CENTERS FOR DISEASE CONTROL

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Current Trends

Tree Stand-Related Injuries among Deer Hunters – Georgia, 1979–1989

Tree stands are elevated platforms used for hunting large game; they provide an expanded field of vision while minimizing ground scent. To characterize unintentional hunting injuries associated with the use of tree stands, the Georgia Department of Human Resources and the Georgia Department of Natural Resources (GDNR) studied all tree stand-related deer hunting injuries (reported on Georgia's mandatory Uniform Hunter Casualty Report form) for the 10 hunting seasons (mid-September through mid-January) during 1979–1989. A tree stand-related injury was defined as any injury associated with any device used to hunt deer from a tree. The number of big game (deer, bear, and turkey) hunting licenses issued in Georgia from the 1979–80 through the 1988–89 seasons was obtained from the Fishing and Game Licensing Bureau, GDNR.

During the 1979–1989 hunting seasons, 594 deer hunting-related injuries (including 85 fatal injuries) were reported in Georgia—a mean rate of 24.9 deer hunter injuries per 100,000 hunting licenses sold per year (range: 11.2–32.4) (Figure 1). Of these, 214 (36%) were tree stand-related (8.9 tree stand-related injuries per 100,000 hunting licenses sold per year [range: 2.4–13.7]) (Figure 1); 17 (8%) of these were fatal.

All the tree stand-related injuries occurred during hunting season. Tree stand-related injuries occurred in 89 (56%) of the 159 counties in Georgia; however, 24 (11%) injured hunters were residents of one of the five bordering states. The median age of injured hunters was 38 years (range: 8–72 years). Of nine who were <16 years of age, four were hunting without the supervision of an adult ≥ 21 years of age.

The type of hunting weapon was known for 178 tree stand-related injured hunters: 139 (78%) were hunting with a rifle; 23 (13%), with a bow and arrow; and 16 (9%), with a shotgun. Fractures and strains or sprains were the most commonly reported injuries (Table 1). Cervical spine fractures accounted for 16 (10%) of the fractures. Injuries to the trunk and extremities included fractures of the lumbar vertebrae, ribs, wrists, and ankles.

Unintentional discharges of firearms caused 27 tree stand-related injuries and eight (47%) of the 17 fatalities. The firearm discharges occurred while the hunters were carrying their firearms up to or down from a tree stand or on impact after a fall.

Tree Stand-Related Injuries — Continued

One hundred eleven (52%) hunters were injured by falling from a tree stand, 49 (23%) fell while descending from a tree stand, and 40 (19%) fell while climbing to a tree stand; for 14 (7%), this information was unknown. Mechanical failure (i.e., collapse of the tree stand or its steps) occurred in 68 (32%) of the incidents. Eleven

FIGURE 1. Tree stand-related injury rates per 100,000 licensed hunters — Georgia, 1979–1989

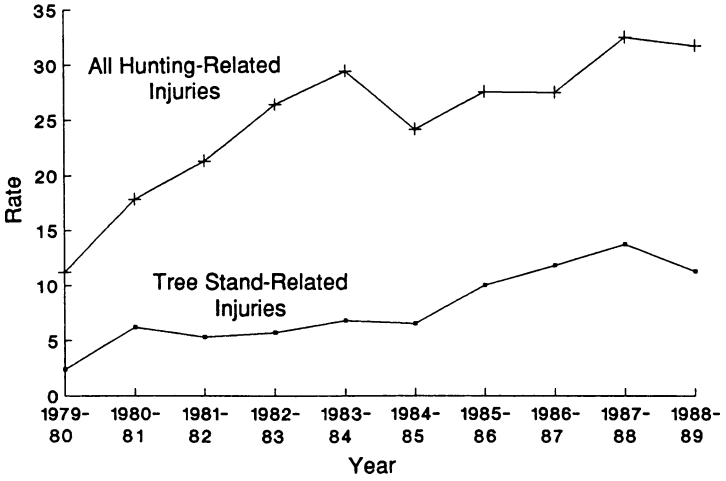

TABLE 1. Tree stand-related injuries among 214 deer hunters, by selected characteristics — Georgia, 1979–1989

Characteristic	No.	(%)	Characteristic	No.	(%)
Age (yrs)			**Type of injury***		
≤16	9	(4)	Fracture	156	(73)
17–35	114	(53)	Strain/sprain	21	(10)
36–64	84	(39)	Contusion	16	(7)
≥65	5	(2)	Laceration	13	(6)
Unknown	2	(1)	Internal†	13	(6)
Sex			Concussion	4	(2)
Male	198	(93)	Unknown	5	(2)
Female	16	(7)	**Location of injury***		
Type of tree stand			Trunk/back	112	(52)
Permanent	69	(32)	Lower extremity	78	(36)
Portable	48	(22)	Upper extremity	35	(16)
Unknown	97	(45)	Head and neck§	35	(16)
			Multiple sites	77	(36)

*Total may add to >100% because multiple sites are not exclusive of other sites.
†Includes pneumothorax and splenic laceration or rupture.
§Includes the cervical spine, face, and mouth.

Tree Stand-Related Injuries — Continued

(5%) hunters reported they had fallen asleep in their tree stand immediately before falling, and eight (4%) either admitted to or were suspected of being intoxicated at the time of their incident.

For 65 injured hunters, information regarding participation in a hunter-safety course was indicated on the report form: 43 (66%) had not completed such a course. None of the 214 injured hunters were wearing a safety harness or seat-belt device at the time of injury.

Reported by: J Brown, Georgia Dept of Natural Resources; RK Sikes, DVM, State Epidemiologist, Georgia Dept of Human Resources. Div of Field Svcs, Epidemiology Program Office; Epidemiology Br, Div of Injury Epidemiology and Control, Center for Environmental Health and Injury Control, CDC.

Editorial Note: In previous reports on injuries among the approximately 20 million recreational hunters in North America, the role of tree stand-related injuries has not been emphasized (*1–5*). This investigation found that, in Georgia, tree stand-related injuries accounted for 36% of all reported hunting injuries and for 20% of hunting-related fatalities and that morbidity was substantial—73% of those injured sustained fractures (including fractures of the cervical or lumbar vertebrae).

In 1987, the North American Association of Hunter Safety Coordinators received reports of unintentional firearm injuries in 1792 hunters in 47 states and nine Canadian provinces—a rate of 9.2 firearm injuries per 100,000 licenses sold (*1*). Twenty-seven percent of injured hunters were <21 years of age, and 66% had not completed a hunter safety course. Younger hunters may be at higher risk for firearm injuries (*2–5*), suggesting that inexperience and poor judgment contribute to injuries. In most states, a hunter-safety course is required before a hunting license is issued. In Georgia, a mandatory hunting training law (enacted in 1977) requires only persons who were born after 1960 and are ≥16 years old to successfully complete the approved hunter-education course to obtain a hunting license; persons who were born before 1961 or who are <16 years old are exempted from the course (*6*).

Although safety devices (e.g., belts and harnesses) could prevent injuries from falls in Georgia, none of the tree stand-related injured hunters were wearing safety devices. In addition, some injuries resulting from mechanical failure of tree stands might have been prevented if hunters had inspected construction (including nails and bolts) and pretested the tree stands before use. The injuries and fatalities resulting from the unintentional discharge of weapons might have been prevented if the hunters had unloaded the guns or bows during placement and had used pull-up cords to raise or lower the weapons.

Hunter-safety courses in Georgia now require instruction on tree stand safety, with an emphasis on use of safety devices and pull-up cords to move unloaded weapons. Pamphlets (*7*) and a videocassette (*8*) that promote tree stand safety are commercially available.*

References

1. North American Association of Hunter Safety Coordinators. Hunting accident report, with graphics of 1983–1987 data. Seattle: Outdoor Empire Publishing, 1987.
2. Carter GL. Accidental firearm fatalities and injuries among recreational hunters. Ann Emerg Med 1989;18:406–9.
3. Cole TB, Patetta MJ. Hunting firearm injuries, North Carolina. Am J Public Health 1988; 78:1585–6.

*Mention of these products is for reader information only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Tree Stand-Related Injuries — Continued

4. Morgan PL, Hudson P. Accidental firearm injuries in North Carolina, 1976–80. Am J Public Health 1986;76:1120–3.
5. Ornechult L, Eriksson A. Accidental firearm fatalities during hunting. Am J Forensic Med Pathol 1987;8:112–9.
6. Georgia Department of Natural Resources, Game and Fish Division, Law Enforcement Section. Georgia hunter evaluation handbook. Seattle: Outdoor Empire Publishing, 1987:2.
7. Richter F. Tree stand guide. Murray, Kentucky: National Bowhunter Education Foundation, 1988.
8. Poland TM. Tree stands: above all safety first [Videocassette]. Columbia, South Carolina: Pebblecreek Production, 1987.

Perspectives in Disease Prevention and Health Promotion

Surgeon General's Workshop on Health Promotion and Aging: Summary Recommendations of the Physical Fitness and Exercise Working Group

In March 1988, the Surgeon General's Workshop on Health Promotion and Aging met in Washington, D.C., and provided health professionals with recommendations that address the health needs of the elderly. The recommendations of the Alcohol Working Group and the Medications Working Group have been summarized (*1,2*). Following is a summary of the recommendations of the Physical Fitness and Exercise Working Group. Although many of the recommendations have general application, they are targeted toward the elderly.

SUMMARY RECOMMENDATIONS OF THE PHYSICAL FITNESS AND EXERCISE WORKING GROUP

Education and Training

- Physicians should receive additional training and continuing medical education about the physiologic, psychologic, and other health benefits of physical activity.
- Health-care providers should be encouraged to develop and use physical activity assessment, prescription, and follow-up protocols for increasing physical activity among the elderly.
- Training opportunities regarding the health benefits of physical activity for the elderly should be increased for health-care providers, including psychologists, exercise physiologists, epidemiologists, nurses, physicians, physical educators, health educators, nutritionists, and gerontologists.
- Care providers in nursing homes should be offered in-service training programs on appropriate physical activity for their patients.

Service

- Governments at all levels should provide leadership and support for local communities in identifying and developing focal points (e.g., senior centers, health-care institutions, and other community resources) for coordinating physical activity promotion for older citizens.

Physical Fitness and Exercise — Continued

- Multifamily housing should include such facilities as exercise rooms, open spaces, and gardens to provide physical activity options for tenants and their families.
- Health and medical professional associations should develop position statements regarding appropriate physical activity for older persons and should reinforce those statements with educational programs.
- A physical activity assessment protocol should be incorporated into regular physical examinations and routine medical visits.

Research

- Basic research should examine the effects of exercise on degenerative processes, such as cardiovascular disease, glucose and lipid impairment, osteoporosis and osteoarthritis, psychosocial dysfunction, and immune dysfunction.
- Research should determine the role of physical exercise in maintaining functional capacity and preventing degenerative disease, especially in perimenopausal and postmenopausal women, by increasing or maintaining muscular strength and endurance, cardiorespiratory function, agility, coordination, and flexibility.
- Research should determine the appropriate types and levels of physical activity (i.e., in terms of intensity, frequency, and duration) necessary to safely achieve the potential benefits in health and functional capacity for persons of various ages and abilities.
- To determine behavioral and environmental factors that can affect whether a person adopts and maintains a physical activity program, studies should assess gender, ethnic, social support, and socioeconomic differences. Studies should also evaluate the interaction between physical activity and other health-related behaviors.
- Reliable measures of physical activity should be established for epidemiologic, behavioral, and evaluation research.

Policy

- Persons in all age groups should be encouraged to engage in regular physical activity to maintain functional capacity and protect against conditions such as obesity and against disease processes such as coronary heart disease and adult-onset diabetes.
- Specific physical activity recommendations and physical activity prescription for the management of selected chronic diseases should be individualized according to age, health status, and current level of physical conditioning.
- Institutions (e.g., schools, medical settings, and workplaces) should provide the time, physical facilities, and behavioral programs that lead to increased participation at low levels of physical activity and to more vigorous exercise activity.
- Governments at all levels should promote the expansion and development of parks and recreation systems to provide places for physical activity participation.
- Governments should ensure that gerontologic research findings and training information on the beneficial effects of physical activity and exercise are disseminated to health professionals.

Reported by: Office of the Surgeon General, Public Health Svc. Cardiovascular Health Br, Div of Chronic Disease Control and Community Intervention, Center for Chronic Disease Prevention and Health Promotion, CDC.

Physical Fitness and Exercise — Continued

Editorial Note: Regular physical activity and exercise are critical elements in adult health promotion. Increased levels of physical activity are associated with a reduced incidence of coronary heart disease (*3*), hypertension (*4*), noninsulin-dependent diabetes mellitus (*5*), colon cancer (*6*), and depression and anxiety (*7*). In addition, increased physical activity increases bone mineral content (*8*), reduces the risk for osteoporotic fractures (*9*), helps maintain appropriate body weight (*10*), and increases longevity (*11*).

Maximal oxygen uptake ($\dot{V}O_2max$), an index of cardiorespiratory fitness, declines with age (*12*). Physical activity, however, can dramatically influence the rate of decline. Athletes aged 55–80 years who engage in regular endurance training experience less decline in $\dot{V}O_2max$ than comparably aged persons who are more sedentary (*13*). These athletes may also reduce risks for chronic disease by maintaining normal body weight, blood pressure, glucose tolerance, and lipoprotein lipid levels (*13–14*). Recent studies of exercise training among the elderly have shown that

(Continued on page 707)

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

Disease	41st Week Ending			Cumulative, 41st Week Ending		
	Oct. 14, 1989	Oct. 15, 1988	Median 1984-1988	Oct. 14, 1989	Oct. 15, 1988	Median 1984-1988
Acquired Immunodeficiency Syndrome (AIDS)	510	U*	271	27,184	24,206	10,256
Aseptic meningitis	389	174	335	7,252	5,156	7,854
Encephalitis: Primary (arthropod-borne & unspec)	36	16	46	647	662	948
Post-infectious	-	2	2	66	104	97
Gonorrhea: Civilian	13,492	13,482	16,083	523,650	545,432	655,231
Military	300	144	200	8,892	9,189	13,070
Hepatitis: Type A	558	544	539	27,043	20,103	17,681
Type B	330	402	522	17,730	17,761	20,159
Non A, Non B	37	41	72	1,864	2,036	2,797
Unspecified	27	52	96	1,801	1,724	3,501
Legionellosis	27	20	17	826	777	594
Leprosy	3	1	2	135	122	184
Malaria	22	26	24	1,006	807	807
Measles: Total†	162	40	40	12,052	2,391	2,557
Indigenous	132	36	36	11,462	2,150	2,150
Imported	30	4	1	590	241	292
Meningococcal infections	35	39	39	2,109	2,282	2,170
Mumps	59	49	49	4,357	3,757	3,757
Pertussis	96	81	81	2,697	2,291	2,291
Rubella (German measles)	17	2	5	379	183	462
Syphilis (Primary & Secondary): Civilian	653	672	540	31,297	31,682	21,918
Military	4	3	1	193	129	133
Toxic Shock syndrome	8	10	7	293	290	290
Tuberculosis	363	399	409	16,560	16,734	16,711
Tularemia	8	1	3	129	157	157
Typhoid Fever	10	12	12	395	311	276
Typhus fever, tick-borne (RMSF)	15	7	13	558	533	620
Rabies, animal	67	81	95	3,720	3,468	4,276

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1989		Cum. 1989
Anthrax	-	Leptospirosis (Hawaii 3)	72
Botulism: Foodborne	20	Plague	4
Infant	12	Poliomyelitis, Paralytic	-
Other	4	Psittacosis	84
Brucellosis (Tex. 1, Calif. 1)	68	Rabies, human	1
Cholera	-	Tetanus (Tex. 1)	35
Congenital rubella syndrome	2	Trichinosis	15
Congenital syphilis, ages < 1 year	165		
Diphtheria	3		

*Because AIDS cases are not received weekly from all reporting areas, comparison of weekly figures may be misleading.
†Thirty of the 162 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 October 14, 1989 and October 15, 1988 (41st Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989
UNITED STATES	27,184	7,252	647	66	523,650	545,432	27,043	17,730	1,864	1,801	826	135
NEW ENGLAND	1,135	397	20	2	15,918	17,079	563	860	59	68	57	8
Maine	46	23	5	-	216	332	18	48	5	1	5	-
N.H.	37	41	-	-	135	212	54	48	8	4	2	-
Vt.	11	35	4	-	54	99	34	67	5	-	2	-
Mass.	630	135	6	2	6,079	5,801	159	485	25	49	37	6
R.I.	61	67	-	-	1,142	1,545	35	60	4	7	11	1
Conn.	350	96	5	-	8,292	9,090	263	152	12	7	-	1
MID. ATLANTIC	7,725	887	29	5	62,337	86,596	3,171	2,665	174	204	201	20
Upstate N.Y.	1,144	404	23	4	13,056	11,518	724	533	67	11	66	3
N.Y. City	3,899	125	2	1	25,023	37,864	324	1,018	32	168	28	15
N.J.	1,766	-	4	-	12,135	12,227	364	485	25	5	39	1
Pa.	916	358	-	-	12,123	24,987	1,759	629	50	20	68	1
E.N. CENTRAL	2,051	1,394	233	6	100,297	92,643	1,581	2,127	220	81	233	3
Ohio	376	456	94	2	26,837	20,881	336	379	38	18	104	-
Ind.	309	195	38	3	7,677	7,082	177	341	24	29	49	1
Ill.	875	234	42	1	32,824	27,323	703	557	90	21	14	2
Mich.	380	420	40	-	25,625	29,438	222	518	43	13	37	-
Wis.	111	89	19	-	7,334	7,919	143	332	25	-	29	-
W.N. CENTRAL	656	361	27	3	25,425	23,160	1,098	790	91	22	30	1
Minn.	141	28	-	1	2,775	3,117	133	90	17	4	2	-
Iowa	47	56	10	-	2,193	1,716	105	31	13	5	6	-
Mo.	326	176	3	-	15,707	13,233	559	547	36	7	12	-
N. Dak.	6	12	1	-	108	145	4	21	4	2	1	-
S. Dak.	4	11	4	-	204	406	10	8	8	-	2	-
Nebr.	27	13	5	-	1,198	1,284	67	19	2	2	2	1
Kans.	105	65	4	2	3,240	3,259	220	74	11	2	5	-
S. ATLANTIC	5,650	1,463	139	23	147,018	153,369	2,698	3,452	278	297	104	1
Del.	68	64	1	-	2,580	2,410	39	114	5	8	8	-
Md.	585	185	17	2	16,953	15,643	778	591	24	26	26	-
D.C.	410	18	-	-	8,802	11,538	8	25	2	-	1	-
Va.	360	318	36	3	12,822	11,336	255	252	63	177	7	-
W. Va.	35	75	71	-	1,116	1,074	20	83	9	7	-	-
N.C.	392	168	8	2	21,964	21,472	361	840	73	-	26	1
S.C.	271	32	-	-	13,533	11,428	66	494	3	10	6	-
Ga.	901	101	2	1	28,303	29,386	291	325	10	8	20	-
Fla.	2,628	502	4	15	40,945	49,082	880	728	89	61	10	-
E.S. CENTRAL	592	566	35	2	43,809	43,035	339	1,284	135	11	51	-
Ky.	90	174	10	1	4,284	4,394	99	322	43	5	9	-
Tenn.	200	108	5	-	14,947	14,745	131	670	31	-	29	-
Ala.	183	202	17	-	13,642	12,880	71	188	54	2	12	-
Miss.	119	82	3	1	10,936	11,016	38	104	7	4	1	-
W.S. CENTRAL	2,426	740	60	6	57,571	58,869	2,965	1,750	119	408	42	19
Ark.	64	34	8	-	6,717	5,809	196	61	14	6	1	-
La.	395	66	12	1	12,197	11,832	220	302	14	1	8	-
Okla.	129	62	11	3	4,974	5,609	370	162	28	29	24	-
Tex.	1,838	578	29	2	33,683	35,619	2,179	1,225	63	372	9	19
MOUNTAIN	878	262	13	3	11,708	11,738	3,907	1,172	166	122	46	3
Mont.	15	6	-	-	151	346	74	41	6	3	3	1
Idaho	20	2	-	1	144	283	137	98	12	3	-	-
Wyo.	14	5	-	-	81	171	45	7	2	-	-	-
Colo.	317	126	3	1	2,444	2,600	422	134	43	51	5	-
N. Mex.	75	9	1	-	1,054	1,159	516	158	27	3	4	1
Ariz.	234	88	3	-	4,745	4,220	2,009	454	40	51	21	1
Utah	55	17	1	1	371	433	403	90	22	4	7	-
Nev.	148	9	5	-	2,718	2,526	301	190	14	7	6	-
PACIFIC	6,071	1,182	91	16	59,567	58,943	10,721	3,630	622	588	62	80
Wash.	403	-	2	1	5,108	5,621	2,585	787	167	50	23	7
Oreg.	180	-	-	-	2,477	2,533	1,926	403	63	13	2	1
Calif.	5,322	1,071	76	15	50,767	49,426	5,501	2,316	378	511	34	59
Alaska	12	28	10	-	786	865	561	52	6	4	1	-
Hawaii	154	83	3	-	429	498	148	72	8	10	2	13
Guam	1	5	1	-	78	124	4	-	-	6	-	1
P.R.	1,065	78	2	1	844	1,056	155	196	16	19	-	8
V.I.	26	-	-	-	515	353	-	7	-	-	-	-
Amer. Samoa	-	-	-	-	14	66	19	-	1	-	-	1
C.N.M.I.	-	-	-	-	57	41	2	4	-	1	-	1

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 October 14, 1989 and October 15, 1988 (41st Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1989	1989	Cum. 1989	1989	Cum. 1989	Cum. 1988	Cum. 1989	1989	Cum. 1989	1989	Cum. 1989	Cum. 1988	1989	Cum. 1989	Cum. 1988
UNITED STATES	1,006	132	11,462	30	590	2,391	2,109	59	4,357	96	2,697	2,291	17	379	183
NEW ENGLAND	67	-	296	-	36	109	154	1	73	12	311	253	-	6	9
Maine	-	-	-	-	1	7	13	-	-	4	21	11	-	-	-
N.H.	2	-	10	-	5	88	15	-	13	-	6	46	-	4	5
Vt.	2	-	1	-	2	-	8	-	3	-	6	3	-	1	-
Mass.	38	-	39	-	21	3	85	-	48	6	249	160	-	1	3
R.I.	13	-	38	-	3	-	1	-	-	-	11	15	-	-	1
Conn.	12	-	208	-	4	11	32	1	9	2	18	18	-	-	-
MID. ATLANTIC	188	1	696	-	177	866	293	7	393	10	213	166	-	77	14
Upstate N.Y.	26	-	54	-	98	37	105	6	149	2	92	97	-	62	2
N.Y. City	74	1	97	-	15	49	37	-	18	-	5	5	-	15	7
N.J.	52	-	340	-	6	243	65	-	167	-	24	8	-	-	3
Pa.	36	-	205	-	58	537	86	1	59	8	92	56	-	-	2
E.N. CENTRAL	76	89	3,282	-	95	186	274	2	458	-	299	266	-	24	30
Ohio	12	86	1,295	-	35	25	98	-	118	-	45	48	-	3	1
Ind.	12	-	78	-	-	57	28	-	44	-	19	68	-	-	-
Ill.	30	-	1,422	-	1	71	75	-	144	-	89	43	-	19	25
Mich.	14	3	309	-	16	29	53	2	115	-	40	34	-	1	4
Wis.	8	-	178	-	43	4	20	-	37	-	106	73	-	1	-
W.N. CENTRAL	27	-	666	-	11	13	66	1	385	1	165	111	-	6	2
Minn.	8	-	17	-	-	11	13	-	2	-	46	48	-	-	-
Iowa	3	-	10	-	1	-	2	1	40	1	15	21	-	1	-
Mo.	9	-	399	-	-	2	15	-	56	-	92	19	-	4	-
N. Dak.	1	-	-	-	-	-	-	-	-	-	2	11	-	-	-
S. Dak.	1	-	-	-	-	-	7	-	-	-	1	5	-	-	-
Nebr.	2	-	108	-	2	-	18	-	5	-	6	-	-	-	-
Kans.	3	-	132	-	8	-	11	-	282	-	3	7	-	1	2
S. ATLANTIC	174	4	562	1	59	383	368	14	773	23	299	216	-	10	17
Del.	7	-	42	-	1	-	2	-	1	-	1	7	-	-	-
Md.	30	-	62	1§	37	14	65	5	387	10	64	35	-	2	1
D.C.	10	-	36	-	4	-	15	-	126	2	2	1	-	-	-
Va.	37	-	20	-	3	193	44	3	115	1	33	21	-	-	11
W. Va.	2	-	53	-	-	6	12	-	14	2	28	8	-	-	-
N.C.	19	1	185	-	3	4	50	1	31	8	66	61	-	1	-
S.C.	10	-	3	-	-	-	25	2	31	-	-	1	-	-	-
Ga.	9	-	1	-	1	-	64	-	29	-	37	35	-	-	2
Fla.	50	3	160	-	10	166	91	3	39	-	68	47	-	7	3
E.S. CENTRAL	14	2	239	-	4	69	70	7	210	3	124	91	-	3	2
Ky.	-	-	40	-	4	35	39	-	9	-	1	12	-	-	-
Tenn.	5	2	148	-	-	-	7	6	65	2	48	29	-	2	2
Ala.	6	-	50	-	-	-	19	1	29	1	70	46	-	1	-
Miss.	3	-	1	-	-	34	5	N	N	-	5	4	-	-	-
W.S. CENTRAL	57	21	3,145	-	66	17	148	17	1,396	28	317	126	14	50	10
Ark.	-	3	3	-	19	1	10	7	141	1	22	22	-	-	3
La.	2	-	11	-	-	-	38	-	616	-	18	17	-	5	-
Okla.	7	-	126	-	-	8	22	-	188	1	49	60	-	1	1
Tex.	48	18	3,005	-	47	8	78	10	451	26	228	27	14	44	6
MOUNTAIN	25	3	376	-	44	140	64	1	180	4	554	649	-	36	6
Mont.	1	-	12	-	1	24	2	-	4	-	33	2	-	1	-
Idaho	2	-	6	-	3	1	2	-	18	-	59	313	-	32	-
Wyo.	1	-	-	-	-	-	-	-	8	-	-	1	-	2	-
Colo.	6	1	79	-	18	115	20	-	27	-	49	21	-	-	2
N. Mex.	4	-	16	-	15	-	2	N	N	1	27	48	-	-	-
Ariz.	8	-	141	-	4	-	25	1	105	3	365	236	-	-	-
Utah	-	-	118	-	-	-	5	-	11	-	20	27	-	-	3
Nev.	3	2	4	-	3	-	8	-	7	-	1	1	-	1	1
PACIFIC	378	12	2,200	29	98	608	672	9	489	15	415	413	3	167	93
Wash.	28	-	31	-	18	7	73	1	39	8	170	101	-	-	-
Oreg.	19	3	12	29§	48	6	46	N	N	1	11	44	-	3	-
Calif.	322	9	2,138	-	22	581	542	7	431	6	212	204	3	140	63
Alaska	3	-	1	-	-	2	9	-	2	-	1	8	-	-	-
Hawaii	6	-	18	-	10	12	2	1	17	-	21	56	-	24	30
Guam	3	U	-	U	-	1	-	U	4	U	1	-	U	-	1
P.R.	1	-	524	-	-	190	5	-	8	-	4	14	-	8	3
V.I.	-	-	4	-	-	-	-	1	16	-	-	-	-	-	-
Amer. Samoa	-	U	-	U	-	-	-	U	2	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	6	U	-	-	U	-	-

*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 October 14, 1989 and October 15, 1988 (41st Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989
UNITED STATES	31,297	31,682	293	16,560	16,734	129	395	558	3,720
NEW ENGLAND	1,359	907	15	472	438	2	33	7	8
Maine	11	12	3	12	20	-	-	-	2
N.H.	11	6	2	19	8	-	-	-	1
Vt.	1	3	-	8	4	-	-	-	-
Mass.	403	340	5	261	255	2	22	4	2
R.I.	26	27	2	53	36	-	5	1	-
Conn.	907	519	3	119	115	-	6	2	3
MID. ATLANTIC	5,505	7,837	47	3,329	3,339	2	113	59	612
Upstate N.Y.	724	453	9	253	438	1	30	13	50
N.Y. City	2,777	5,576	3	1,890	1,823	-	50	3	-
N.J.	1,117	755	11	641	533	-	25	23	21
Pa.	887	1,053	24	545	545	1	8	20	541
E.N. CENTRAL	1,453	925	48	1,703	1,826	3	44	62	104
Ohio	121	84	15	293	342	-	9	35	10
Ind.	52	46	7	132	183	1	3	19	2
Ill.	654	412	10	782	785	-	21	6	26
Mich.	507	336	16	403	432	1	6	2	23
Wis.	119	47	-	93	84	1	5	-	43
W.N. CENTRAL	258	184	37	421	423	47	7	79	478
Minn.	40	17	11	80	69	-	2	-	106
Iowa	29	17	5	44	43	-	2	2	110
Mo.	137	116	9	193	213	34	2	60	56
N. Dak.	2	2	-	12	14	-	-	1	48
S. Dak.	1	-	4	24	26	6	-	5	73
Nebr.	21	26	5	18	12	3	-	1	41
Kans.	28	6	3	50	46	4	1	10	44
S. ATLANTIC	11,140	11,100	23	3,529	3,569	6	34	187	1,118
Del.	161	82	1	31	34	-	2	1	29
Md.	629	577	1	308	346	2	8	14	306
D.C.	623	535	1	143	157	-	2	-	2
Va.	451	342	4	290	318	4	7	13	209
W. Va.	14	35	-	59	60	-	-	2	44
N.C.	848	618	6	445	385	-	2	101	7
S.C.	672	561	4	396	396	-	2	34	175
Ga.	2,017	1,970	3	542	571	-	3	19	195
Fla.	5,725	6,380	3	1,315	1,302	-	8	3	151
E.S. CENTRAL	2,376	1,544	7	1,309	1,395	7	3	63	303
Ky.	42	51	2	313	310	1	1	14	120
Tenn.	1,048	652	3	427	416	5	1	34	75
Ala.	713	461	1	364	426	-	1	6	105
Miss.	573	380	1	205	243	1	-	9	3
W.S. CENTRAL	4,631	3,361	23	2,022	2,118	39	15	73	504
Ark.	301	193	2	205	237	28	-	18	65
La.	1,151	656	-	269	248	-	1	-	11
Okla.	89	122	12	179	199	11	1	42	82
Tex.	3,090	2,390	9	1,369	1,434	-	13	13	346
MOUNTAIN	659	649	41	368	484	16	10	24	230
Mont.	1	3	-	11	15	1	-	14	70
Idaho	1	2	3	24	18	-	-	4	10
Wyo.	6	1	2	-	5	4	-	2	73
Colo.	58	85	8	19	89	3	2	3	20
N. Mex.	25	43	5	72	89	2	1	1	20
Ariz.	249	127	10	170	202	-	6	-	24
Utah	13	14	9	36	18	5	1	-	2
Nev.	306	374	4	36	48	1	-	-	11
PACIFIC	3,916	5,175	52	3,407	3,142	7	136	4	363
Wash.	350	188	4	190	175	-	9	-	-
Oreg.	187	240	-	107	125	4	6	1	-
Calif.	3,364	4,711	47	2,930	2,686	2	112	3	297
Alaska	5	11	-	40	35	1	-	-	66
Hawaii	10	25	1	140	121	-	9	-	-
Guam	4	3	-	42	25	-	1	-	-
P.R.	433	562	-	229	188	-	8	-	56
V.I.	8	1	-	4	6	-	1	-	-
Amer. Samoa	-	-	-	2	3	-	-	-	-
C.N.M.I.	7	1	-	12	19	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending October 14, 1989 (41st Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	583	416	92	42	10	23	46
Boston, Mass.	160	99	33	10	6	12	22
Bridgeport, Conn.	49	35	7	5	2	-	5
Cambridge, Mass.	17	16	1	-	-	-	2
Fall River, Mass.	27	23	2	2	-	-	1
Hartford, Conn.	52	32	9	9	-	2	4
Lowell, Mass.	25	19	5	-	-	1	-
Lynn, Mass.	10	10	-	-	-	-	2
New Bedford, Mass.	34	27	5	1	-	1	1
New Haven, Conn.	44	34	5	5	-	-	3
Providence, R.I.	32	22	7	3	-	-	-
Somerville, Mass.	4	2	1	1	-	-	-
Springfield, Mass.	46	29	8	2	1	6	2
Waterbury, Conn.	27	23	4	-	-	-	-
Worcester, Mass.	56	45	5	4	1	1	4
MID. ATLANTIC	2,717	1,731	524	307	83	71	139
Albany, N.Y.	46	31	9	3	2	1	1
Allentown, Pa.§	18	16	2	-	-	-	-
Buffalo, N.Y.§	102	68	20	9	2	3	6
Camden, N.J.	42	27	7	5	-	3	-
Elizabeth, N.J.	26	18	5	3	-	-	2
Erie, Pa.†	38	27	9	2	-	-	3
Jersey City, N.J.	36	19	7	5	-	5	2
N.Y. City, N.Y.	1,425	872	273	200	43	37	57
Newark, N.J.	87	38	23	18	7	-	11
Paterson, N.J.	20	10	5	4	1	-	2
Philadelphia, Pa.	496	330	106	32	18	10	29
Pittsburgh, Pa.†	67	42	11	7	3	4	4
Reading, Pa.	30	24	4	-	2	-	4
Rochester, N.Y.	108	84	14	5	2	3	5
Schenectady, N.Y.	25	20	3	1	1	-	2
Scranton, Pa.†	27	19	7	-	-	1	-
Syracuse, N.Y.	45	30	8	5	-	2	3
Trenton, N.J.	37	28	5	2	1	1	1
Utica, N.Y.	24	14	5	4	1	-	5
Yonkers, N.Y.	18	14	1	2	-	1	2
E.N. CENTRAL	2,195	1,443	471	163	52	66	102
Akron, Ohio	34	21	8	-	4	1	-
Canton, Ohio	44	33	10	-	-	1	2
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	112	73	25	10	2	2	12
Cleveland, Ohio	123	78	32	11	2	-	5
Columbus, Ohio§	158	100	36	13	4	5	1
Dayton, Ohio	108	76	18	12	1	1	8
Detroit, Mich.	267	144	70	28	8	17	4
Evansville, Ind.	38	28	6	2	1	1	3
Fort Wayne, Ind.	61	41	14	5	1	-	2
Gary, Ind.	14	10	3	-	1	-	2
Grand Rapids, Mich.	69	50	11	4	3	1	9
Indianapolis, Ind.	174	124	28	7	5	10	6
Madison, Wis.§	34	24	8	2	-	-	3
Milwaukee, Wis.	150	110	32	4	2	2	7
Peoria, Ill.	45	30	7	5	3	-	3
Rockford, Ill.	44	30	9	2	3	-	4
South Bend, Ind.	41	31	6	2	1	1	5
Toledo, Ohio	63	36	15	9	1	2	6
Youngstown, Ohio§	52	42	8	2	-	-	4
W.N. CENTRAL	763	541	123	58	21	20	38
Des Moines, Iowa	64	47	6	5	5	1	7
Duluth, Minn.	19	14	5	-	-	-	4
Kansas City, Kans.§	79	59	14	5	1	-	2
Kansas City, Mo.	100	71	16	8	2	3	5
Lincoln, Nebr.	34	23	7	2	1	1	4
Minneapolis, Minn.	159	114	18	16	6	5	10
Omaha, Nebr.	81	56	18	4	2	1	3
St. Louis, Mo.	142	96	25	13	3	5	-
St. Paul, Minn.	40	28	6	3	1	2	2
Wichita, Kans.	45	33	8	2	-	2	1
S. ATLANTIC	1,296	768	284	159	45	40	60
Atlanta, Ga.	187	107	38	28	10	4	6
Baltimore, Md.	154	83	43	19	4	5	7
Charlotte, N.C.§	75	48	18	8	-	1	5
Jacksonville, Fla.	118	73	26	9	8	2	6
Miami, Fla.	130	70	25	26	6	3	2
Norfolk, Va.	61	29	13	8	2	9	3
Richmond, Va.	79	47	22	5	3	2	8
Savannah, Ga.	36	26	5	2	1	2	4
St. Petersburg, Fla.	69	54	9	4	-	2	5
Tampa, Fla.	79	49	17	6	1	6	5
Washington, D.C.	284	162	65	44	9	4	9
Wilmington, Del.	24	20	3	-	1	-	-
E.S. CENTRAL	724	452	154	72	24	22	36
Birmingham, Ala.	121	80	21	13	2	5	3
Chattanooga, Tenn.	76	57	12	7	-	-	3
Knoxville, Tenn.	80	53	15	9	1	2	6
Louisville, Ky.	100	57	29	6	2	6	2
Memphis, Tenn.	169	99	38	17	7	8	10
Mobile, Ala.	43	25	12	3	3	-	-
Montgomery, Ala.	23	12	6	5	-	-	-
Nashville, Tenn.	112	69	21	12	9	1	12
W.S. CENTRAL	1,679	1,034	365	174	65	41	67
Austin, Tex.	57	33	13	7	1	3	2
Baton Rouge, La.	54	38	10	5	1	-	4
Corpus Christi, Tex.	56	42	7	4	1	2	2
Dallas, Tex.	193	109	42	20	14	8	6
El Paso, Tex.	53	33	12	5	2	1	4
Fort Worth, Tex	89	56	15	7	8	3	8
Houston, Tex.§	734	436	169	89	24	16	18
Little Rock, Ark.	43	20	9	4	6	4	5
New Orleans, La.	113	80	18	13	1	1	-
San Antonio, Tex.	174	118	43	8	5	-	11
Shreveport, La.	43	24	13	4	1	1	2
Tulsa, Okla.	70	45	14	8	1	2	5
MOUNTAIN	692	446	122	67	29	28	31
Albuquerque, N. Mex.	83	53	12	9	8	1	3
Colo. Springs, Colo.	40	24	9	3	2	2	3
Denver, Colo.	106	66	14	9	4	13	1
Las Vegas, Nev.	121	73	29	15	4	-	5
Ogden, Utah	18	17	1	-	-	-	3
Phoenix, Ariz.	138	90	21	17	6	4	3
Pueblo, Colo.	21	14	6	1	-	-	4
Salt Lake City, Utah	48	23	13	7	3	2	1
Tucson, Ariz.	117	86	17	6	2	6	8
PACIFIC	1,588	995	309	186	57	38	92
Berkeley, Calif.	14	11	2	1	-	-	1
Fresno, Calif.	81	54	7	11	4	5	7
Glendale, Calif.	20	15	4	1	-	-	2
Honolulu, Hawaii	72	46	13	11	1	1	8
Long Beach, Calif.	98	72	16	7	-	3	11
Los Angeles Calif.	348	175	83	57	22	8	7
Oakland, Calif.	56	29	14	10	3	-	2
Pasadena, Calif.	22	15	3	1	3	-	-
Portland, Oreg.	116	75	24	8	4	5	4
Sacramento, Calif.	123	84	23	10	3	3	14
San Diego, Calif.	124	78	26	14	3	3	13
San Francisco, Calif.	129	78	32	18	-	1	4
San Jose, Calif.	145	93	26	16	6	4	11
Seattle, Wash.	135	98	21	10	5	1	3
Spokane, Wash.	60	42	7	7	1	3	3
Tacoma, Wash.	45	30	8	4	2	1	2
TOTAL	12,237††	7,826	2,444	1,228	386	349	611

*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.

Physical Fitness and Exercise — Continued

older persons can adapt to increased exercise (*15*). Positive health benefits result from both high-intensity (≥60% of $\dot{V}O_2max$) and low-intensity (<60% $\dot{V}O_2max$) exercise (*16*).

Analysis of the 1985 National Health Interview Survey supplemental questionnaire on health promotion and disease prevention found that regular, appropriate exercise is uncommon among persons aged ≥65 years. Only 7%–8% of this age group regularly engage in exercise capable of maintaining or improving cardiorespiratory fitness. Moreover, about two thirds of persons in this age group are either active irregularly or completely sedentary (*17*). The remainder exercise regularly but at an intensity too low to improve their cardiorespiratory fitness (*17*). However, this latter group may receive other health benefits from exercise (*18*).

The survey and the exercise studies underscore the need for improved understanding of the determinants and health effects of physical activity among the elderly. Greater efforts should be made to promote increased levels of exercise among the elderly to ensure the maintenance of vitality and an acceptable quality of life for older persons. The implementation of the Surgeon General's recommendations for physical fitness and exercise should help promote the type and quantity of exercise most appropriate for improving the health of older persons.

References

1. CDC. Surgeon General's Workshop on Health Promotion and Aging: summary recommendations of the Alcohol Working Group. MMWR 1989;38:385–8.
2. CDC. Surgeon General's Workshop on Health Promotion and Aging: summary recommendations of the Medication Working Group. MMWR 1989;38:605–6,612.
3. Powell KE, Thompson PD, Caspersen CJ, Kendrick JS. Physical activity and the incidence of coronary heart disease. Ann Rev Public Health 1987;8:253–87.
4. Paffenbarger RS Jr, Wing AL, Hyde RT, Jung DL. Physical activity and incidence of hypertension in college alumni. Am J Epidemiol 1983;117:245–57.
5. Frisch RE, Wyshak G, Albright TE, Albright NL, Schiff I. Lower prevalence of diabetes in female former college athletes compared with nonathletes. Diabetes 1986;35:1101–5.
6. Kohl HW, LaPorte RE, Blair SN. Physical activity and cancer: an epidemiological perspective. Sports Med 1988;6:222–37.
7. Taylor CB, Sallis JF, Needle R. The relation of physical activity and exercise to mental health. Public Health Rep 1985;100:195–202.
8. Cummings SR, Kelsey JL, Nevitt MC, O'Dowd KJ. Epidemiology of osteoporosis and osteoporotic fractures. Epidemiol Rev 1985;7:178–208.
9. Cooper C, Barker DJP, Wickham C. Physical activity, muscle strength, and calcium intake in fracture of proximal femur in Britain. Br Med J 1988;297:1443–6.
10. Blair SN, Jacobs DR Jr, Powell KE. Relationships between exercise or physical activity and other health behaviors. Public Health Rep 1985;100:172–80.
11. Paffenbarger RS Jr, Hyde RT, Wing AL, Hsieh CC. Physical activity, all-cause mortality, and longevity of college alumni. N Engl J Med 1986;314:605–13.
12. Buskirk ER, Hodgson JL. Age and aerobic power: the rate of change in men and women. Fed Proc 1987;46:1824–9.
13. Heath GW, Hagberg JM, Ehsani AA, Holloszy JO. A physiological comparison of young and older endurance athletes. J Appl Physiol 1981;51:634–40.
14. Seals DR, Allen WK, Hurley BF, Dalsky GP, Ehsani AA, Hagberg JM. Elevated high-density lipoprotein cholesterol levels in older endurance athletes. Am J Cardiol 1984;54:390–3.
15. Seals DR, Hagberg JM, Hurley BF, Ehsani AA, Holloszy JO. Endurance training in older men and women. I. Cardiovascular responses to exercise. J Appl Physiol 1984;57:1024–9.
16. Seals DR, Hagberg JM, Hurley BF, Ehsani AA, Holloszy JO. Effects of endurance training on glucose tolerance and plasma lipid levels in older men and women. JAMA 1984;252:645–9.
17. Caspersen CJ, Christenson GM, Pollard RA. Status of the 1990 physical fitness and exercise objectives—evidence from NHIS 1985. Public Health Rep 1986;101:587–92.
18. Sallis JF, Haskell WL, Fortmann SP, Wood PD, Vranizan KM. Moderate-intensity physical activity and cardiovascular risk factors: the Stanford Five-City Project. Prev Med 1986; 15:561–8.

National Adult Immunization Awareness Week

October 22–28, 1989, is the fourth annual National Adult Immunization Awareness Week. This observance emphasizes the importance of appropriately immunizing all adults against eight diseases: diphtheria, hepatitis B, influenza, measles, mumps, pneumococcal disease, rubella, and tetanus. Immunization programs have markedly reduced the incidence of vaccine-preventable diseases in children, but many adults remain susceptible because they are inadequately immunized (Tables 1 and 2).

National Adult Immunization Awareness Week highlights collaborative efforts by federal, state, and local health agencies, public health organizations, and professional, private, volunteer, and other organizations to improve adult immunization. These efforts have included the following:

- In June 1988, >40 health organizations formed the National Coalition for Adult Immunization (NCAI). NCAI's major goals include increasing public- and private-sector collaboration and involvement in improving the immunization status of adults through information and education programs for providers and consumers.
- In October 1988, the Health Care Financing Administration (HCFA) collaborated with CDC in providing resources for nine demonstration projects. Conducted by state, county, and city health departments and one university medical center, these projects will determine whether Medicare payment for influenza immunization increases vaccine coverage and reduces morbidity, mortality, and demand for health-care services. The projects were initiated in 1988, and all will be completed by 1992.
- In 1988, the State of Hawaii Department of Health, assisted by HCFA and CDC, implemented a Pneumococcal Disease Initiative. The initiative included evaluation of the incidence of pneumococcal bacteremia and mortality in Hawaii; surveys of immunization knowledge, attitudes, and practices among Hawaii physicians and older residents; and a statewide vaccination program for Medicare beneficiaries. From September 1, 1988, through February 23, 1989, community-based mobile clinics administered pneumococcal vaccine to 15,909 elderly residents. Concurrent with the initiative, vaccine sales in the private sector indicated that vaccine use more than doubled.

TABLE 1. Number and percentage of certain vaccine-preventable diseases reported in adults aged ≥20 years — United States, 1985–1988

Disease*	Total no. cases	Cases in adults	
		No.	(%)
Diphtheria	8	6	(75.0)
Hepatitis B	101,811	88,725	(87.1)
Measles	16,155	2,025	(12.5)
Mumps	28,486	2,835	(10.0)
Rubella	1,712	810	(47.3)
Tetanus	248	229	(92.3)

*Influenza and pneumococcal disease are not included in the national system of notifiable disease reporting.

Adult Immunization — Continued

- In 1987, CDC entered into a 3-year cooperative agreement with the American Managed Care and Review Association to assist health maintenance organizations (HMOs) in developing adult immunization policies and practices. The agreement involves activities to determine HMO policies and procedures, immunization coverage, and disease impact and to develop intervention strategies. Six HMOs, representing >50,000 enrollees, are participating.

Reported by: Div of Immunization, Center for Prevention Svcs, CDC.

Editorial Note: Each year, adults develop vaccine-preventable diseases because they have not received the recommended vaccines (*1–7*). For example, in each of several recent epidemics, >40,000 influenza-related excess deaths occurred (*3,8*). Approximately 40,000 deaths related to pneumococcal infections and an estimated 300,000 new hepatitis B cases occur annually. Among young adults, the incidence of measles and mumps has increased (*4,9*). Ten percent to 15% of childbearing-aged women are not immune to rubella, and most Americans >60 years of age lack adequate protection against tetanus and diphtheria. Safe and effective vaccines are available for all these diseases, and the cost of vaccination is substantially less than the cost of treating the disease.

Improving vaccine use among adults requires a multifaceted strategy involving collaboration of health-care providers, consumer groups, and public and private organizations. National Adult Immunization Awareness Week draws attention to efforts that promote prevention and control of vaccine-preventable diseases.

References

1. ACIP. Recommendations for protection against viral hepatitis. MMWR 1985;34:313–24, 329–35.
2. ACIP. Update on hepatitis B prevention. MMWR 1987;36:353–60,366.
3. ACIP. Prevention and control of influenza: part I, vaccines. MMWR 1989;38:297–8,303–11.
4. ACIP. Measles prevention. MMWR 1987;36:409–18,423–5.
5. ACIP. Rubella prevention. MMWR 1984;33:301–10,315–8.
6. CDC. Immunization recommendations for health-care workers. Atlanta: US Department of Health and Human Services, Public Health Service, 1989.
7. ACIP. Pneumococcal polysaccharide vaccine. MMWR 1989;38:64–8,73–6.

TABLE 2. Estimated vaccine coverage among adults — United States

Vaccine*	Age (yrs)	Coverage (%)
Diphtheria	≥60	34–51†
Hepatitis B	NA§	2–90¶
Influenza	≥20**	17††
Measles	18–29	85–95†
Pneumococcal	≥20**	9††
Rubella	15–44	80–90†
Tetanus	≥60	16–59†

*Estimates of mumps vaccine coverage are not available.
†Estimated immunity level derived from serosurveys (actual vaccine coverages unknown).
§Not available.
¶Based on immunization surveys and estimates in selected populations.
**Includes all persons aged ≥65 years and high-risk persons aged 20–64 years.
††Based on national immunization surveys.

Source: Williams WW, Tudor JM. Immunizing adults: a challenge for family physicians. Medical Times 1988;116(4):43–5,51–3.

Adult Immunization — Continued

8. Lui KJ, Kendal AP. Impact of influenza epidemics on mortality in the United States from October 1972 to May 1985. Am J Public Health 1987;77:712–6.
9. ACIP. Mumps prevention. MMWR 1989;38:388–92,397–400.

Notice to Readers

Third International Conference on Nosocomial Infections

CDC and the National Foundation for Infectious Diseases, in cooperation with the American Society for Microbiology (ASM), are sponsoring the Third International Conference on Nosocomial Infections July 31–August 3, 1990, in Atlanta. The first and second International Conference on Nosocomial Infections, sponsored by CDC, were held in Atlanta in 1970 and 1980, respectively.

The conference objectives are as follows: 1) to update nosocomial infection and pathogen trends, antimicrobial resistance trends, surveillance strategies for nosocomial infections, methodologies to reduce nosocomial infections, and advances in medical and laboratory technology; 2) to exchange information on the relationship between the acquired immunodeficiency syndrome epidemic and nosocomial infection trends, strategies for prevention and control of bloodborne diseases, and occupational health issues; 3) to present nosocomial infection-control strategies in regions with limited resources; 4) to discuss the influence of the prospective payment system on nosocomial infections, prevention and control programs, and population denominator trends; 5) to foster Public Health Service Year 2000 Health Objectives for the Nation in nosocomial infection control; and 6) to identify areas for future research.

Abstracts for oral and poster presentations are invited. For more information contact: ASM Meetings, 1325 Massachusetts Avenue, Washington, DC 20005; telephone (202) 737-3600. A registration fee will be charged.

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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; telephone (404) 332-4555.

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