EPIDEMIOLOGY SECTION

Connecticut Epidemiologist

STATE OF CONNECTICUT DEPARTMENT OF HEALTH SERVICES
Douglas S. Lloyd, M.D., M.P.H., Commissioner

Vol. 2, No. 7
July, 1983

AIDS UPDATE

The U.S. Public Health Service has made Acquired Immune Deficiency Syndrome (AIDS) its number one priority. The high fatality rate associated with AIDS, its apparent infectious nature, and the immunologic phenomena associated with the disease have caused continued serious concern among specific risk groups, the general public, health care workers and researchers. A monthly update on AIDS will appear in the Connecticut Epidemiologist as part of an ongoing effort to make available accurate and relevant information to the public and medical community.

As of July 11, 1983, 1,831 cases have been reported in the United States and Puerto Rico. Nearly 94% of cases have occurred among individuals in four identified risk groups.(1) Sexually active homosexual and bisexual men with multiple sex partners account for approximately 3/4 of all reported cases. Other risk groups include intravenous drug abusers, 17%; people with hemophilia, 8%; and Haitian entrants into the U.S., 5%. The cause of AIDS remains unknown, but it appears most likely to be caused by an agent transmitted by intimate sexual contact, through contaminated needles (shared among drug users), or less commonly by percutaneous exposure to blood or blood products of AIDS patients. There is no evidence to suggest transmission of AIDS by airborne spread. The failure to identify any cases among the thousands of friends, relatives, and co-workers of AIDS patients provides further evidence that routine, casual contact offers little or no risk. In addition to the 1,831 reported cases of AIDS, 21 infants with opportunistic infections and unexplained cellular immunodeficiencies have been reported to CDC. Infant cases are recorded separately because of the uncertainty in distinguishing their illnesses from previously described congenital immunodeficiency syndromes (2).

AIDS AND HEALTH CARE WORKERS

Recently, four cases of AIDS were reported in health care personnel. None of the individuals is known to belong to a group(s) at increased risk for AIDS.(3) None of the four cases had documented contact with another AIDS patient, and the source of AIDS in these four cases is not clear. These cases provide no new information regarding occupational risk related to health care personnel. Although they denied belonging to identified AIDS risk groups, the accuracy of data regarding sexual activity and IV drug use cannot be verified. None gave a history of caring for an AIDS patient or had known contact with blood of an AIDS patient. Although the transmission of AIDS within hospitals has not been reported, the possibility that these patients had unknown exposures to blood of an AIDS patient cannot be entirely excluded. Therefore, health care personnel should be familiar with and adhere to infection control practices for handling of AIDS patients. Recommended precautions for hospital personnel treating possible AIDS patients are those used with caring for patients with hepatitis B virus infection. Additional cases reported in health care personnel have occurred in people who either belong to known risk groups or for whom available information is not sufficient to determine if they do belong to a risk group.

AIDS IN CONNECTICUT

To date, 20 confirmed cases of AIDS have been reported in Connecticut. Many more individuals have been evaluated at hospitals throughout the state as possible cases of AIDS. Although there are signs and symptoms which are suggestive of AIDS, patients exhibiting only abnormal immunologic findings (i.e., reverse T-cell ratios, and/or chronic lymphadenopathy and weight loss) and who have no known cause of cellular immundeficiency are not considered to be cases of AIDS. Reverse (abnormal) T-cell ratios are not specific for AIDS. This phenomenon has been demonstrated in many disease states, such as infection with Epstein-Barr virus and cytomegalovirus. Furthermore, it has also been demonstrated in otherwise healthy homosexual men, hemophiliacs, and female prostitutes.

Prospective studies are planned to evaluate the possible relationship of these T-cell changes and wasting lymphadenopathy (i.e., a possible prodromal phase) to the syndrome associated with recognizable opportunistic infection.

REPORTABLE DISEASE

The Conference of State and Territorial Epidemiologists has passed a resolution that AIDS be added to the list of notifiable diseases. Any patients fitting the case definition (4), including patients who do not belong to any of the recognizable risk groups and who are not recipients of blood or blood products, should be reported to the Epidemiology Section of the Preventable Diseases Division (566-5778). At the present time, a voluntary reporting system is in effect in Connecticut. Although this system has yielded adequate information to date, we will continue to evaluate the need for mandatory reporting.

TABLE 1. AIDS CASES: CONNECTICUT VS. NATIONALLY (as of 6/21/83)(1)

	CT Cases	Percent of Total	National Cases	Percent of Total
Number Cases Reported	20	1.2	1,676	--
Mean Age	40.35	--	--	--
Sex (Males)	18	90.0	--	--
Race: White	14	70.0	955	57.0
Black	3	15.0	465	27.8
Hispanic	3	15.0	238	14.2
Haitian	0	0	89	5.3
Sexual Orientation: Homosexual or Bisexual	12	60.0	1,185	70.7
IV Drug Use	5	25.0	291	17.4
Hemophiliac	2	10.0	14	0.8
Haitian	0	0.0	89	5.3
Unknown or no apparent risk group	1	5.0	97	5.8
Opportunistic Infection (OI): PCP* without KS**	15	75.0	857	51.1
KS without PCP	3	15.0	438	26.1
KS and PCP	1	5.0	125	7.5
OI without KS or PCP	1	5.0	256	15.3
Deaths	10	50.0	650	38.8

*PCP = Pneumocystis carinii pneumonia
**KS = Kaposi's Sarcoma

TABLE 2. AIDS CASES REPORTED BY STATE(1)

		Cases	Percent of Total
New York City		741	44.2
San Francisco		163	9.7
Los Angeles		102	6.1
New Jersey		116	6.9
Florida		113	6.7
Total Connecticut		20	1.2
Connecticut Counties:	New Haven	9	45.0
	Fairfield	8	40.0
	Hartford	2	10.0
	Middlesex	1	5.0

AIDS COORDINATOR HIRED

As of July 22, the Epidemiology Section of the State of Connecticut Department of Health Services will have a full-time Epidemiologist to coordinate statewide activities for AIDS. Mr. William Sabella will be responsible for coordinating surveillance activities, investigating individual cases, and developing guidelines and informational materials for health care personnel, the general public and other selected groups. He can be reached at 566-5778. Initially, copies of the USPHS "Fact Sheet on AIDS" will be distributed to local health departments and clinics for sexually transmitted diseases.

NATIONAL ACTIVITIES

Nationally, several federal agencies are involved in AIDS research or funding such research.

-The Centers for Disease Control are responsible for nationwide surveillance. They are also conducting epidemiologic studies to identify risk factors for acquiring AIDS. Intensive laboratory investigations are underway to identify the infectious agent of AIDS using tissues, blood, lymph nodes and autopsy materials from AIDS patients.

-The National Institute of Health (NIH) is involved in both active research and in funding studies on AIDS. Six of NIH's 11 research components are involved in multidisciplinary, intramural studies on AIDS. These studies are aimed at determining causative agents, evaluating the natural history of the disease, characterizing the immune deficiency of the patients, improving treatment, and demonstrating transmission by use of an animal model. In addition, large grants have or will be awarded through the National Cancer Institute, the National Institute of Allergy and Infectious Diseases and the National Heart, Lung, and Blood Institute.

-The Food and Drug Administration (FDA) has developed steps to be taken to decrease the risk of blood and/ plasma donation by persons who might be at increased risk of transmitting AIDS. These have been distributed to all establishments collecting source plasma and human blood for transfusion and manufacturers of plasma derivatives. The FDA has also approved a new heat treatment for blood products, such as Factor VIII, to reduce infectious agents that may be transmissible to hemophiliac patients.

-The U.S. Public Health Service has established a national hot line to respond to questions and provide informational materials on AIDS. The hot line is 800-342-AIDS and is in operation weekdays, 8:30-5:30.

References

1. Centers for Disease Control. Summary Data and Line Listing of AIDS cases. June 21, 1983.

2. Centers for Disease Control. Acquired Immune Deficiency Syndrome (AIDS) Update - United States. MMWR: 1983; 32(24): 309-318.

3. Centers for Disease Control. An Evaluation of the Acquired Immunodeficiency Syndrome (AIDS). Reported in Health Care Personnel - United States. MMWR: 1983;32(27): 349-358.

4. State of Connecticut Department of Health Services. Acquired Immune Deficiency Syndrome (AIDS). Connecticut Epidemiologist. 1983; 2: 9-14.

Recommendation of the Immunization Practices Advisory Committee (ACIP)

INFLUENZA VACCINES, 1983-1984*

Influenza virus infections occur every year in the United States but 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 virus types A and B are responsible for only a small proportion of all respiratory disease, but they are unique in their ability to cause periodic widespread outbreaks of febrile respiratory illness among adults and children.

Influenza epidemics are frequently associated with deaths in excess of the number normally expected. More than 200,000 excess deaths are estimated to have occurred in association with influenza epidemics in the United States during 1968-1982. Excess deaths in this period were attributable mainly to influenza A viruses, although influenza B epidemics were occasionally associated with excess deaths, as in 1979-1980. Epidemics of influenza B, and to a lesser extent, influenza A infection, have been associated with an increased incidence of Reye's Syndrome among children and adolescents in the United States.

Efforts to reduce the impact of influenza in the United States have been aimed at protecting persons at greatest risk of serious illness or death. Observations during influenza epidemics indicate that most influenza-related deaths occurred among two groups of persons: the chronically ill and the elderly. Annual vaccination is, therefore, recommended for these medically high-risk persons.

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 hemagglutinin, reduces the likelihood of infection and the severity of disease if a person does become infected. However, there may be sufficient antigenic variation (antigenic drift) within the same subtype over time, so 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 much more antigenic stability than influenza A viruses, antigenic variation does occur. As a consequence, the antigenic characteristics of current strains provide the basis for selecting virus strains to be included in the vaccine.

During the 1982-1983 winter, influenza activity occurred at moderate levels in the United States. The number of virus isolates reported to CDC was more than double that of the 1981-1982 winter when influenza activity was generally low. Excess mortality was slightly elevated throughout the epidemic period, starting in January 1983. The viruses implicated as the major cause of nationwide epidemic activity were influenza A(H3N2) strains. In particular, these H3N2 viruses were shown to cause nearly all outbreaks in nursing home or hospital settings for which laboratory diagnosis was obtained. Influenza A(H1N1) viruses, isolated in about half the states, were not proven responsible for outbreaks in the aged or infirm but occasionally were isolated from school outbreaks, sometimes concurrently with influenza A(H3N2) strains. Influenza B viruses were isolated infrequently early in the season, although their prevalence increased toward the end of the season including outbreaks in several schools and nursing homes in April and May.

Almost 80% of influenza virus isolates reported in the United States were type A(H3N2) strains, mostly similar to A/Bangkok/79(H3N2), a strain included in the vaccine for the last three years. However, variants that are poorly inhibited by animal sera to A/Bangkok/1/79 (reference strain A/Philippines/2/82) have accounted for an increasing proportion of H3N2 strains recovered in Asia since mid-1982 and have also been identified during the 1982-1983 winter in Europe and North America. These considerations and animal studies showing that A/Philippines/2/82 induces antibodies that react broadly with the Bangkok strain, as well as with other recent variants, suggest that the A/Philippines/2/82 strain should replace the A/Bangkok/79(H3N2) component in the vaccine. Antigenic analysis of influenza A(H1N1) viruses isolated in recent months confirms their close resemblance to A/England/333/80 strains that have circulated during the past two years. Measurement of antibody responses of persons receiving vaccines containing A/Brazil/11/78 antigen, however, continues to indicate that these vaccines should protect against A/England/333/80-like strains. Antigenic analysis of influenza B viruses isolated during the past year shows that these strains remain similar to B/Singapore/222/79, a strain included in the vaccine for the past three years.

INFLUENZA VACCINES FOR 1983-1984

The specific antigens and their potency in the 1983-1984 vaccine will be: 15 ug each of hemagglutinin of A/Brazil/78(H1N1), A/Philippines/82 (H3N2), and B/Singapore/79 viruses per 0.5-ml dose.

Adults and children older than 12 years will require only one dose. Children 12 years of age and younger are less likely than older children or adults to have been previously infected with strains related to each of the vaccine components. Therefore, because of their potentially lower level of immunologic priming, children in the 12-and-under age group should receive two doses of vaccine. However, children who have already had at least one of the influenza vaccines recommended for use from 1978 to 1983 will require only one dose of the 1983-1984 vaccine. The 1983-1984 vaccines will be available as whole-virion (whole-virus) and sub-virion (split-virus) preparations. Past data indicate that split-virus vaccines have been associated with somewhat fewer side effects among children than whole-virus vaccines. Thus, only split-virus vaccines are recommended for those 12 years and under.

VACCINE USAGE

Annual vaccination is strongly recommended:

1. For all older persons, particularly those over 65 years, because the risk of death during influenza outbreaks generally increases with age.
2. For all persons (children and adults) who are at increased risk of adverse consequences from infection of the lower respiratory tract because of a pre-existing medical condition.

Conditions which predispose to such increased risk include the following:

a) Acquired or congenital heart disease with actual or potential alterations in circulatory dynamics (e.g., mitral stenosis, congestive heart failure, or pulmonary-vascular overload).
b) Any chronic disorder or condition that compromises pulmonary function (e.g., chronic obstructive pulmonary disease, bronchiectasis, heavy smoking, tuberculosis, severe asthma, cystic fibrosis, neuromuscular and orthopedic

TABLE 1. Influenza Vaccine* Dosage, by Age -- United States, 1983-1984

Age Group	Product	Dosage	Number of Doses
6-35 months	Split virus only	0.25 ml+	2§
3-12 years	Split virus only	0.05 ml	2§
over 12 years	Whole or split virus	0.5 ml	1

*Contains 15 ug each of A/Brazil/78(H1N1), A/Philippines/82(H3N2), and B/Singapore/79 hemagglutinin antigens of each 0.5 ml. Manufacturers include Connaught Laboratories, Inc. ("FLUZONE": whole and split), Parke-Davis ("FLUOGEN": split), and Wyeth Laboratories ("Influenza Virus Vaccine, Trivalent": split).
+Based on limited data. Since the likelihood of febrile convulsions is greater for this age group, special care should be taken in weighing relative risks and benefits.
§Four weeks or more between doses; both doses recommended for maximum protection. However, if the individual received at least one dose of any influenza vaccine recommended from 1978-79 to 1982-83, one dose is sufficient.

*Reprinted from MMWR. 2983; 26:333-337

disorders with impaired ventilation, bronchopulmonary dysplasia following the neonatal respiratory distress syndrome).
c) Chronic renal disease with azotemia or nephrotic syndrome.
d) Diabetes mellitus or other metabolic diseases.
e) Severe chronic anemia, such as sickle cell disease.
f) Conditions that compromise the immune mechanism, including certain malignancies and immunosuppressive therapy.

In balancing the benefits, risks, and costs for the community, some localities have elected to vaccinate persons who provide essential community services and medical-care personnel who also are at increased risk of exposure. Vaccination of medical-care personnel may also reduce spread of influenza to patients in hospitals and other settings. While consideration should be given to providing vaccine for such groups, vaccination of persons specified to be at high risk should take precedence.

Table 1 summarizes vaccine and dosage recommendations by age group for 1983-1984.

USE IN PREGNANCY

Physicians should evaluate a pregnant woman's need for influenza vaccination on the same basis used for other persons, i.e., vaccination should be advised for a pregnant woman who has any underlying high-risk condition. Only in the pandemics of 1918-1919 and 1957-1958 was there persuasive evidence that influenza infection increased maternal mortality.

There is no evidence to suggest that influenza vaccine carries any maternal or fetal risk, and, because it is inactivated, the vaccine does not share any of the theoretical risks of live-virus-vaccine infection of the fetus. Nonetheless, when vaccine is to be given in pregnancy, waiting until the second or third trimester is a reasonable precaution to minimize any concern over tertogenicity.

SIDE EFFECTS AND ADVERSE REACTIONS

Vaccines used in recent years have generally been associated with only a few reactions; less than one-third of vaccines have been reported to have local redness and induration for 1 or 2 days at the site of injection.

Systemic reactions have been of three types:

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

2. Immediate, presumably allergic, responses such as flare and wheal or various respiratory expressions of hypersensitivity occur extremely rarely after influenza vaccination. They probably result 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 induce hypersensitivity reactions. Individuals with anaphylactic hypersensitivity to eggs should not be given influenza vaccine. This would include persons who, on eating eggs, develop swelling of the lips or tongue or experience acute respiratory distress or collapse.

3. In 1976, a temporal association (i.e., within 10 weeks of vaccination) was noted between administration of A/New Jersey/76 (swine) influenza vaccine and Guillain-Barré syndrome (GBS). Vaccinated adults had an excess frequency of GBS at the rate of approximately 10 cases/million persons vaccinated. This incidence of GBS was five to six times higher than the comparable average reported incidence for unvaccinated persons. An active surveillance system for GBS was initiated in 1978 and was maintained for three years. No significant excess risk of GBS was found for recipients of influenza vaccine during the influenza seasons 1978-1979 through 1980-1981. Available evidence indicates that any risk of GBS from influenza vaccine appears to be far lower than the risks associated with influenza among persons for whom the vaccine is indicated.

OTHER MEASURES

Annual vaccination continues to be the most important way to prevent influenza and should be routine for all persons at high risk of serious and/or fatal disease. Measures intended to reduce the likelihood of exposure in community outbreaks, such as limiting the number of gatherings of large groups, may delay spread but are not uniformly effective.

Amantadine hydrochloride, an antiviral drug, can help prevent influenza A for certain persons and circumscribed groups. It is not a substitute for vaccine and is not generally applicable to public health practice, but it may be useful for persons who have not been vaccinated and need protection during outbreaks.

Amantadine protects only against influenza A, not influenza B, infection and must be taken each day for the duration of the epidemic (6-8 weeks, generally) or until active immunity can be expected to develop after vaccination (about 10-14 days). Precautions must be taken for patients with certain chronic conditions, and there are sometimes mild but occasionally troublesome side effects -- especially among older patients. Amantadine is a prescription drug and must be ordered and monitored by a physician. Dosage, precautions, and other information on use are specified in the drug's labeling.

EDITORIAL NOTE: It has been our experience that infection control practices are an important adjunct to vaccination. When an influenza outbreak occurs in an institutional setting, such as a convalescent home, cohorting of both patients and staff is an important measure to containing the outbreak. Restriction of visitors may also be considered depending on the extent of the problem.

GONE FISHING

Dr. Toby Kircher, Epidemic Intelligence Officer assigned to Connecticut from the Centers for Disease Control, has completed his tour of duty with the State of Connecticut Department of Health Services. Dr. Kircher has taken a position in clinical pathology at Penrose Hospital in Colorado Springs, Colorado. We wish to extend our best wishes to Toby and his family and a sincere thanks for a job well done.

REPORTED MORBIDITY - JUNE, 1983

	AMEBIASIS	BOTULISM	BRUCELLOSIS	ENCEPHALITIS (TOTAL)	Primary	Post	FOODBORNE OUTBREAKS	GONORRHEA	HEPATITIS A	HEPATITIS B	HEPATITIS NON A NON B	HEPATITIS UNSPECIFIED	LEGIONELLOSIS	LEPROSY	MALARIA	MEASLES	MENINGITIS (All Types)	Aseptic	Hemophilus influenzae	Meningococcal	Other	MUMPS	PERTUSSIS	PSITTACOSIS	RABIES IN ANIMALS	REYE'S SYNDROME	ROCKY MT. SPOTTED FEVER	RUBELLA	SALMONELLA	SHIGELLA	SYPHILIS	TUBERCULOSIS (TOTAL)	Pulmonary	Other	TYPHOID FEVER
TOTAL JUNE-1983	5	*1	0	0	0	0	1	879	10	53	3	5	3	0	2	6	28	9	9	3	7	1	0	1	3	0	0	0	117	7	20	20	16	4	0
CUMULATIVE-1983	11	*1	0	6	6	0	4	4335	32	205	26	9	24	1	6	8	111	20	31	31	29	12	0	1	3	0	0	0	407	111	80	75	58	17	0
CUMULATIVE-1982	18	1	3	13	10	3	4	8920	36	207	10	22	22	1	6	4	100	17	20	33	30	13	2	1	2	1	1	2	298	151	63	53	40	13	1

*Infant Botulism

TUBERCULOSIS, 1983

As of July 15, 1983, 96 newly diagnosed cases of tuberculosis (TB) have been reported by the Pulmonary Disease Control Program. During the same period in 1982, there were 61. This increase in the number of TB cases is due partly to improved surveillance techniques used to obtain the diagnostic data needed in order to verify each case. However, there does appear to be a true increase caused by recent transmission of tubercle bacillus and by previously reported cases who failed to complete their course of therapy and recently became symptomatic and infectious once again (recurrent TB).

So far in 1983, there have been 12 cases of TB in children under the age of 15 (12.5%) with six under the age of five. There were only two cases reported in children under the age of 15 during the entire year of 1982. Also, there have already been 10 cases of recurrent TB reported as of July 15, 1983; this is only one less than the total number of recurrent cases reported during the entire year of 1982.

This increase is being seen mainly in the five cities with populations greater than 100,000: Bridgeport, Hartford, New Haven, Stamford and Waterbury. In 1982, 45% (70 cases) of the total number of newly reported cases of TB occurred in these five cities, compared to 59% (57 cases) of the cases reported as of July 15, 1983 (Table 1).

TABLE 1. Incident Cases of Tuberculosis by City

City	Total Cases 1982	January 1 - July 15, 1983
Bridgeport	13	13
Hartford	19	11
New Haven	24	22
Stamford	7	6
Waterbury	7	5

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