some residual immunity to influenza from prior infections, children with AIDS may have little or no immunity to the virus. Therefore, amantadine prophylaxis against influenza should be considered during influenza epidemics, especially for children with AIDS. The potential benefits should be evaluated on a case-by-case basis, taking into account the potential risks of side effects, especially in patients with central nervous system involvement.
4) *For persons for whom influenza vaccine is contraindicated* (see *Side Effects and Adverse Reactions* above).

Amantadine can also be used prophylactically in other situations (e.g., for unimmunized members of the general population who wish to avoid influenza A illness). This decision should be made on an individual basis.

AMANTADINE THERAPY

Although amantadine has been shown to reduce the severity and shorten the duration of influenza A illness in healthy adults and children, no well-controlled clinical studies have examined the efficacy of amantadine therapy in preventing complications of influenza A in high-risk persons. Nevertheless, because of the potential benefits, amantadine should be considered for high-risk patients who contract an illness compatible with influenza during a period of known or suspected influenza A activity in the community. The drug should be given within 24–48 hours after onset of illness and should be continued until 48 hours after signs and symptoms resolve.

Influenza — Continued

DOSAGE CONSIDERATIONS FOR AMANTADINE

The following information should be considered in determining the appropriate dosage of amantadine:*

1) In controlled studies, 5%–10% of healthy young adults taking amantadine at the standard adult dosage of 200 mg per day have reported side effects including nausea, dizziness, insomnia, nervousness, and impaired concentration. Data suggest that a daily prophylactic dosage of 100 mg may provide protection comparable to that of 200 mg/day but with fewer side effects. No studies have compared the efficacy of amantadine at daily dosages of 100 mg and 200 mg for *treatment* of influenza A infection.
2) Amantadine is not metabolized and is excreted unchanged in the urine by glomerular filtration and tubular secretion. Because renal function declines with aging, the daily dosage for persons ≥65 years of age should not exceed 100 mg for *prophylaxis or treatment.* When amantadine is administered to patients with impaired renal function, the dosage should be further reduced (see package insert). Because recommended dosages for persons with renal impairment provide only a rough estimate of the optimal dosage for a given patient, such individuals should be closely observed so that adverse reactions can be recognized promptly and the dosage reduced or the drug discontinued if necessary.
3) Persons with active seizure disorders may be at increased risk for seizures when given amantadine at a dosage of 200 mg daily. Data suggest that the risk of seizures in such persons might be reduced by using a lower dose of the drug.
4) The use of amantadine in children <1 year of age has not been adequately evaluated. The approved dosage for children 1–9 years of age is 4.4 mg/kg/day, not to exceed 150 mg/day. Although further studies would be desirable to determine the optimal dosage for children, physicians should consider prescribing 4.4 mg/kg/day to reduce the risk of toxicity. For children ≥10 years weighing <45 kg, it may also be advisable to prescribe 4.4 mg/kg/day. The dose for treatment should not exceed 150 mg for children aged 1–9 years and 200 mg for children ≥10 years of age. As for adults, a maximum dosage of 100 mg daily should be effective for prophylaxis (see #1 above).

*Further information is available from DuPont Pharmaceuticals, one of the manufacturers of amantadine, by calling (800)441-9861.

Epidemiologic Notes and Reports

Syrup of Ipecac Contamination

On April 29, the Food and Drug Administration (FDA) announced the nationwide recall of Humco-brand syrup of ipecac as a result of a labeling error. The manufacturer, Humco Laboratory, Inc., of Texarkana, Texas, undertook the recall of all lots of the product following a report to FDA from the Thrift Drug Company of Pittsburgh, Pennsylvania, that five of seven ipecac bottles in one of the company's drugstores had been found by the drug company to contain eucalyptus oil instead of ipecac. In addition to commercial sales, thousands of 1-ounce bottles of Humco-brand ipecac syrup were made available free to nonprofit organizations, including several poison control centers, throughout the United States during the week of May 2 as part of Poison Prevention Week campaigns.

The syrup was sold or given away as individual 1-ounce bottles or was included as part of a poison kit. At the time of the recall, 200,000 bottles were known to still be in distribution channels; another 200,000 bottles may already have reached consumers. FDA advises consumers to return all 1-ounce bottles labeled Humco ipecac.

Reported by: Dallas District Office; Office of Compliance, Center for Drug Evaluation and Research, Food and Drug Administration. Epidemiology Br, Div of Injury Epidemiology and Control, Center for Environmental Health and Injury Control, CDC.

Editorial Note: Ipecac syrup is used mostly to induce vomiting in children under the age of 4 after a poisoning or suspected poisoning. Eucalyptus oil is commonly used in minute amounts in vaporizers and nose drops, and in cough drops as flavoring, and it is considered safe for these purposes. However, pure eucalyptus oil should never be ingested because even small amounts can quickly cause convulsions and coma. As little as 1 teaspoon (5 cc) can be fatal. Parents are urged to search for 1-ounce bottles of Humco ipecac and to return them to the source from which they were distributed.

For further information, contact Gust Koustenis, Recall Officer, Office of Compliance, Center for Drug Evaluation and Research, Food and Drug Administration, 7520 Standish Place, Rockville, Maryland 20855, telephone (301)295-8060.

Notice to Readers

National Conference on the Prevention of HIV Infection and AIDS Among Racial and Ethnic Minorities in the United States

August 15–17, 1988, CDC will cosponsor a national conference on the Prevention of HIV Infection and AIDS Among Racial and Ethnic Minorities in the United States, at the Omni Shoreham Hotel, in Washington, D.C. The conference is sponsored in conjunction with the Office of Minority Health; the Alcohol, Drug Abuse, and Mental Health Administration; the Health Resources and Services Administration; and the Indian Health Service. The Food and Drug Administration, the National Institutes of Health, state and local health departments, and minority and voluntary organizations will also participate. The conference is targeted for persons involved in AIDS prevention activities; these include AIDS program managers, planners, administrators, community health educators, counselors, health-care providers, and program evaluators.

Conference — Continued

The conference objectives are to:

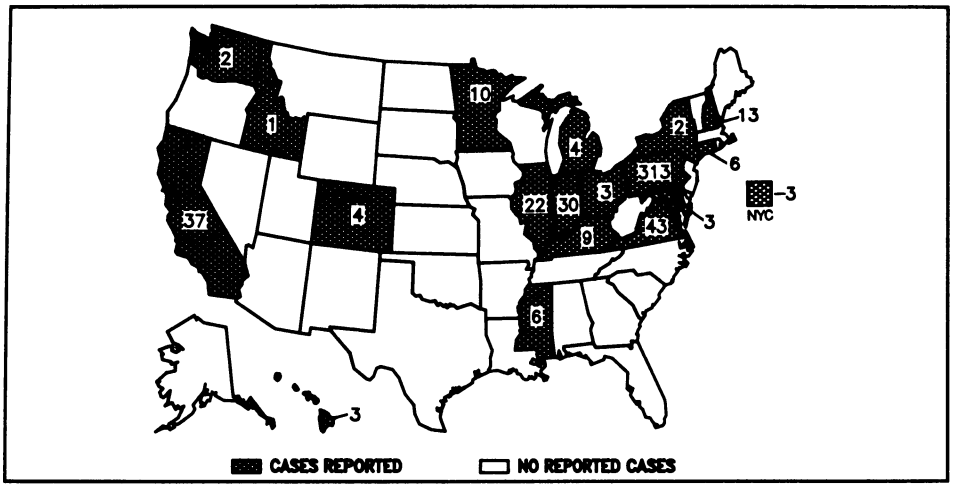
- Provide an overview of strategies for prevention and control of AIDS in racial and ethnic minority communities.
- Present and discuss information on technical assistance; funding; networking; and program development, implementation, and evaluation.
- Exchange information on model programs to prevent infection among people engaged in high-risk activities, such as intravenous drug use and unsafe sex.
- Develop ideas for future direction of programs to prevent HIV infection and AIDS.

The objectives will be accomplished through a series of workshops that will focus on program development, technical assistance, and funding resources and coordination. Strategies for community outreach, health education and risk reduction, HIV antibody counseling and testing, and research and program evaluation will be emphasized.

A preconference program on the evening of Sunday, August 14, will provide an overview of recent developments in HIV infection and AIDS. During the conference, time also will be allotted for roundtable discussions, strategy and resource sharing, and group caucuses.

For more information, contact the CDC AIDS Conference Office at (202)737-8062.

FIGURE I. Reported measles cases — United States, Weeks 19–22, 1988



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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.