CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

August 18, 1995 / Vol. 44 / No. 32

MMWR™

MORBIDITY AND MORTALITY WEEKLY REPORT

Human Granulocytic Ehrlichiosis — New York, 1995

Since 1986, two human tickborne diseases caused by *Ehrlichia* spp. have been recognized in the United States: human monocytic ehrlichiosis (HME), caused by *E. chaffeensis*, and human granulocytic ehrlichiosis (HGE), caused by an agent closely related to *E. equi* (*1,2*). In June 1995, the Westchester County (New York) Department of Health (WCDOH) received reports from physicians who were treating patients for suspected HGE. In response, the WCDOH sent information to all primary-care physicians in Westchester County describing the clinical and laboratory features of ehrlichiosis (fever, myalgia, headache, leukopenia, and thrombocytopenia) and requested that they voluntarily report suspected cases of ehrlichiosis. This report summarizes an investigation by the New York State Department of Health (NYSDOH) and the WCDOH of suspected ehrlichiosis cases and the clinical characteristics of confirmed and probable cases.

Hospitals and large group practices in Westchester County were asked to report current and past suspected cases, and the NYSDOH laboratory initiated free diagnostic testing for ehrlichiosis for New York state residents. Potential cases of ehrlichiosis were identified through reports submitted by health-care providers to their county health departments and from a review of NYSDOH laboratory records of serum specimens that were submitted for diagnostic testing for ehrlichiosis since 1994. Serum specimens from potential cases were tested for antibodies to *E. equi* and/or *E. chaffeensis,* and/or the presence of DNA of the HGE agent by polymerase chain reaction (PCR) assay. A confirmed case of HGE was defined as either a fourfold change in antibody titer to *E. equi* or identification of DNA sequences of the HGE agent by PCR assay. A probable case of HGE was defined as a single antibody titer ≥64 by immunofluorescent assay to *E. equi* or the identification of organisms (morulae) in granulocytes on a peripheral blood smear from a patient with an acute illness characterized by fever, headache, myalgia, and/or malaise.

As of August 15, 1995, medical records and/or clinical information had been reviewed for 68 patients with suspected ehrlichiosis: 50 had onset in 1995; 17, in 1994; and one, in 1992. Serum specimens from 30 patients had been tested for antibodies to *E. equi* and/or *E. chaffeensis*; 20 patients had acute serum specimens tested by PCR analysis.

Illnesses in 29 patients met the case definition of either confirmed (23 patients) or probable (six patients) HGE, 20 from 1995 and nine from 1994; other potential cases remain under investigation. Eighteen (62%) case-patients had onset of symptoms in June or July 1995. Twenty-five patients lived in Westchester County, two lived north of Westchester in adjacent Putnam County, and two lived on Long Island in Nassau and Suffolk counties. The mean age of patients with confirmed or probable HGE was 49 years (range: 21–90 years), and 15 (52%) were male. Fourteen (48%) of the 29 case-patients reported a tick bite ≤21 days before onset of illness. Fever >101.0 F (>38.3 C) was noted in 27 patients. Reported symptoms included headache (22 patients), arthralgia (13), malaise (11), and myalgia (11). The lowest reported platelet count for 21 patients averaged 106,000 mm^3 (range: 28,000–275,000 mm^3; normal: 150,000–350,000 mm^3), and the lowest reported white blood cell count for 26 patients averaged 4200 mm^3 (range: 700–7700 mm^3; normal: 4300–10,800 mm^3). Thirteen patients had mild serum elevations of liver enzymes aspartase aminotransferase, alanine aminotransferase, and lactate dehydrogenase. Thirteen patients were hospitalized, and none died. Twenty-two patients received doxycycline during their acute illness.

Of the 23 confirmed cases, 11 had a fourfold rise in antibody titer to *E. equi* using a polyvalent antihuman conjugate, and 15 had HGE 16S ribosomal DNA detected from acute serum specimens (a positive PCR test). One confirmed case also had characteristic morulae observed in granulocytes on a peripheral blood smear. The six probable cases had single titers ≥64 to *E. equi*. Five case-patients had serologic evidence of *E. chaffeensis* infection (titer ≥64) but all had at least a 10-fold greater titer to *E. equi*.

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Editorial Note: HGE was first described in 1994 among patients in Minnesota and Wisconsin. In addition to these cases, reports have suggested that acquisition of HGE may have occurred in California, Florida, Maryland, Massachusetts, and New York (*4,5*). Approximately 400 cases of HME have been confirmed in 30 states, primarily in the southeastern and south central regions (*3*). *E. chaffeensis* has most commonly been identified in the Lone Star tick (*Amblyomma americanum*), while HGE has been identified in the deer (*Ixodes scapularis*) and dog (*Dermacentor variabilis*) ticks (*2*).

Physicians evaluating patients with an acute febrile illness should consider ehrlichiosis in the differential diagnosis, particularly if the patient is leukopenic or thrombocytopenic, and should solicit a history of known or possible exposure to ticks. Empiric therapy with doxycycline antibiotics should be considered if the diagnosis of ehrlichiosis is suspected because delayed treatment while awaiting laboratory confirmation may increase the risk for adverse outcomes. The diagnosis can be confirmed through antibody assays and/or PCR. The agent that causes HGE has not been identified in cell culture, but tests for antibody to *E. equi* have been used to confirm the diagnosis. The sensitivity, specificity, and cross-reactivity of serologic assays for the two species are not well established. Because the geographic distribution of HME and HGE overlap, physicians should consider obtaining serologic tests for both *E. equi*

Human Granulocytic Ehrlichiosis — Continued

and *E. chaffeensis*. PCR is a useful research tool but is not widely available for diagnostic purposes.

The patients described in this report live in areas where *I. scapularis* is common. *I. scapularis* collected in Westchester and Suffolk counties have been found positive for the HGE agent by PCR assay (CDC, unpublished data, 1995). The geographic extent of HGE in New York is not known. Persons spending time outdoors in tick-infested areas should take precautions against tickborne diseases, including wearing light-colored clothing, using insect repellent, and checking thoroughly for ticks after being outdoors. The NYSDOH has asked physicians in New York to report suspected cases to their local health departments. In addition, the NYSDOH is working with local health departments to provide information to the public and medical community and is offering serologic testing for HME and HGE through the NYSDOH laboratory. CDC provides serologic and PCR testing for HME and HGE of specimens sent through state health departments.

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Injuries Associated with Self-Unloading Forage Wagons — New York, 1991–1994

In New York, an estimated 3600 injuries occur each year to farmers operating farm machines (*1*). In October 1993, the Occupational Health Nurses in Agricultural Communities (OHNAC)* program in the New York State Department of Health received a report of a man who sustained severe injuries when he became entangled in the power take-off (PTO) driveline to a self-unloading forage wagon†. Subsequent investigation by OHNAC identified four additional similar incidents in New York that occurred during September 1991–October 1994, including one fatality and one injury to a 9-year-old girl working on a family farm. This report summarizes the results of the investigation of these forage-wagon–related injuries and presents recommendations to reduce the risk for such injuries.

On October 1, 1993, a 66-year-old farmer was using a self-unloading forage wagon to unload chopped corn into a blower for transfer into a silo. To unload the corn, he

*OHNAC is a national surveillance program conducted by CDC's National Institute for Occupational Safety and Health that has placed public health nurses in rural communities and hospitals in 10 states (California, Georgia, Iowa, Kentucky, Maine, Minnesota, New York, North Carolina, North Dakota, and Ohio) to conduct surveillance for agriculture-related illnesses and injuries that occur among farmers and their family members. These surveillance data are used to assist in reducing the risk for occupational illness and injury in agricultural populations.

†A forage wagon is used to transport and unload feed into a storage (e.g., silo) or feed area.

Forage-Wagon–Related Injuries — Continued

used a tractor to pull the loaded forage wagon next to the blower (which was attached to a second tractor). To reach the speed-control lever, he stepped over the rotating PTO driveline that connected his tractor to the wagon and supplied its power. As he stepped, his pants became entangled around the unprotected rotating driveline. A nearby worker witnessed the incident and turned off the driveline. The farmer's injuries included amputation of the genitalia and deep tissue damage to the buttocks, requiring extensive grafting. He was hospitalized for 2 weeks and unable to work for 1 month.

On investigation by OHNAC, with assistance from the Cooperative Extension Service, four other incidents were identified since 1991 involving forage wagons with unprotected drivelines. In September 1991, a 33-year-old farmer sustained multiple fractures of the right leg with amputation of the right foot when his shirt blew into a rotating driveline of a forage wagon while he was working between two drivelines on a windy day. In October 1992, a 41-year-old farm operator sustained avulsion of the entire scrotal area when his pants became entangled while he was stepping over the unprotected PTO driveline. In November 1992, a 9-year-old girl sustained bilateral above-the-knee amputations when her jacket became entangled while she was reaching over the unprotected rotating driveline to operate the speed control of the forage wagon she was unloading. Finally, in an unwitnessed incident in October 1994, a 19-year-old male farmer sustained fatal internal injuries after apparently stepping too close to the driveline of a forage wagon while unloading chopped corn.

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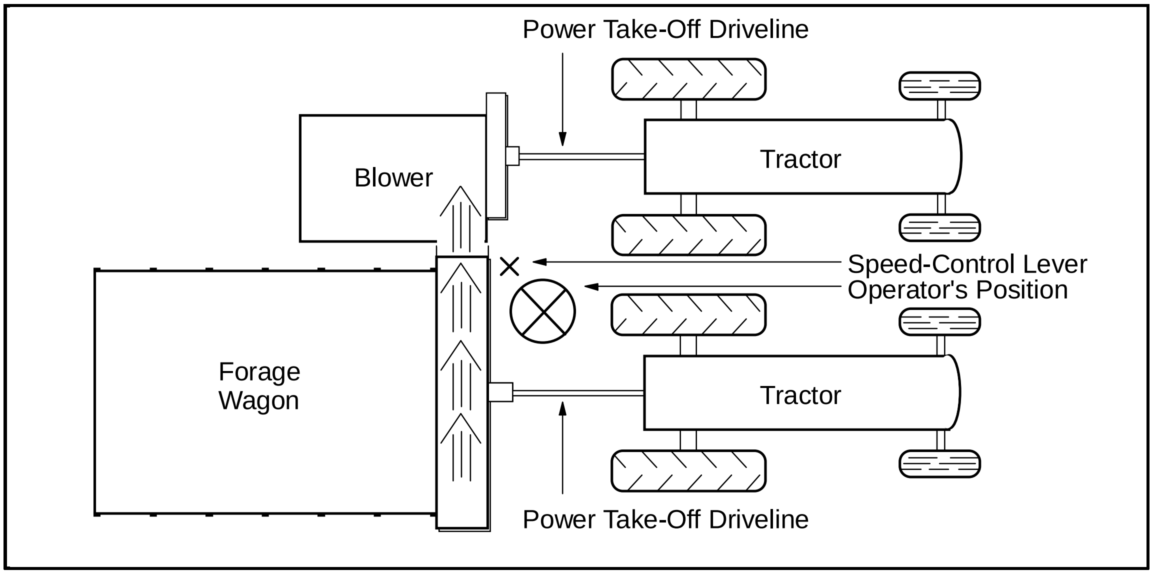
Editorial Note: In the United States, farm machinery is a leading source of traumatic injuries to farmers, accounting for an estimated 34,000 lost-time work injuries to farmers nationally in 1993 (*2*). Mechanical devices are associated with approximately 30% of the work-related injuries on farms (*2*). Forage wagons are used most often on farms that raise large animals and grow their own feed grain. The fatal and severe nonfatal injuries described in this report were caused by a combination of factors. To unload feed grain, the forage wagon and silo blower must be in close proximity, which requires that the two tractors that power these machines also be in close proximity (Figure 1). The speed-control lever for the wagon is often located on the discharge side near the silo blower (i.e., between the two pieces of equipment). Many older tractors are small enough that, when the forage wagon and blower are thus positioned for proper operation, sufficient space remains between the adjacent rear tires of the two tractors to allow the operator to dismount from either tractor seat and walk between the two tractors directly to the forage wagon speed control without crossing over a revolving PTO driveline. However, as both silos and self-unloading forage wagons have increased in capacity, both the size and horsepower of the associated tractors have increased concomitantly. When these larger tractors are used, their rear wheels abut, blocking access between the tractors and requiring the operator to cross over a revolving driveline to operate the forage wagon.

Since the 1930s, PTO drivelines have been manufactured with shields. However, shields are often damaged or removed during operation or maintenance of the farm equipment. Of the estimated 29,000 self-unloading wagons in use on New York farms, 3000–5000 are believed to lack shields to protect workers adequately from a revolv-

Forage-Wagon–Related Injuries — Continued

FIGURE 1. Typical arrangement of equipment used to transfer feed from a forage wagon* into a blower



*Equipment used to transport and unload feed into a storage (e.g., silo) or feed area.

ing PTO driveline (J. Pollock, Cornell University, personal communication, 1995). Entanglement in PTO drivelines, including entanglement in those equipped with intact U-shaped shields that leave one side (generally the underside) unguarded, previously has been recognized as a hazard in the agricultural industry (*3–6*).

Drivelines should be equipped with proper functioning guards in any work situation,[§] especially when the worker must work between two operating PTO drivelines. Furthermore, workers must be trained in safe work practices, which include shutting off PTO drivelines whenever possible before dismounting tractors, maintaining warning decals, not wearing loose or bulky clothing around and avoiding close proximity to rotating PTO drivelines, and keeping bystanders—especially children—away from PTO-driven equipment (*7*). To assist in preventing injuries to children, farmers should recognize that farm equipment is designed for operation by adults; be aware of the physical, emotional, and mental characteristics and abilities of children; and select age-appropriate tasks for children (*8*). Because of the need for immediate response to serious injuries, workers should not work alone when using hazardous equipment; however, if persons do work alone, they should be monitored frequently to ensure immediate response in the event of injuries (*7*).

The National Institute for Farm Safety is reviewing approaches to reduce the risk for forage-wagon–related injuries. In addition to proper shielding of the drivelines, placement of the speed-control devices to enable operation of such devices from the tractor driver's seat or from another location on the wagon would eliminate the need for the operator to step over the driveline. Leading manufacturers of forage wagons

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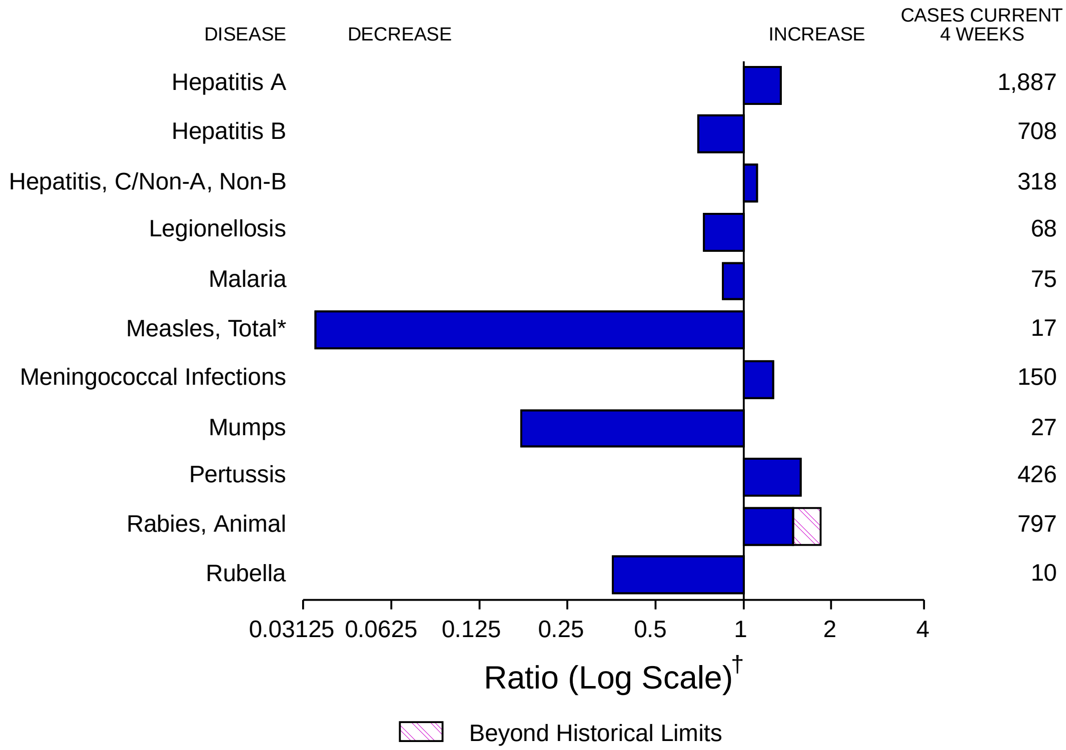
[§]29 CFR § 1928.57. Occupational Safety and Health Administration (OSHA) Standard for Safety for Agricultural Equipment. Family-run farms with no other employees are exempt from compliance with federal OSHA standards, and those with ≤10 employees are generally not subject to OSHA inspection.

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending August 12, 1995, with historical data — United States



*The large apparent decrease in the number of reported cases of measles (total) reflects dramatic fluctuations in the historical baseline.

†Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending August 12, 1995 (32nd Week)

	Cum. 1995		Cum. 1995
Anthrax	-	Psittacosis	40
Brucellosis	54	Rabies, human	1
Cholera	8	Rocky Mountain Spotted Fever	276
Congenital rubella syndrome	4	Syphilis, congenital, age < 1 year†	132
Diphtheria	-	Tetanus	16
*Haemophilus influenzae**	761	Toxic shock syndrome	118
Hansen Disease	85	Trichinosis	23
Plague	5	Typhoid fever	183
Poliomyelitis, Paralytic	-		

*Of 740 cases of known age, 178 (24%) were reported among children less than 5 years of age.
†Updated quarterly from reports to the Division of Sexually Transmitted Diseases and HIV Prevention, National Center for Prevention Services. This total through first quarter 1995.
-: no reported cases

TABLE II. Cases of selected notifiable diseases, United States, weeks ending August 12, 1995, and August 13, 1994 (32nd Week)

Reporting Area	AIDS*	Gonorrhea		Hepatitis (Viral), by type: A		B		C/NA,NB		Legionellosis	
	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	42,294	214,754	243,363	16,232	14,199	6,073	6,998	2,634	2,473	759	917
NEW ENGLAND	2,116	2,834	4,862	164	195	127	232	75	97	15	20
Maine	74	52	56	17	20	6	11	-	-	4	2
N.H.	61	72	67	6	15	13	16	11	8	1	-
Vt.	18	34	17	4	5	1	6	1	7	-	-
Mass.	937	1,762	1,842	68	79	53	140	59	63	9	10
R.I.	147	304	290	20	15	8	6	4	19	1	8
Conn.	879	610	2,590	49	61	46	53	-	-	N	N
MID. ATLANTIC	10,897	21,464	27,354	918	1,040	712	940	241	296	109	144
Upstate N.Y.	1,293	3,846	6,225	238	388	233	250	128	138	30	27
N.Y. City	5,641	7,375	10,224	416	358	207	194	1	1	1	-
N.J.	2,567	2,224	3,165	129	197	155	254	86	130	15	29
Pa.	1,396	8,019	7,740	135	97	117	242	26	27	63	88
E.N. CENTRAL	3,311	45,961	48,674	1,828	1,392	611	735	169	216	198	268
Ohio	673	14,017	13,477	1,166	473	78	103	7	14	99	124
Ind.	338	4,944	5,216	100	241	148	136	1	8	46	28
Ill.	1,408	12,465	14,740	217	353	94	196	33	60	13	25
Mich.	675	10,992	10,677	230	175	253	243	128	134	21	52
Wis.	217	3,543	4,564	115	150	38	57	-	-	19	39
W.N. CENTRAL	982	11,836	13,550	1,141	687	399	410	66	56	75	65
Minn.	219	1,724	1,964	118	148	33	41	2	11	-	2
Iowa	54	798	858	48	32	29	18	8	7	16	25
Mo.	427	6,724	7,625	813	311	288	306	37	14	41	21
N. Dak.	5	19	27	20	3	4	-	4	1	4	4
S. Dak.	9	110	113	33	21	2	-	1	-	-	-
Nebr.	75	697	863	33	93	20	23	6	10	9	10
Kans.	193	1,764	2,100	76	79	23	22	8	13	5	3
S. ATLANTIC	10,753	62,746	64,388	757	699	889	1,340	201	299	135	225
Del.	192	1,303	1,163	7	16	2	10	1	1	2	23
Md.	1,429	7,471	11,632	132	102	160	215	2	17	22	54
D.C.	640	2,732	4,479	15	16	14	35	-	-	4	5
Va.	885	6,211	8,056	120	95	65	74	9	18	10	5
W. Va.	47	471	472	12	7	32	25	34	22	3	1
N.C.	586	14,920	16,265	73	70	193	177	36	40	25	13
S.C.	569	7,488	7,985	27	28	33	23	16	6	22	9
Ga.	1,443	9,617	U	54	23	63	496	15	163	23	87
Fla.	4,962	12,533	14,336	317	342	327	285	88	32	24	28
E.S. CENTRAL	1,397	26,943	28,502	975	335	550	668	681	536	31	64
Ky.	178	2,942	2,987	26	103	43	58	13	18	4	8
Tenn.	562	8,373	8,873	840	137	433	562	666	509	21	32
Ala.	378	11,305	10,180	55	53	74	48	2	9	5	9
Miss.	279	4,323	6,462	54	42	-	-	-	-	1	15
W.S. CENTRAL	3,729	21,351	29,511	2,149	1,791	934	693	413	173	9	27
Ark.	166	1,966	4,277	274	50	33	16	3	5	1	6
La.	609	7,465	7,692	61	96	117	108	105	95	2	8
Okla.	174	1,456	2,918	484	166	281	80	275	38	3	9
Tex.	2,780	10,464	14,624	1,330	1,479	503	489	30	35	3	4
MOUNTAIN	1,328	5,324	6,113	2,582	2,738	515	398	285	266	88	64
Mont.	15	43	52	68	15	16	15	10	5	4	14
Idaho	31	70	53	218	214	56	61	33	60	2	1
Wyo.	7	31	50	88	16	17	17	122	81	7	3
Colo.	453	1,795	2,053	335	320	78	67	41	48	37	14
N. Mex.	111	636	610	545	690	195	126	36	37	3	3
Ariz.	351	1,856	2,004	732	1,030	80	35	22	12	7	4
Utah	87	131	176	499	298	48	42	8	11	13	6
Nev.	273	762	1,115	97	155	25	35	13	12	15	19
PACIFIC	7,781	16,295	20,409	5,718	5,322	1,336	1,582	503	534	99	40
Wash.	581	1,579	1,794	495	679	118	141	133	149	15	8
Oreg.	256	212	588	1,173	602	54	91	29	23	-	-
Calif.	6,733	13,663	17,009	3,914	3,860	1,143	1,316	331	358	79	30
Alaska	50	444	560	29	149	9	10	1	-	-	-
Hawaii	161	397	458	107	32	12	24	9	4	5	2
Guam	-	51	78	2	13	1	4	-	-	1	1
P.R.	1,635	325	312	66	40	488	215	227	111	-	-
V.I.	25	6	15	-	2	2	6	-	1	-	-
Amer. Samoa	-	15	20	5	6	-	-	-	-	-	-
C.N.M.I.	-	20	31	15	4	7	1	-	-	-	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention, National Center for Prevention Services, last update July 27, 1995.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending August 12, 1995, and August 13, 1994 (32nd Week)

Reporting Area	Lyme Disease		Malaria		Measles (Rubeola)						Meningococcal Infections		Mumps	
					Indigenous		Imported*		Total					
	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	1995	Cum. 1995	1995	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	4,008	6,328	629	610	4	214	4	13	227	827	2,018	1,858	533	955
NEW ENGLAND	1,199	1,656	27	46	-	7	-	-	7	26	95	79	9	15
Maine	11	10	3	2	-	-	-	-	-	5	6	13	4	3
N.H.	15	14	1	3	-	-	-	-	-	1	17	7	1	4
Vt.	6	8	-	2	-	-	-	-	-	3	6	2	-	-
Mass.	105	98	9	23	-	2	-	-	2	7	34	36	2	1
R.I.	191	252	3	5	-	5	-	-	5	7	-	-	-	1
Conn.	871	1,274	11	11	-	-	-	-	-	3	32	21	2	6
MID. ATLANTIC	2,119	3,578	151	110	1	5	3	3	8	209	242	192	73	80
Upstate N.Y.	1,107	2,285	36	33	-	1	-	-	1	15	79	61	19	23
N.Y. City	67	8	70	36	1	2	3	3	5	13	29	24	9	2
N.J.	356	801	32	21	-	2	-	-	2	173	65	42	6	13
Pa.	589	484	13	20	-	-	-	-	-	8	69	65	39	42
E.N. CENTRAL	54	392	71	63	-	7	-	2	9	102	258	270	91	153
Ohio	36	26	6	8	-	1	-	-	1	17	86	75	29	42
Ind.	10	11	12	9	-	-	-	-	-	1	39	38	3	6
Ill.	3	17	32	28	-	-	-	1	1	56	71	93	28	67
Mich.	5	5	13	16	-	4	-	1	5	25	52	35	31	32
Wis.	-	333	8	2	-	2	-	-	2	3	10	29	-	6
W.N. CENTRAL	90	102	15	29	-	2	-	-	2	170	128	122	31	45
Minn.	42	25	3	9	-	-	-	-	-	-	21	11	2	3
Iowa	6	7	1	4	-	-	-	-	-	7	24	16	8	11
Mo.	24	64	5	10	-	1	-	-	1	160	49	59	17	28
N. Dak.	-	-	1	1	-	-	-	-	-	-	1	1	-	2
S. Dak.	-	-	1	-	-	-	-	-	-	-	5	7	-	-
Nebr.	1	3	3	4	-	-	-	-	-	2	11	9	4	1
Kans.	17	3	1	1	-	1	-	-	1	1	17	19	-	-
S. ATLANTIC	385	450	136	111	-	10	-	1	11	52	366	275	81	140
Del.	7	54	1	3	-	-	-	-	-	-	5	4	-	-
Md.	267	142	37	44	-	-	-	1	1	3	27	25	20	40
D.C.	1	3	11	8	-	-	-	-	-	-	3	3	-	-
Va.	30	85	30	15	-	-	-	-	-	2	45	52	16	30
W. Va.	18	12	1	-	-	-	-	-	-	37	8	11	-	3
N.C.	35	49	11	2	-	-	-	-	-	3	57	41	16	35
S.C.	9	7	-	2	-	-	-	-	-	-	48	16	7	6
Ga.	11	90	12	18	-	2	-	-	2	2	74	62	8	8
Fla.	7	8	33	19	-	8	-	-	8	5	99	61	14	18
E.S. CENTRAL	25	27	11	20	-	-	-	-	-	28	128	137	13	15
Ky.	4	17	1	7	-	-	-	-	-	-	41	31	-	-
Tenn.	17	7	4	7	-	-	-	-	-	28	35	25	-	5
Ala.	2	3	5	5	-	-	-	-	-	-	29	52	4	3
Miss.	2	-	1	1	-	-	-	-	-	-	23	29	9	7
W.S. CENTRAL	72	69	17	31	-	19	-	1	20	16	256	222	34	170
Ark.	5	3	3	3	-	2	-	-	2	1	21	36	2	5
La.	2	-	2	5	-	17	-	1	18	1	39	29	8	20
Okla.	30	38	1	2	-	-	-	-	-	-	24	23	-	23
Tex.	35	28	11	21	-	-	-	-	-	14	172	134	24	122
MOUNTAIN	9	5	37	22	-	49	-	1	50	162	144	130	24	124
Mont.	-	-	3	-	-	-	-	-	-	-	2	6	1	-
Idaho	-	3	1	2	-	-	-	-	-	-	6	15	2	7
Wyo.	5	1	-	1	-	-	-	-	-	-	5	5	-	2
Colo.	1	-	16	10	-	8	-	-	8	19	37	24	1	3
N. Mex.	1	-	4	3	-	30	-	1	31	-	29	12	N	N
Ariz.	-	-	6	1	-	10	-	-	10	1	46	45	2	91
Utah	-	1	5	4	-	-	-	-	-	133	12	16	11	12
Nev.	2	-	2	1	-	1	-	-	1	9	7	7	6	9
PACIFIC	55	49	164	178	3	115	1	5	120	62	401	431	177	213
Wash.	4	-	14	18	3	17	1	3	20	3	69	67	10	14
Oreg.	3	5	7	12	-	1	-	-	1	-	62	91	N	N
Calif.	48	44	132	137	-	97	-	1	98	52	259	266	150	187
Alaska	-	-	1	1	-	-	-	-	-	5	7	2	13	2
Hawaii	-	-	10	10	-	-	-	1	1	2	4	5	4	10
Guam	-	-	-	-	U	-	U	-	-	228	3	-	3	4
P.R.	-	-	1	3	-	11	-	-	11	11	13	6	-	2
V.I.	-	-	-	-	U	-	U	-	-	-	-	-	2	3
Amer. Samoa	-	-	-	-	U	-	U	-	-	-	-	-	-	2
C.N.M.I.	-	-	1	1	U	-	U	-	-	29	-	-	-	2

*For imported measles, cases include only those resulting from importation from other countries.
N: Not notifiable U: Unavailable -: no reported cases

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending August 12, 1995, and August 13, 1994 (32nd Week)

Reporting Area	Pertussis			Rubella			Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal	
	1995	Cum. 1995	Cum. 1994	1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	101	1,864	2,246	-	98	200	9,293	13,240	11,501	13,141	4,358	4,569
NEW ENGLAND	2	255	225	-	22	126	107	144	297	276	988	1,135
Maine	-	22	2	-	1	-	2	4	12	-	22	-
N.H.	-	21	46	-	1	-	1	3	9	13	109	111
Vt.	2	35	28	-	-	-	-	-	3	4	122	97
Mass.	-	166	125	-	6	123	39	59	162	140	314	429
R.I.	-	1	5	-	-	2	2	12	28	32	195	5
Conn.	-	10	19	-	14	1	63	66	83	87	226	493
MID. ATLANTIC	6	140	343	-	11	6	534	865	2,400	2,590	845	1,151
Upstate N.Y.	6	79	132	-	4	5	43	108	286	344	332	857
N.Y. City	-	14	67	-	7	-	243	387	1,274	1,580	-	-
N.J.	-	5	11	-	-	1	114	135	449	465	236	184
Pa.	-	42	133	-	-	-	134	235	391	201	277	110
E.N. CENTRAL	30	183	367	-	3	9	1,584	1,953	1,088	1,258	42	35
Ohio	27	79	104	-	-	-	546	748	162	201	5	-
Ind.	-	13	46	-	-	-	164	161	43	105	8	9
Ill.	2	42	74	-	1	1	594	656	606	631	3	10
Mich.	1	37	29	-	2	8	177	176	231	284	22	9
Wis.	-	12	114	-	-	-	103	212	46	37	4	7
W.N. CENTRAL	16	113	95	-	-	2	486	768	364	329	211	141
Minn.	15	43	39	-	-	-	28	26	87	71	6	14
Iowa	1	6	6	-	-	-	28	38	44	28	82	56
Mo.	-	24	27	-	-	2	412	657	136	149	19	13
N. Dak.	-	6	4	-	-	-	-	1	3	6	23	9
S. Dak.	-	8	3	-	-	-	-	1	13	17	49	23
Nebr.	-	6	7	-	-	-	9	11	17	16	4	-
Kans.	-	20	9	-	-	-	9	34	64	42	28	26
S. ATLANTIC	17	206	222	-	26	13	2,352	3,429	2,088	2,448	1,324	1,251
Del.	-	9	1	-	-	-	8	18	12	26	33	35
Md.	-	18	57	-	-	-	137	169	241	198	265	352
D.C.	-	4	5	-	-	-	73	149	65	77	10	2
Va.	-	10	23	-	-	-	369	509	146	207	253	237
W. Va.	-	-	3	-	-	-	8	8	51	53	74	51
N.C.	5	81	58	-	1	-	709	1,072	255	278	304	105
S.C.	-	16	11	-	1	-	371	474	203	228	92	117
Ga.	1	17	22	-	1	1	443	531	323	464	171	250
Fla.	11	51	42	-	23	12	234	499	792	917	122	102
E.S. CENTRAL	4	92	106	-	-	-	2,405	2,311	877	886	165	121
Ky.	-	8	55	-	-	-	130	131	238	201	15	12
Tenn.	4	54	18	-	-	-	507	627	262	265	56	34
Ala.	-	30	22	-	-	-	403	408	247	254	90	72
Miss.	-	-	11	N	N	N	1,365	1,145	130	166	4	3
W.S. CENTRAL	8	152	89	-	6	12	1,280	2,959	1,325	1,712	495	454
Ark.	1	23	14	-	-	-	92	314	113	156	21	19
La.	1	11	9	-	-	-	657	1,111	6	11	23	47
Okla.	-	22	22	-	-	4	49	100	128	153	29	24
Tex.	6	96	44	-	6	8	482	1,434	1,078	1,392	422	364
MOUNTAIN	13	332	309	-	4	4	175	190	377	325	90	92
Mont.	-	3	4	-	-	-	4	2	10	9	30	10
Idaho	-	77	33	-	-	-	-	1	9	11	1	2
Wyo.	-	1	-	-	-	-	4	-	1	4	20	14
Colo.	8	32	157	-	-	-	85	97	22	36	-	9
N. Mex.	2	59	17	-	-	-	31	18	56	43	3	2
Ariz.	3	138	82	-	3	-	19	37	194	133	26	42
Utah	-	17	14	-	1	3	4	9	19	29	7	8
Nev.	-	5	2	-	-	1	28	26	66	60	3	5
PACIFIC	5	391	490	-	26	28	370	621	2,685	3,317	198	189
Wash.	3	96	64	-	1	-	10	25	164	170	2	6
Oreg.	2	17	65	-	1	4	6	24	25	90	-	7
Calif.	-	242	349	-	21	21	353	567	2,347	2,862	192	145
Alaska	-	-	-	-	-	-	1	3	47	37	4	31
Hawaii	-	36	12	-	3	3	-	2	102	158	-	-
Guam	U	-	2	U	-	1	3	3	33	45	-	-
P.R.	-	6	2	-	-	-	160	197	123	116	25	55
V.I.	U	-	-	U	-	-	2	22	-	-	-	-
Amer. Samoa	U	-	1	U	-	-	-	1	3	3	-	-
C.N.M.I.	U	-	-	U	-	-	3	1	13	16	-	-

U: Unavailable -: no reported cases

TABLE III. Deaths in 121 U.S. cities,* week ending August 12, 1995 (32nd Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	565	389	92	52	16	16	24
Boston, Mass.	171	99	34	21	9	8	4
Bridgeport, Conn.	24	20	3	-	1	-	-
Cambridge, Mass.	21	17	3	1	-	-	-
Fall River, Mass.	26	22	2	2	-	-	-
Hartford, Conn.	62	43	10	8	1	-	1
Lowell, Mass.	22	20	2	-	-	-	1
Lynn, Mass.	13	11	1	1	-	-	1
New Bedford, Mass.	19	16	-	3	-	-	1
New Haven, Conn.	41	28	8	2	1	2	1
Providence, R.I.	54	39	8	4	1	2	5
Somerville, Mass.	4	3	1	-	-	-	-
Springfield, Mass.	41	25	5	5	3	3	6
Waterbury, Conn.	17	14	3	-	-	-	1
Worcester, Mass.	50	32	12	5	-	1	3
MID. ATLANTIC	2,439	1,590	477	267	47	53	87
Albany, N.Y.	37	24	7	4	-	2	-
Allentown, Pa.	22	20	1	1	-	-	-
Buffalo, N.Y.	98	66	14	10	4	4	5
Camden, N.J.	29	21	4	3	1	-	-
Elizabeth, N.J.	27	19	5	2	-	1	-
Erie, Pa.§	33	27	5	1	-	-	1
Jersey City, N.J.	38	26	6	4	1	1	-
New York City, N.Y.	1,318	820	273	170	27	27	32
Newark, N.J.	73	39	20	10	2	2	1
Paterson, N.J.	26	10	5	7	-	-	-
Philadelphia, Pa.	299	196	62	33	3	5	18
Pittsburgh, Pa.§	42	33	4	3	1	1	1
Reading, Pa.	27	17	7	1	2	-	-
Rochester, N.Y.	120	90	20	4	2	4	12
Schenectady, N.Y.	66	41	17	6	2	-	6
Scranton, Pa.§	32	29	2	1	-	-	1
Syracuse, N.Y.	79	53	16	4	1	5	6
Trenton, N.J.	25	20	2	2	-	1	1
Utica, N.Y.	19	15	2	1	1	-	-
Yonkers, N.Y.	29	24	5	-	-	-	3
E.N. CENTRAL	2,083	1,329	404	194	61	57	140
Akron, Ohio	54	39	7	3	3	2	-
Canton, Ohio	32	25	4	2	1	-	3
Chicago, Ill.	334	203	70	37	15	9	22
Cincinnati, Ohio	125	61	24	12	2	1	12
Cleveland, Ohio	172	110	28	20	5	9	4
Columbus, Ohio	149	104	23	12	4	6	20
Dayton, Ohio	110	72	26	7	2	3	9
Detroit, Mich.	219	110	59	37	7	6	7
Evansville, Ind.	50	22	10	5	-	-	2
Fort Wayne, Ind.	67	44	14	3	3	3	7
Gary, Ind.	14	3	7	4	-	-	3
Grand Rapids, Mich.	54	38	9	3	2	2	4
Indianapolis, Ind.	263	184	44	21	7	7	14
Madison, Wis.	U	U	U	U	U	U	U
Milwaukee, Wis.	119	86	22	7	2	2	11
Peoria, Ill.	38	29	5	3	1	-	3
Rockford, Ill.	52	31	14	1	4	2	6
South Bend, Ind.	72	59	8	3	2	-	6
Toledo, Ohio	110	72	22	11	1	4	6
Youngstown, Ohio	49	37	8	3	-	1	1
W.N. CENTRAL	762	529	127	62	25	11	37
Des Moines, Iowa	65	45	10	5	2	3	6
Duluth, Minn.	33	25	5	1	2	-	1
Kansas City, Kans.	33	18	8	4	3	-	1
Kansas City, Mo.	92	50	20	12	2	-	8
Lincoln, Nebr.	28	17	4	4	3	-	1
Minneapolis, Minn.	156	109	28	14	2	3	3
Omaha, Nebr.	91	70	12	5	3	1	4
St. Louis, Mo.	121	91	19	7	2	2	5
St. Paul, Minn.	63	45	9	6	3	-	5
Wichita, Kans.	80	59	12	4	3	2	3

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,218	725	262	145	41	45	64
Atlanta, Ga.	159	85	43	25	3	3	7
Baltimore, Md.	142	91	20	22	5	4	6
Charlotte, N.C.	63	34	18	5	3	3	6
Jacksonville, Fla.	116	76	21	12	3	4	9
Miami, Fla.	123	60	36	22	4	1	2
Norfolk, Va.	51	25	11	12	3	-	3
Richmond, Va.	75	49	13	8	3	2	4
Savannah, Ga.	55	40	11	2	2	-	5
St. Petersburg, Fla.	61	44	6	11	-	-	3
Tampa, Fla.	199	138	49	7	4	1	15
Washington, D.C.	169	80	34	19	9	27	4
Wilmington, Del.	5	3	-	-	2	-	-
E.S. CENTRAL	712	447	151	72	21	13	50
Birmingham, Ala.	84	51	22	7	3	1	2
Chattanooga, Tenn.	52	37	9	5	1	-	3
Knoxville, Tenn.	110	70	23	11	3	3	6
Lexington, Ky.	59	28	15	3	3	2	5
Memphis, Tenn.	172	113	35	18	6	-	15
Mobile, Ala.	70	44	11	10	3	2	3
Montgomery, Ala.	32	26	3	1	1	1	1
Nashville, Tenn.	133	78	33	17	1	4	15
W.S. CENTRAL	1,425	912	282	142	46	43	63
Austin, Tex.	48	29	12	4	1	2	4
Baton Rouge, La.	44	33	8	2	1	-	2
Corpus Christi, Tex.	41	31	8	2	-	-	3
Dallas, Tex.	208	121	42	26	10	9	4
El Paso, Tex.	64	40	17	5	2	-	4
Ft. Worth, Tex.	82	51	15	8	5	3	5
Houston, Tex.	312	186	62	48	8	8	17
Little Rock, Ark.	75	49	18	4	-	4	2
New Orleans, La.	160	102	27	19	6	6	-
San Antonio, Tex.	209	150	31	17	7	4	15
Shreveport, La.	62	41	13	4	1	3	6
Tulsa, Okla.	120	79	29	3	5	4	1
MOUNTAIN	883	562	168	98	27	21	48
Albuquerque, N.M.	97	64	16	10	4	3	4
Colo. Springs, Colo.	58	39	14	3	2	-	4
Denver, Colo.	132	81	23	21	4	3	8
Las Vegas, Nev.	165	112	32	11	3	-	5
Ogden, Utah	14	10	4	-	-	-	1
Phoenix, Ariz.	189	100	36	33	8	12	14
Pueblo, Colo.	15	13	1	1	-	-	2
Salt Lake City, Utah	93	55	21	12	3	2	5
Tucson, Ariz.	120	88	21	7	3	1	5
PACIFIC	1,764	1,132	338	212	49	31	122
Berkeley, Calif.	23	13	4	6	-	-	-
Fresno, Calif.	90	49	20	15	4	2	8
Glendale, Calif.	30	25	4	-	1	-	3
Honolulu, Hawaii	77	55	12	4	2	3	2
Long Beach, Calif.	69	40	13	11	5	-	9
Los Angeles, Calif.	560	347	114	73	15	10	26
Pasadena, Calif.	21	15	4	1	1	-	7
Portland, Oreg.	U	U	U	U	U	U	U
Sacramento, Calif.	165	117	24	18	3	3	17
San Diego, Calif.	131	93	21	12	2	3	10
San Francisco, Calif.	128	70	34	23	1	-	14
San Jose, Calif.	173	118	30	19	4	2	13
Santa Cruz, Calif.	27	22	3	2	-	-	3
Seattle, Wash.	144	79	30	21	6	8	2
Spokane, Wash.	62	43	13	3	3	-	4
Tacoma, Wash.	64	46	12	4	2	-	4
TOTAL	11,851¶	7,615	2,301	1,244	333	290	635

*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.

U: Unavailable -: no reported cases

Forage-Wagon–Related Injuries — Continued

have designed conveyor extensions that allow for an increase in the space between the two tractors; the extension can be supplied with new equipment or used to retrofit some older equipment. An informal survey of forage wagon equipment indicated that conveyor extensions are available for all seven wagons selected in a nonrandom sample; costs for the retrofits ranged from $35 to $600 each. Although these extensions are marketed to promote productivity, not safety, manufacturers and dealers should be made aware that these extensions can contribute to safer operation of the equipment, and farmers should be encouraged to use them to enhance safety as well as increase productivity.

In New York, OHNAC, in collaboration with farm groups, have alerted farmers about the hazards associated with PTO drivelines—especially on forage wagons—through educational presentations and articles in regional agricultural publications.

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Update: HIV-2 Infection Among Blood and Plasma Donors — United States, June 1992–June 1995

Human immunodeficiency virus type 1 (HIV-1) and type 2 (HIV-2) both cause acquired immunodeficiency syndrome (AIDS). Following the licensure of combination HIV-1/HIV-2 screening enzyme immunoassays (EIA), the Food and Drug Administration (FDA) recommended that beginning in June 1992 all donated whole blood, blood components, and source plasma be screened for antibody to HIV-2 because not all persons infected with HIV-2 can be detected by HIV-1 testing (*1,2*). This report describes the first two cases of HIV-2 infection detected among potential blood donors since the implementation of recommended HIV-2 screening and summarizes national data about persons known to be infected with HIV-2 during December 1987–June 1995.*

*Single copies of this report will be available until August 18, 1996, from the CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003; telephone (800) 458-5231 or (301) 217-0023.

HIV-2 Infection — Continued

Donor 1

In June 1994, a blood donation was discarded after it tested positive by combination HIV-1/HIV-2 EIA and indeterminate by HIV-1 Western blot assay (WB). The donor was notified about the test results and consented to an interview and repeat testing. Testing at CDC indicated the specimen was positive by HIV-1 EIA, HIV-1 WB, HIV-2 EIA, and HIV-2 WB for research use only (RUO). Results of RUO synthetic peptide tests indicated cross-reactivity to HIV-1 and were interpreted as HIV-2 infection.

The donor was born and resided in the United States. She previously had not donated blood or plasma. She reported no symptoms related to HIV infection and denied injecting-drug use, receipt of transfusions, and travel outside the United States. Since 1982, she had had four male sex partners; all were born in the United States. The HIV status of her partners is unknown, and she was unaware of any HIV-infection risks among them. She has no children. She received HIV counseling—including instructions to refrain from donating blood, blood components, and tissues or organs—and referral to a health-care provider.

Donor 2

In November 1994, a plasma donation was destroyed after the serum tested positive by combination HIV-1/HIV-2 EIA and RUO HIV-2 WB. Attempts by the plasma center to notify the donor were unsuccessful. However, the donor independently sought HIV testing 2 weeks later at a counseling and testing site (CTS). The CTS laboratory results were HIV-1 EIA positive with an atypical HIV-1 WB indeterminate band pattern suggestive of HIV-2 infection. Subsequent testing at CDC indicated the specimen was HIV-1 EIA positive, HIV-1 WB indeterminate, HIV-2 EIA positive, and HIV-2 WB positive. RUO synthetic peptide EIA and dot blots were also positive for HIV-2. These results were interpreted as confirmed HIV-2 infection.

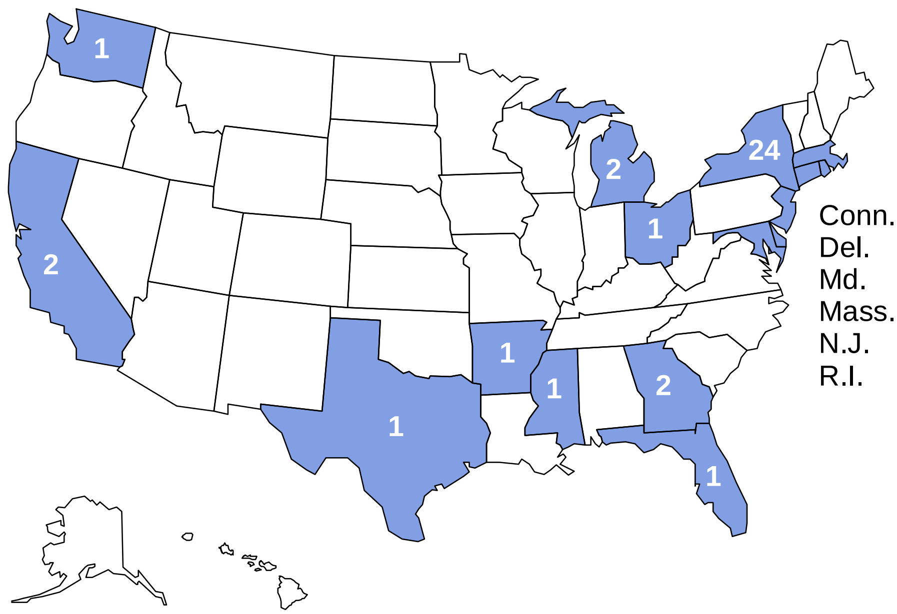
During the follow-up interview, the male donor reported no symptoms of HIV infection. He had not previously donated blood or plasma. He was born in France and had lived in several countries in western Africa during 1979–1985 before moving to the United States. While in western Africa, he was vaccinated on two occasions with needles that were wiped with cotton and reused between patients. He also received several tattoos in Africa. Of his estimated 35 lifetime sex partners, most were African. The donor denied having had sex with men, injecting-drug use, and receipt of transfusions. He received HIV counseling—including instructions to refrain from donating blood, blood components, and tissues or organs—and referral to a health-care provider.

U.S. Reports of HIV-2 Infection

As of June 30, 1995, a total of 62 persons in the United States were reported with HIV-2 infection (Figure 1). Of 58 persons for whom sex data were available, 38 (66%) were male. At least 11 of the 62 persons had an AIDS-defining condition at the time of report, and five are known to have died. Of these 62 persons, 42 (68%) were born in western Africa and two in Europe; for nine, the region of origin was unknown although four had malaria antibody profiles consistent with previous residence in western Africa. Of the nine persons with HIV-2 infection born in the United States, six were adults of whom four had either traveled to or had a sex partner from western Africa, and three were infants born to mothers of unknown national origin.

HIV-2 Infection — Continued

FIGURE 1. Number of persons reported with HIV-2 infection, by state — United States, December 1987–June 1995



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Editorial Note: In the United States, HIV-2 infection among blood donors is extremely rare. Since the implementation of combination HIV-1/HIV-2 EIA screening of blood and plasma donations, an estimated 74 million donations have been tested for HIV. Including the two cases described in this report, three cases of HIV-2 infection have been detected among blood and plasma donors in the United States; the first case was detected by HIV-1 screening in 1986 (*3*). These findings are consistent with previous surveys of approximately 20 million U.S. blood donations during 1987–1989 in which no blood-donor specimens with HIV-2 antibody were detected (*4,5*).

The national blood supply is protected from HIV primarily through two methods: 1) interviewing donors about risk behaviors for HIV infection and 2) laboratory screening donations for HIV (*6,7*). All donations detected with HIV are excluded from any clinical use,[†] and donors are deferred from further donations[§]. For both donors described in this report, although no HIV risk factors were identified during the interview preceding blood donation, laboratory screening of their blood and plasma donations detected HIV infection. Subsequent testing revealed HIV-2 cross-reactivity resulting in

HIV-2 Infection — Continued

a positive HIV-1 EIA (which would have led to exclusion even in the absence of HIV-2 testing) and a positive or indeterminate HIV-1 WB.

HIV-1 is distributed worldwide and is prevalent in the United States; however, HIV-2 is endemic in western Africa with limited distribution to other regions of the world. Of the 62 persons reported with HIV-2 infection in the United States, at least 48 (77%) were born in, had traveled to, and/or had a sex partner from western Africa.

In addition to detection of HIV-2 cases through blood and plasma donor screening, epidemiologic data about HIV-2 cases are collected through the CDC-supported national HIV/AIDS surveillance system and serosurveys (*8,9*). Because not all persons who are infected with HIV-2 donate blood or are otherwise tested for HIV-2, the number of persons reported with HIV-2 infection probably is underestimated. Nonetheless, the data from these sources indicate that HIV-2 is uncommon in the United States.

Blood centers detecting a repeatedly reactive specimen by combination HIV-1/HIV-2 EIA should follow the recommended CDC/FDA testing algorithm (*1*). Specimens suspected of being HIV-2 positive may be referred to state health department laboratories or to CDC for confirmatory HIV-2 testing. Cases of HIV-2 infection should be reported to state and local health departments as allowed by law and/or regulation. Periodic updates about the number of persons known to be infected with HIV-2 in the United States are available from the CDC National AIDS Clearinghouse.

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[†] 21 CFR § 610.45(c).
[§] 21 CFR § 606.160(e).

Monthly Immunization Table

To track progress toward achieving the goals of the Childhood Immunization Initiative (CII), CDC publishes monthly a tabular summary of the number of cases of all diseases preventable by routine childhood vaccination reported during the previous month and year-to-date (provisional data). In addition, the table compares provisional data with final data for the previous year and highlights the number of reported cases among children aged <5 years, who are the primary focus of CII. Data in the table are reported through the National Electronic Telecommunications System for Surveillance.

Number of reported cases of diseases preventable by routine childhood vaccination — United States, June 1995 and 1994–1995*

Disease	No. cases, June 1995	Total cases January–June		No. cases among children aged <5 years† January–June	
		1994	1995	1994	1995
Congenital rubella syndrome (CRS)	1	**2**	**4**	2	4
Diphtheria	0	**2**	**0**	1	0
Haemophilus influenzae§	65	**597**	**623**	175	150
Hepatitis B¶	797	**5502**	**4753**	61	40
Measles	27	**747**	**205**	182	78
Mumps	80	**703**	**463**	97	90
Pertussis	173	**1690**	**1208**	960	713
Poliomyelitis, paralytic**	0	**0**	**0**	0	0
Rubella	26	**171**	**64**	13	12
Tetanus	2	**18**	**11**	0	1

*Data for 1994 and 1995 are provisional.
†For 1994 and 1995, age data were available for ≥92% of cases.
§Invasive disease; *H. influenzae* serotype is not routinely reported through the National Electronic Telecommunications System for Surveillance. Of 150 cases among children aged <5 years, serotype was reported for 38 cases, and of those, 20 were type b, the only serotype of *H. influenzae* preventable by vaccination.
¶Because most hepatitis B virus infections among infants and children aged <5 years are asymptomatic (although likely to become chronic), acute disease surveillance does not reflect the incidence of this problem in this age group or the effectiveness of hepatitis B vaccination in infants.
**One case with onset in July 1994 has been confirmed; this case was vaccine-associated. An additional six suspected cases are under investigation. In 1993, three of 10 suspected cases were confirmed; two of the confirmed cases were vaccine-associated, and one was imported. The imported case occurred in a 2-year-old Nigerian child brought to the United States for care of his paralytic illness; no poliovirus was isolated from the child.

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